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DEPARTMENT OF COMPUTER SCIENCE

PROJECT REPORT

HOME CONFLICTS RESOLUTION THROUGH FAMILY THERAPY

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A research project report submitted to the Faculty of Science and Technology in partial fulfillment of the requirements for the award of the degree of Master of Science in Information Technology Management, at the University of Nairobi.

DECLARATION

Declaration by the Candidate

This project report is my original work and has not been presented for a degree in any other University.

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ABSTRACT

Family conflicts and violence cases in Kenya is on increase on daily basis. Most of these cases emanate from disagreement among the family members who suffer silently with their personal problems due to difficulties of accessing family therapy for assistance and resolution of disputes at homes. Kenya has about 100 psychiatrists and most of them are in major cities in the country (Meyer & Ndeti, 2015). Families residing in marginalized areas face difficulties of accessing the therapeutic services due to limited counseling centers and poverty. Marginalization is costly to both family therapy and the mental health field (Shields & McDaniel, 2007). This has led family members to take wrong actions like committing suicide, physical violence and among other serious problems in the society. Every forty seconds, an individual commit suicide (World Health Organization, 2019). The application and integration of the information technologies into family therapy is still not fully implemented in the country despite the increased vices among families. Kenya's health information system currently does not address particular conditions related to mental health and mental health interventions monitoring (Ministry of Health Kenya, 2020).

The research focused on developing an integrated family therapy prototype to address timely access to family therapy by family members for conflict resolutions at homes. The prototype implementation involved integration of a Short Message Service (SMS) API for instant notification. Functional requirements were gathered and analyzed for the development of the prototype. The prototype was quantitatively evaluated using a usability test on 143 enthusiasts' selected using systematic sampling in different areas within Nairobi. Family therapy prototype system usability analysis was done and users' feedbacks collected. It was found that, 87% of the users of the prototype system were satisfied with acceptance of the system. The results demonstrate that the family therapy prototype is effective in addressing accessibility of family therapy by family members for timely conflicts resolutions at homes to enhance good morals and well-being to the society and country at large.

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DEDICATION

I dedicate this project report to my beloved wife, children and parents. I also dedicate it to the University of Nairobi fraternity for giving me the knowledge and skills which enabled me to research and work on my project, without forgetting my project supervisor Dr. Christopher Kipchumba Chepken may God bless you abundantly.

LIST OF ACRONYMS AND ABBREVIATIONS

ICT	-	Information Communication Technology
WHO	-	World Health Organization
BSFT	-	Brief Strategic Family Therapy
KNCHR-		Kenya National Commission on Human Rights
SDLC	-	Software Development Life Cycle
MVC	-	Model View Controllerp

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DEFINITION OF TERMS

Information Communication Technologies (ICTs) - All technologies such as the internet, computers, software and other applications/services that assist family members' access family therapy services for conflict resolutions.

Family therapy - psychotherapy designed to help family members handle emotional problems, mental illnesses and improve communication for resolution of conflicts.

Therapy - treatment of mental and emotional problems.

Poverty - absence of some basic needs or capabilities by people for acceptable level of functioning such as access to necessary resources.

Conflicts - a serious disagreement or argument for a period of time which can escalate to violence.

Family conflict - refers to active disagreement or opposition among family members

Family therapists - are psychotherapists that help family members handle emotional problems, mental illnesses and improve communication for resolution of conflicts.

Faith based leaders - recognized people by faith community for authority and influence on leadership roles in faith institutions.

Software development life cycle - is a process that involve the designing, development and testing of the family therapy prototype system.

CHAPTER ONE: INTRODUCTION

The section presents background to the problem, problem statement, objectives, research questions, research outcomes and the significance.

1.1 Background

The number of family conflicts and violence cases in Kenya is increasing day by day. Most of these cases emanate from disagreement among the family members. Family members suffer silently with their personal problems due to difficulties of accessing family therapy for assistance. The difficulties faced by families in accessing timely family therapy for resolutions of disputes at homes has resulted in animosity and increased cases of mental illnesses among family members in the Country. The most frequent diagnosis of mental illnesses made in general hospitals include stress, depression, substance abuse and anxiety disorders. (Ndetei et al, 2008). Families residing in marginalized areas face difficulties of accessing the therapeutic services due to limited counseling centers and poverty. Marginalization is costly to both family therapy and the mental health field (Shields & McDaniel, 2007). This has led family members to take wrong actions like committing suicide, physical violence and among other serious problems in the society.

Kenya has about 100 psychiatrists and most of them are in major cities in the country (Meyer & Ndetei, 2015). The increased vices have resulted in tremendous pressure on counseling centers' staff and long therapeutic sessions due to large numbers of family members who want to make the most of their time during counseling. Family problems are painful and traumatic and are the major cause of conflicts in the country. The media report on social problems such as robbery, suicide, truancy, drug abuse, murder is on the increase on daily basis. Every forty seconds, an individual commit suicide (World Health Organization, 2019). It is estimated that one in every 10 people suffer from a common mental disorder. Kenya being one of 28% of World Health Organization member states have no separate mental health budget, and mental health expenditure by government is 0.01% of the total expenditure (Ministry of Health Kenya, 2020).

Strengthening families in crisis through timely family therapy provides the most natural way of dealing with many psychological problems and conflicts in the country. This enables family members to communicate emotions without fear which is the basis of healthy attachment (Bowlby, 1988 & Johnson, 2004). Incorporation of local counselors and faith based leaders in the communities using information technology can assist decongest counselling centers with limited number of family therapists and provide timely resolutions to family problems. To improve the systems of interactions, family therapy provides a structured form of psychotherapy that reduces distress and conflict between family members (Varghese, 2020). Addressing family problems and issues of concern in an appropriate manner helps in streamlining well-being, morals and behavior among family members in the country.

1.2 Problem statement

As in other developing countries, Kenya faces many challenges in implementing ICT in family therapy and mental health such as inadequate ICT skills among professionals in mental health, ICT infrastructure challenges, economic challenges, social and political issues. Kenya being one of 28% of World Health Organization member states have no separate mental health budget, and mental health expenditure by government is 0.01% of the total expenditure (Ministry of Health Kenya, 2020).

The application and integration of the information technologies into family therapy is still not fully implemented in the country despite the increased vices among families. Kenya's health information system currently does not address particular conditions related to mental health and mental health interventions monitoring (Ministry of Health Kenya, 2020). Family members face difficulties in locating and accessing timely family therapeutic services for assistance on their personal problems particularly in marginalized areas causing them to take wrong directions resulting in conflicts. This remains a limiting factor in the delivery of quality family therapy and counseling services. There is a need to integrate ICT into the traditional face-to-face counselling for the diversity in counselling delivery (Obi et al. 2012). Full integration of modern information technology and provision of clear accessibility ways for family therapy services is crucial to alleviate crisis situations faced by family members.

1.3 Objectives

1.3.1 Main Objectives

The main objective of the study was to develop an integrated family therapy prototype for easy accessibility of family therapy by family members to help resolve home conflicts as soon as disagreement arises.

1.3.2 Specific Objectives

- i. To investigate accessibility of family therapy by family members and how family therapy can be used for resolution of home conflicts using family therapy prototype system.
- ii. To determine the communication needs for the family members and implement a family therapy prototype system where family members can access and request family therapy as soon as disagreement arises.
- iii. To develop a family therapy prototype system that can help incorporate professional therapists, local communities' counselors or faith based leaders in family therapy for timely home conflict resolutions.

1.4 Research questions

- i. How can modern information technology systems be used to address family therapy services accessibility by family members for home conflicts resolutions?
- ii. How can families' communications needs be addressed to help reduce conflicts at homes as soon a disagreement arises?
- iii. How can professional therapists, local communities' counselors or faith based leaders be incorporated in family therapy using family therapy prototype system to help in provision of timely home conflict resolutions?

1.5 Significance and outcomes

The research add value to the families and society at large by giving insights and recommendations on how to resolve conflicts using family therapy techniques. This prompt early discovery of conflicts at homes while at the same time minimizing the increased vices among members of the family. The aim of the research was to help in provision of timely resolution of conflicts and ensure well-being and good morals among family members and the society at large.

1.6 Assumptions and limitations

The research involved investigation and evaluation of family therapy and its application for conflict resolutions at homes. This involved application of family therapy prototype in handling emergencies conditions among family members and incorporating local communities' counselors and faith based leaders in family therapy to help families in accessing timely assistance for conflict resolutions.

CHAPTER TWO: LITERATURE REVIEW

The section presents literature findings from existing scholarly work concerning home conflict resolutions through family therapy. This include overview of family therapy in the Country, home conflicts, role of information technology in family therapy and conflict resolutions through the use of family therapy. The review also involved evaluation of challenges faced by family members in accessing family therapy for conflict resolutions.

2.1 Overview of family therapy in Kenya

Family therapy is psychological counseling or psychotherapy that help to improve communication and resolve conflicts among family members. In Kenya, it is estimated that one in every 10 people suffer from a common mental disorder. Kenya being one of 28% of World Health Organization member states have no separate mental health budget, and mental health expenditure by government is 0.01% of the total expenditure (Ministry of Health Kenya, 2020). As a result, people have to pay out of pocket for assistance or family therapy. The mental health care cover in Kenya is not done by many companies (Ministry of Health Kenya, 2020). Mental health related cases in the country is rising, such as depression, and other mental illnesses, which end up in suicidal cases causing a concern to the Government (Health Cabinet Secretary Mutahi Kagwe, 2020). Vulnerable people at homes like children, old persons and those with disabilities should be paid special attention.

In Kenya, family therapy and general mental health care remains limited in terms of infrastructure, staffing and finances. There are about 100 psychiatrists in Kenya and most of them are in major cities in the country (Meyer & Ndetei, 2015). Outside the cities, there is one psychiatrist per million populations. Currently in Kenya, the general substance use and mental health information is inadequate. The approximated outpatients of up to 25% and in-patients of up to 40% in medical centers suffer from mental conditions (KNCHR, 2011). Psychosis in Kenya is at an average of 1 % of the population (Kiima & Jenkins, 2012). Stress, depression, substance abuse and anxiety disorders are recurring diagnosis of mental illnesses made in general hospitals (Ndetei et al, 2008). Most of these mental illnesses are brought about due to poverty, lack of jobs, differences in opinions and values leading to misunderstandings and conflicts at homes.

2.2 Home conflicts and family therapy

Home conflict due to differences of opinion cannot be avoided and therefore inevitable experiences for anyone in close personal relationships. Where there is no conflict usually signals lack of meaningful interaction due to potential differences among people. Conflict by itself is neither bad nor good. How conflict will be handled determines whether it will be constructive or destructive (Deutsch & Coleman, 2006). Family therapists would need to understand the basic processes of conflict at homes in order to maximize productive outcomes. Lack of proper coordination of care in communities' local counselors, faith based counselors, licensed family therapists greatly affect the families in accessing family therapy. Marginalization is costly to both family therapy and the mental health field (Shields & McDaniel, 2007). Problems of family members living in marginalized areas such as limited counseling centers which are far apart with limited family therapists, need much attention and therefore an organized way of addressing the problems through the use of modern ICTs is crucial to resolve conflicts at the early stages of disagreement.

Most conflicts arise due to sharing of power and decision making between parents, difficulties in establishing affectional bonds between parents and children, clashes on values differences, sibling rivalry, father-son competition, illness, financial issues and the worst of all being not able to communicate thoughts and feelings. Family conflict results in a lot of social problems such as robbery, suicide, truancy, drug abuse, murder which is on the increase on daily basis. Every forty seconds, an individual commit suicide (World Health Organization, 2019). Conflict among adolescents is much uncontrolled (Latipun, 2005). The increased vices have resulted in tremendous pressure on counseling centers' staff and long counseling sessions due to large numbers of family members who want to make the most of their time. Some families particularly those residing in marginalized areas are unable to access the counseling centers due to distance and lack of money.

Minor differences due to poverty among members of the family can escalate into major family conflicts involving actions that result in greater loss to the family as a whole. Unemployment and in-work poverty are associated with poorer mental health, psychological distress and higher mortality (Hodgkinson & Beers, 2016). Individual family member development techniques through family therapy can help solve the problems in advance.

Counseling provides interaction and psychoeducational intervention that is willingly chosen by the client (Hayes et al, 2006). By helping the families access the family therapy, they become aware of their personal differences, hence reducing some of the anxiety and tension that inevitably lead to disputes. To help alleviate the stress for family members, family therapy helps family members to fearlessly present their problems for assistance. The use of family therapy prototype enabled easy access to family therapy services and reduce tremendous pressure on counseling centers' staff and long counseling sessions.

According to Kimuyu (2021), he published on Nation's Nairobine news about Lawrence Warunge who admitted to murder his father, mother, brother, cousin and a farmhand employed by his family. According to the author, the twenty two year old Warunge told the police he chose to eliminate his family members because they were 'bad mouthing' him and described his parents as 'satanic and killers'. Stressors factors such as family crisis or experience of trauma are potential risk for violent extremism (RTI International, 2018). The Warunge incident could have been handled early in a different manner by a local or professional counselor through family therapy aided with information technology (ICT) intervention at a lower cost.

Financial constraints cause some of family members not to be included in the sessions hence family therapeutic efforts fail. Involving the key members involved in conflict or misunderstanding in the counseling sessions is important for mutual satisfaction, however this is a challenge to some families due to lack of money. Poor families experience stressors like food insecurity, housing problems, financial challenges. All members' involvement initially for advice should be encouraged to get back to therapy when the need arises as this is recommended (Varghese et al., 2020). Application of a universal way of including all the family members via the use of information technology applications helped address challenges and assist counselors to come up with solutions that can help parties involved.

Environmental factors, including physical, emotional or psychological stress, are the most causes of mental illness at homes. The environmental factors cause family members to make wrong decisions due to stigma and discrimination resulting in disputes. Stigmatization, discrimination and alienation are the key obstacles for people with mental disorders and victims of sexual violence in the societies (Dr. Afe & Ogunsemi, 2016).

Family therapy provides a structured form of psychotherapy to reduce distress and conflict through improving the systems of interactions between family members (Varghese et al., 2020). Through affordable and accessible family therapy, family members was able to adjust to an immediate struggle with stress, medical issues, financial issues or mental health problems.

2.3 Role of ICT in family therapy

The application of information communication technology in family therapy was crucial in addressing the challenges experienced by families in accessing therapeutic services due to the limited number of family therapists and the limited counseling centers in the country particularly in the marginalized areas. The use of ICT system for family therapy played a critical role in linking families with problems of concern to professional family therapists, local communities' counselors or faith based leaders for assistance. E-therapy uses the internet to allow simultaneous communication between an individual and a professional (Manhal-Baugus, 2001). In order to solve mental problems for conflict resolutions, mental health information systems (MHIS) have increasingly become key in improving the effectiveness of mental health care (Jordans et al, 2016).

Information communication technology can change decision aid and counselling assistance activities (Savard et al, 2002). Application of ICT in career counseling has assisted students with confusion on the choice of College to attend and choosing a profession in according to their education. Career guidance for basic education, include career education and individual counselling provided by career counsellors which is integrated into the educational curriculum (ILO, 2006). At the Romania schools, counsellors while practicing, they facilitate career and guidance in schools. The counsellors in schools, make use of services such as the email for client and counsellor communication, making it a key communication instrument to support the relationship between teachers and students. Short messaging service and phones are used for stronger interaction between more individuals providing a more efficient way than the traditional method (Dr. Scoda & Dr. Andrei, 2016).

Salleh et al., (2014), carried out a study on use of email communication to develop online counseling relationships between clients and counselors in Malaysia. The online counseling experience using the email was explained in a number of ways where counselors were allowed to peruse the clients' emails, think, respond, planning and find out the clients' problems (Dunn 2012). Counseling through email and chat have enabled new methods of psychotherapy to be understood (Harris et al., 2012). However, according to the study, there were concerns about unreliable response in the online counseling relationship by the other party which was made by the asynchronous counseling process via email causing a blank screen (Suler, 2004). Handling of emergency cases such as suicidal attempt or abuse necessitated the provision of additional information from clients such as their location and complete background information for help.

The use of audio visual technology in career counseling services has been useful in the counselling process especially on important variables like values, interest, skills and ideas (Nota et al., 2016). Use of audiovisual instruments, like video tapes or slides help users to focus on key elements in development of their career (Pordelan et al., 2018). To narrate issues of concern by family members using their language into online text, provided the opportunities to bring back authorities to their narratives (Pordelan et al., 2018). Assisting counsellors to understand new concepts of the clients by themselves was important for efficient career development.

Ithoughts is an online application a form of technology that has been used for the purpose of career development. Ithoughts, Headspace and unstuck applications enhance individuals' career decision making process (Osborn et al., 2014). The applications have been helpful to people in reducing negative metacognitions such as stress that can hinder their career decisions (Osborn et al., 2014). To stop negative career thoughts, applications like FlipHead thought-stopping has been used to enable the process by helping prepare clients on career problems sharing via journaling between sessions. Although forms of career services are crucial, ICT integration into the career guidance practice is not fully implemented (Bright, 2015). Counselling and therapeutic services faces challenges such as self-limited thinking, information quality, confidentiality and clients' extreme issues. A need for a better look into client extreme conditions is vital to alleviate emergency situations and challenges faced by clients living in marginalized areas.

The Kenya health information policy 2014-2030 and health Act, 2017 expound on a responsive system about health information for the needs of the national population. Although, the specific mental health conditions and monitoring of mental health interventions are not addressed fully by the existing health information system (Ministry of Health Kenya, 2020). The integration of the family therapy system and mental health services to national health information system is vital to improve the service delivery effectiveness and efficiency of mental health in the Country. This would ensure collection of enough information on health for evidence-based decision making and improved quality of care. (World Health Organization, 2005).

2.4 Family therapy in conflict resolutions

Timely family therapy plays a major role in strengthening families during crisis and can be the most natural way of dealing with increased psychological problems in the country. Incorporating of local communities' counselors and faith based leaders in family therapy with the use of information communication technology applications would assist decongest counselling centers and provide timely resolutions to family critical problems. This is especially important in places where the counseling centers are few and far, stigmatization attached to mental illness, and where the risk of institutionalization is high due to rejection by family and poor socioeconomic conditions. The basis of healthy attachment depends on being able to fearlessly communicate emotions (Bowlby, 1988 & Johnson, 2004). The provision of a systemic approach to analyze family issues within a broader social system is crucial for the reduction of disputes and enhance families' well-being.

Family-based family therapies, such as Murray Bowen's family systems model, brief strategic family therapy (BSFT) often refer to theories of ecological systems and have shown great effects in reducing delinquency and drug use among adolescent (Rigter et al., 2013), reduction in further offence and substance use (Thornberry et al., 2018), emotional reduction and behavioral problems (Essau, 2002).

Therapeutic services has led to major advantages when handling difficult family members.

Family therapy provide effective treatment, particularly for drugs and stimulant use disorders (WHO, 2015). UNODC-WHO International Standards has recommended therapy services for drug use disorders treatment.

2.4.1 Murray Bowen's family systems model

The model was introduced in 1960s, to provide a more of scientific and objective processes and holds that individuals are not separated from their relationships. According to him, therapists can normalize human behavior for people in treatment since all therapists in one way or the other experienced problems within their original family and are aware. The family systems approach focus for change is not therapeutic relationship but the client's own family. The model main intervention is avoiding anxious reactions in the family by the therapist. The therapist need to stays out of family triangles (Brown, 2008). Family therapist encourage the family members to take part in family system. Individual participation is key compared to individual behavior in the system. (Brown, 2007). Character formation is crucial to address the structure and behavior of the broader relationship in the system. Family functions for a period are likely to be influenced by changes in behavior of a family member.

2.4.2 Brief solution-focused therapy

The therapy involves an approach whose emphasis is on recognition of own competencies by families. The approach concentrate on solutions not problems. Solution-focused therapists allow those with complains to remember an exception to the general rule about the difficult child (De Shazer 1982 & Berg 1991). The focus of the approach was to help the family by emphasizing on the exceptions which need patience and systematic work to get all variables surrounding these exceptions so that a family can prepare for them. Setting goals can often be difficult particularly family members with poor self-esteem, lack of confidence, and feeling not empowered. The therapists' job would be to work on issues of change and help families on how achieve them.

Three rules can be used to summarize brief solution-focused approach (Dallos & Draper 2000) as follows: -

If not broken don't fix it - Family therapist needs to work on the competencies present in families and built upon them.

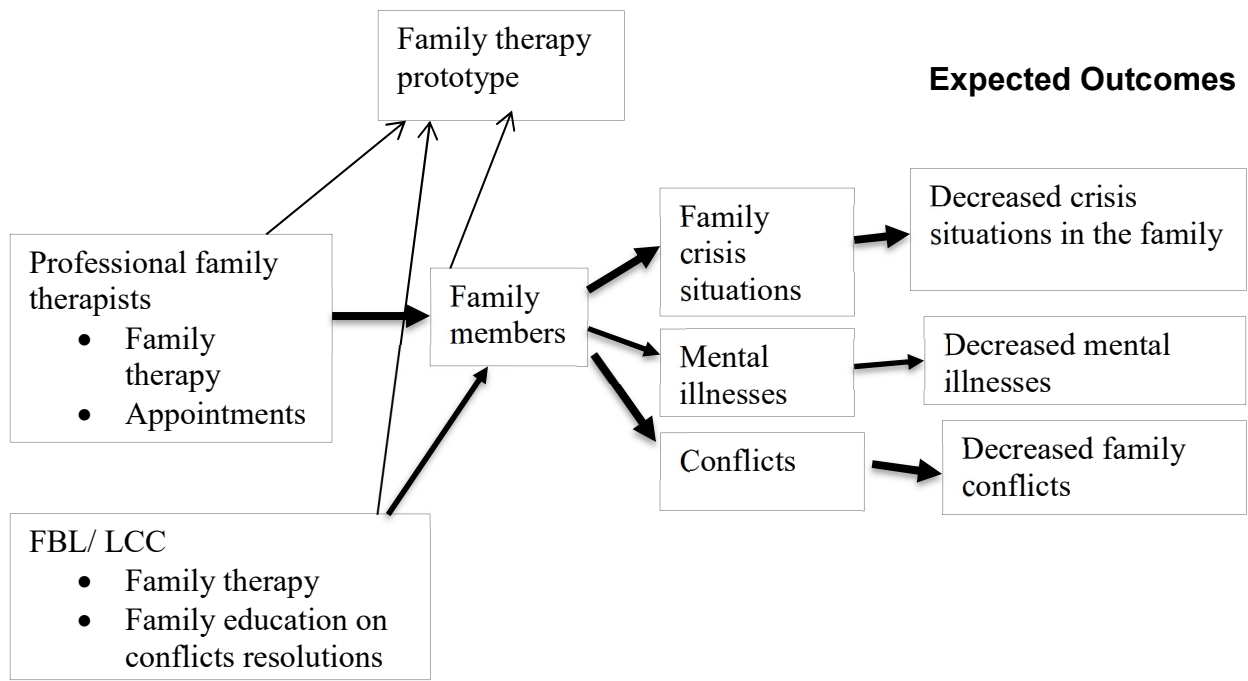
Do more on what works - The family therapist would need to encourage family members to do more on the once exceptions and competencies that have been discovered. This would result to cycle of success.

Do something different, if it did not work before - By searching for the exceptions, families would find other pattern with more positive outcome. Family therapist would need to encourage families to build upon new or alternative ways.

2.5 Proposed conceptual model

The conceptual model below shows a representation of the family therapy for the family therapeutic services to family members by professional family therapists with the aid of local communities' counselors and faith based leaders using the proposed family therapy prototype.

Figure 1: Proposed conceptual model



Key:

FBL - Faith based leaders

LC – Local community counselors

2.6 Theoretical Framework

Theoretical framework refers to the guide for a research (Grant & Osanloo, 2014). This research was guided by three theories that focus on the users of the technology which include the theory of TAM, UTAUT and TOE.

2.6.1 Theory of Technology Acceptance Model (TAM)

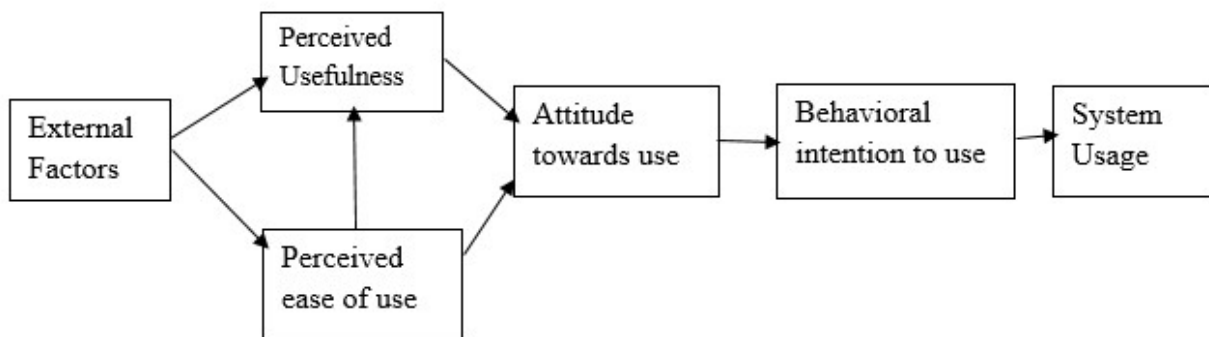
TAM was introduced by Davis in 1986 to expound user behavior on technology acceptance. It was developed from Theory of Reasoned Action TRA (Ma, Q., & Liu, L., 2004). The model shows the relationship between external variables and internal users' variables such as beliefs, attitudes and intentions of the perceived usefulness of the technology and the perceived ease of use of the technology.

The perceived usefulness (PU), perceived ease of use (PEOU), attitude, and behavioral intention form beliefs of users on a technology hence predicting user attitude on the technology and its acceptance.

Perceived usefulness involves the level at which an individual believes that using a particular system would increase performance of the job. The determination even if it helps the user to perform better, is not enough to estimate if the user will accept technology (Davis, 1989).

Perceived ease of use refers to extend at which an individual believes that using a particular system would be free of effort (Davis, 1989).

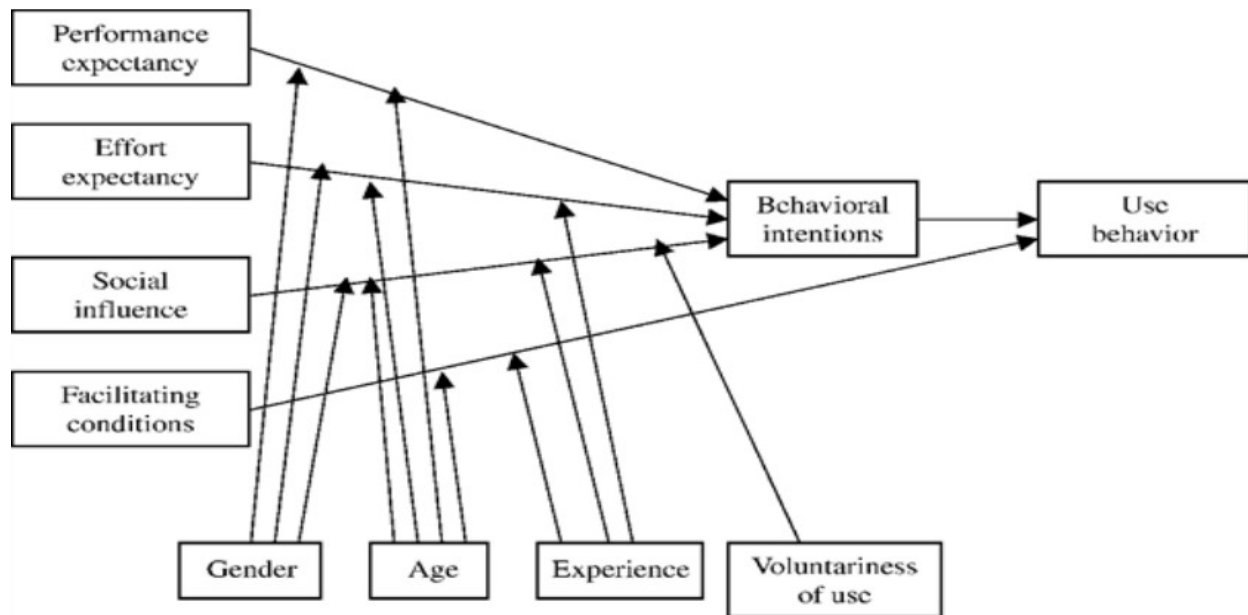
Figure 2: Technology Acceptance Model source (Ma, Q., & Liu, L., 2004)



2.6.2 Unified Theory of Acceptance and Use of Technology (UTAUT)

UTAUT suggests constructs such as performance expectancy, effort expectancy, social influence, and facilitating conditions that determine user acceptance and usage behavior of a new technology (Wang, J., et al., 2022). Constructs are influenced by gender, experience, age and voluntariness of use, which determine user acceptance and behavior. The performance expectancy of behavioral intention is influenced by age and gender whose effect is higher in male and young users. Effort expectancy on behavioral expectancy is influenced by age, gender, and experience, and its effect is higher on women and elderly users and decreases with experience. The influence of social influence on behavioral intention is affected by age, gender, experience and voluntariness, and is higher on older women using required settings in the initial stages of experience. Facilitating conditions involve the extent to which an individual believes that the technical infrastructure is there to support the use of the system (Venkatesh et al., 2003). This affect behavior of user by age and experience.

Figure 3: Unified Theory of Acceptance and Use of Technology (Source: Venkatesh et al., 2003)

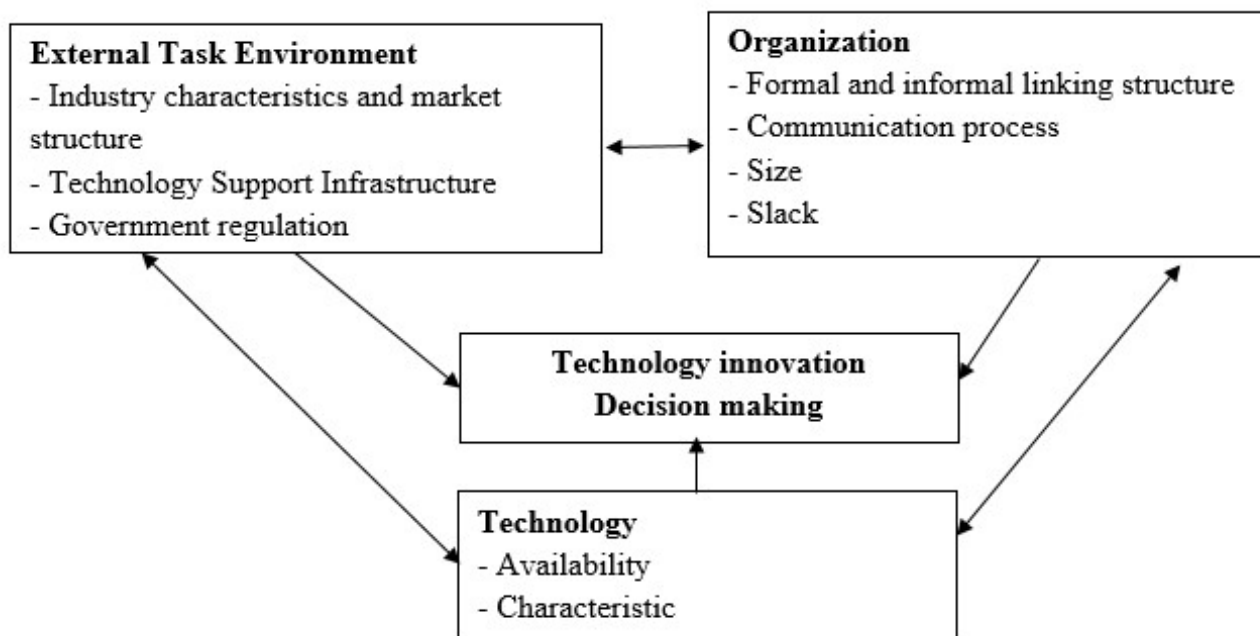


2.6.3 Technological Organizational and Environmental (TOE)

The technological organization and environmental (TOE) framework was developed by Tornatzky and Fleischer, 1990. It categorizes the attributes that affect technology adoption decision such as technological, organizational and environmental (Li, J. C., 2020) as shown below.

Adopting a technology from the organization's viewpoint is found on consent of a small group or even the opinion of a single decision to avoid ambiguity but not on average opinion (Li, J. C., 2020)

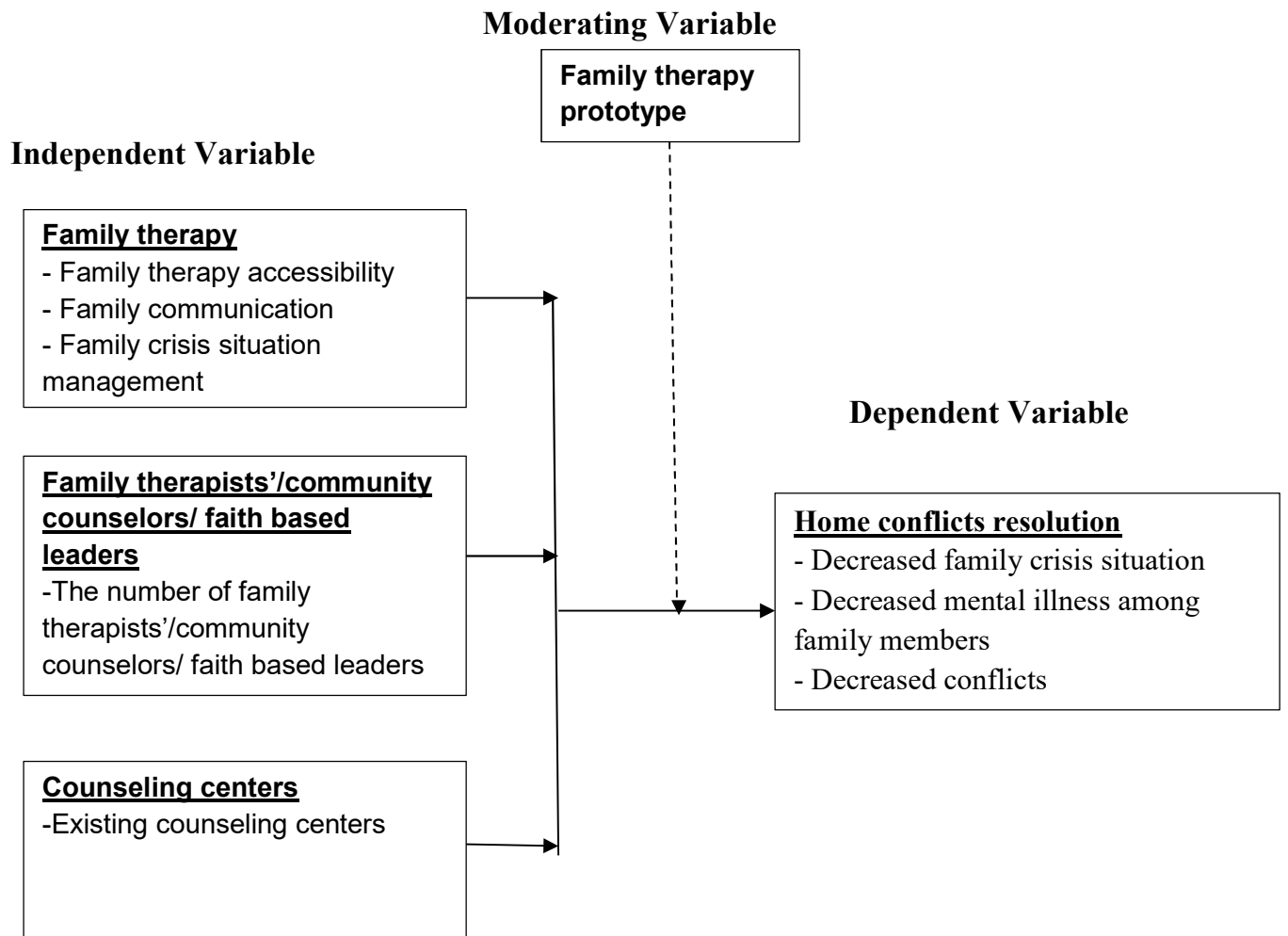
Figure 4: TOE Framework source (Li, J. C., 2020)



2.7 Conceptual Framework

Conceptual framework shows the diagrammatic perceived relationships between the study variables. It entails a diagrammatical representation of dependent variables and independent variables (Donald, 2006). As shown in the figure below, the independent variables include family therapy with parameters such as family communication, therapy accessibility and family crisis situation management, family therapists and counseling centers. The dependent variable is the home conflicts resolution with indicators such as the reduced family crisis, decreased mental illness and decreased family conflicts.

Figure 5: Conceptual framework



CHAPTER THREE: RESEARCH METHODOLOGY

This section presents the methodology that was used in research. Methodology is the systematic analysis of the body of methods and principles associated with the research. The section cover research design, sources of data, data collection and analysis methods, conceptual model and project schedule.

3.1 Research design

The research entailed collection of data, analysis, interpretation and documentation of vital information from families and therapists according to suitable methodologies. Research design is a strategic framework for action that act as a bridge between research questions and the implementation of the research strategy (Durrheim, 2004).

The research used exploratory design where key information were collected which included the main perpetrators of conflicts at homes, challenges of accessing family therapy services, assessment and analysis of family therapy techniques for conflicts resolutions.

Mixed methods research is more than collecting quantitative and qualitative data, it implies that data are unified, related, or mixed in some research process stages (Creswell et al., 2004). Qualitative and quantitative research methods were used in the research. Qualitative method involved gathering and interpretation of non-numerical data which consisted of in-depth interview with family members to gather relevant information for analysis. Qualitative research is focused to disclose the meaning that form actions of the people and relationship among them (Ashley, 2019). From the results of qualitative methods, the inferences were drawn easily from the data that was obtained. Quantitative methods involved collection of numerical data from families, counseling centers and execution of statistical or computational techniques.

The data collected from methods that is the qualitative and quantitative were used in the designing and implementation of the family therapy prototype that would be used by the family members to request family therapeutic services from the professional family therapists. This allowed integrations and incorporation of the local communities' counselors and the local based faith leaders for family therapy to provide timely resolution of conflicts at homes.

3.2 Sources Data

The data for the research was obtained from families, counseling centers and published literature sources. Families were interviewed on their problems of concerns and how they address them for assistance. The challenges faced by families in locating and accessing family therapists for timely family therapy coupled by extreme conditions factors data was gathered and analyzed. The professionals' therapists at the therapeutic centers in the country also played a key role in provision of useful information for numerical analysis and computation.

3.3 Data Collection Methods

Data collection was carried out and involved gathering of information from families and the family therapist professionals. The data collected was analyzed for designing and implementation of the family therapy prototype to help address the stated research questions for family conflict resolutions. The following methods was used for data collection: -

3.3.1 Observation

Observation was carried out as was able to notice some of the problems experienced by family members and perpetrators of family conflicts at homes. Through observation the challenges experienced by families in accessing timely family therapeutic services were noted for analysis. Observation was the most efficient method because it was free from exaggeration and gave the firsthand information.

3.3.2 Interview

Interview was carried out where a one-on-one conversation with the family members was done to ascertain their problems and concerns for conflict resolution. The interview also questioned on how family members address their problems for assistance and the challenges they face in accessing family therapy. Interview involved social encounter where speakers that is the family member and family therapists collaborated in producing prospective and retrospective accounts of their experiences, actions, feelings and thoughts (Seale et al., 2004). Interview was appropriate since little charges was involved hence it was cheap and no exaggeration from family members. Interviews gave the best experience for the investigations.

3.3.3 Questionnaires

A series of questions was used for the purpose of collecting information from family members. These were in the form of written interview, face to face, or telephone. Both open-ended questions and closed-ended questions were applied to gather enough information for the research. Questionnaires reached more families quickly, saved on cost while at the same time providing more accurate data for analysis and decision.

3.3.4 Published literatures

Review of the selected articles and evaluation of the published literatures on the conflict resolution through family therapy was carried out to collect relevant information for analysis. The family members' problems and issues of concerns were collected and analyzed, for use in the implementation of a family therapy prototype to aid in timely access to family therapy for conflict resolutions at homes.

3.4 Data analysis

Three methods of data collection including observation, interviews and questionnaire provided primary sources of data and literature review as secondary data (Mouton, 2006). Data analysis entailed interpretation of data for insights into the development of the integrated family therapy system prototype. The analysis methods consisted of thematic method and the statistical methods.

3.4.1 Thematic analysis

Qualitative data analysis method was used that involved reading through data set from extensive interviews with families and professional therapists and identifying patterns in meaning across the data. It enabled generation of new insights and concepts derived from collected data implementation of an integrated prototype for family conflict resolutions.

3.4.2 Statistical analysis

Statistical analysis involved investigating trends of family conflicts, patterns, and relationships using quantitative data. Data from family members and therapeutic centers professionals was collected, summarized and analyzed. The analyzed information was used to come up with a family

therapy prototype system that can be used by family members to access therapeutics services to assist in conflict resolutions at homes.

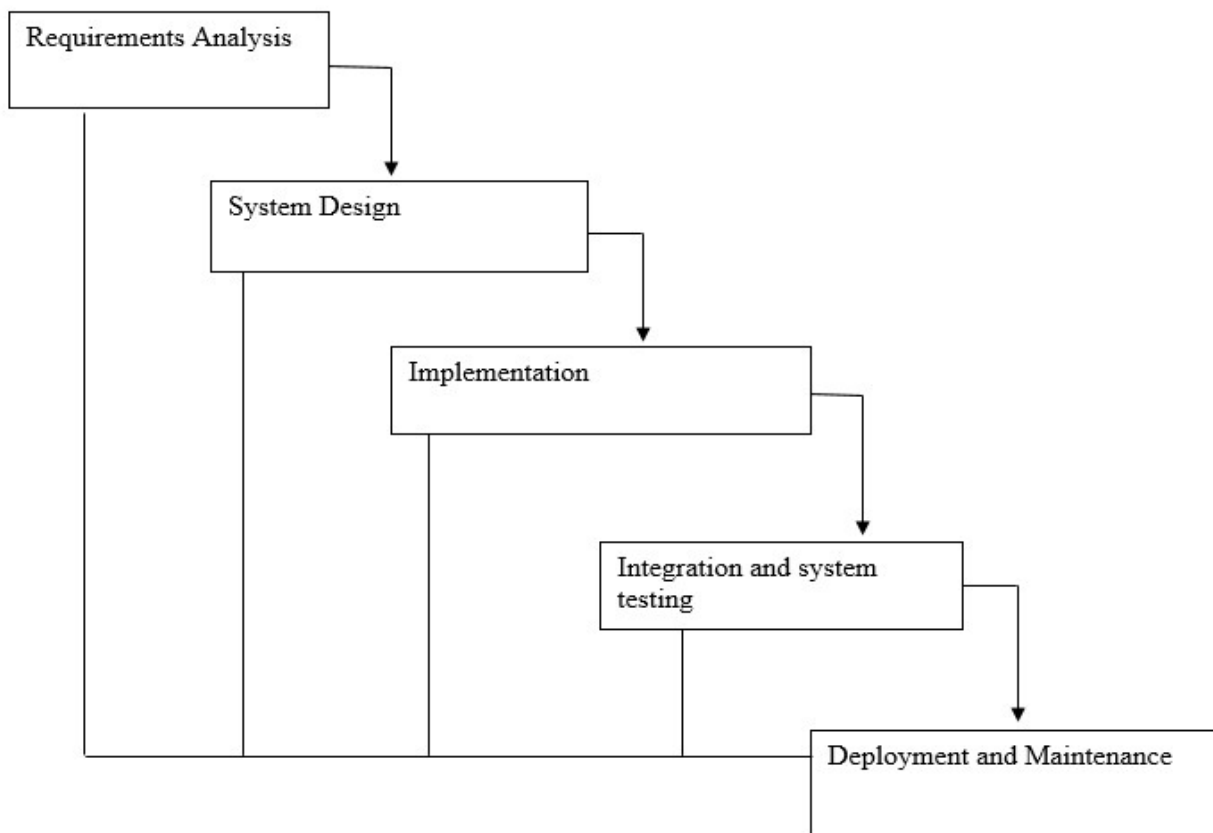
3.5 Software Development Methodology

Family therapy prototype system was built using waterfall methodology. Waterfall uses a sequential approach for development of the software that begins with requirement specification, planning, modeling, construction and deployment (Prof. Salve, M. S, 2018).

3.5.1 The waterfall model

Waterfall model is a software development life cycle (SDLC) model involve a plan-driven model with separate and distinct stages of specification and development. The method was flexible to partition the project into distinct stages for easy development.

Figure 6: The waterfall model



3.5.1.1 Requirement Analysis

The requirements of the family therapy prototype system were identified in this phase. The modules, functions and task specifications for the prototype were identified. The activities at this stage included identifying the problem statements, the objective, the scope and constraints of the prototype system. This then involved definition of the software and the hardware, collection of data and information used for development of the family therapy prototype system.

3.5.1.2 System design

System design focused on the design of the system components. The activities involved included the designing of the interfaces, designing of the database and the architecture view of the prototype system. The navigation flow and types of navigation controls of the family therapy prototype system was also defined.

3.5.1.3 Implementation

After system design the implementation activities of the family therapy prototype system was done. Implementation of components was done and unit testing whose objective was to ensure that the program units produced meet the requirements.

The activities involved included identifying the expected output for the prototype system, integrating all sub modules, producing the software code by correcting the errors that occurred during unit testing and maintaining the analysis of the family therapy prototype system.

3.5.1.4 Integration and system testing

The modules of the family therapy prototype system were integrated, then testing was performed on the system to ensure it meets the outlined specifications. The testing carried out included:

- **Unit testing** – carried out to ensure that reliable program units produced meets requirements. This involved testing of implementation of system components.
- **System testing** - involved prototype system specification, testing for failures, that demonstrated and determined that the components interact together correctly, are stable and coherent.
- **Integration testing** was used to test whether all units and component meet the requirements specification when integrated as a single family therapy prototype system for easy usage by the family members and family therapists.

3.5.1.5 Deployment and Maintenance

Focused on deployment and maintaining the family therapy prototype system. The system was checked to ensure the records and details of family therapy activities, procedures and requirements are met. The identified issues were fixed to enhance the prototype functionality.

3.6 Prototype development procedures and programming tools

The development of the family therapy prototype system followed the following procedure.

i. Analysis

The family therapy prototype system was analyzed, where different parts and sections with different functionality of the system was identified.

ii. Designing

The designing of the family therapy prototype system interfaces was developed including the database where data will be stored for retrieval during therapeutic services.

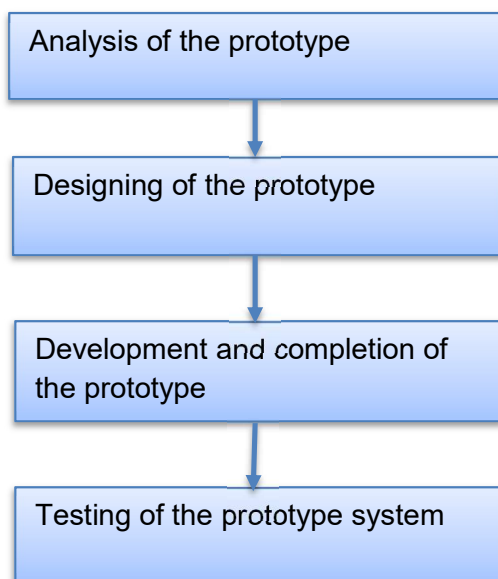
iii. Development and completion of the system

The different system parts were combined to come up with one desired complete family therapy prototype system.

iv. System testing

After the combination of the different parts into one system, the family therapy system was tested to check if it serves its purpose or core aim.

Figure 7: Prototype development



Tools and requirements

Hardware requirements

- Intel processor computer
- 500 GB Hard Disk.
- 4GB RAM

Software requirements

- PHP programming language and Laravel framework for coding.
- HTML, CSS, JavaScript
- Sublime Text editor - for editing the code.
- Microsoft Windows 10
- MySQL database

3.7 Testing

In order to meet the identified requirements of the family therapy prototype, testing was carried out during development to identify errors and defects that emerged during the development process. The following testing levels were done: -

3.7.1 Unit testing- The functionality of individual family therapy programs units and classes were tested and defects removed.

3.7.2 Component testing – Involved testing of individual units and integrated them to create composite components interfaces of the system.

3.7.3 Usability testing – Usability test of the prototype was done to determine ease of use of the family therapy prototype system, effectiveness, efficiency and identification of defects.

3.8 Evaluation

Family therapy prototype was evaluated by users including the family members, professional therapists, local communities’ counselors and faith based leaders.

3.8.1 Summative evaluation

Summative evaluation was conducted to determine the general functionality and performance of the prototype system. Evaluation of the family therapy prototype focused on the outcomes that is whether the program works as expected or not. A group of enthusiasts from families and psychologists’ were randomly selected where they gave their opinions about the system’s usability through questionnaires to determine whether the set objectives were achieved.

Ethical Considerations

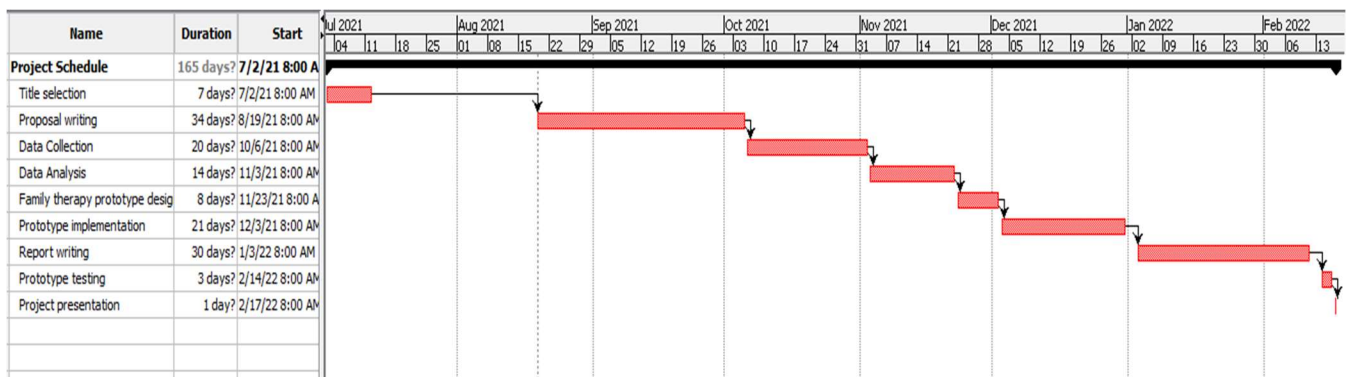
The study considered the ethical requirements as follows.

- a. The participants were willingly included in the study no participant was forced to take part in the study and were informed about aim of the research.
- b. The study ensured that participants’ information is held with a high confidentiality level by ensuring that all the data is saved in a password protected computer.
- c. Participant anonymity was ensured achieved by ensuring that participants are not requested to provide their identifying details.

3.9 Project schedule

The figure below shows the schedule for the research project.

Figure 8: Gantt chart



CHAPTER FOUR: ANALYSIS AND DESIGN

The chapter presents analysis, requirements and design of family therapy prototype system. This includes functional requirements and non-functional requirements of the prototype system.

4.1 Analysis

Systems analysis refers to activities of identification and documentation of the specifications for the system to support organizational activities (Iivari et al., 2005). Family therapy prototype involved interviews with families and psychologists for requirement gathering, analysis, documentation and breaking the prototype into key components for design and implementation.

The following questions were asked during the interviews -:

Table 1: Interview questions

Question NO:	Interview Questions
QN1	What are common perpetrators of family conflicts at homes? Common causes of conflicts at homes are family crisis situations which escalate to conflicts due to lack of timely family therapy
QN2	What is the main goal of family therapy? To improve communication among family members, solving problems, creating a better functioning home environment and handling special family situations.
QN3	What challenges do family members face when in need to access family therapy? Few counseling centers, limited family therapists, poverty
QN4	What are effective measures to help families at homes? Encourage communication, provide timely family therapy, use of available communities' local counselors or faith based leaders for guidance and directions.
QN5	How can we keep records of families' progress? In databases such MySQL, exported files, report documentation

QN6	<p>Why do family members violence and killings increase on daily basis?</p> <p>Lack of family therapy hence taking wrong actions without considering the outcomes.</p>
-----	---

4.1.1. Feasibility Analysis

Feasibility study helps to see viability of the idea which gives the successful result from the project within optimal cost, time and resources (Mukherjee, M & Roy, S, 2017). The research entailed definition of the scope and the requirements for the development of the family therapy prototype to address the research problem. Feasibility analysis carried out determined the viability of the system prototype and it was found to be technically feasible as well as economical feasible.

4.1.2 Requirement specification

The section presents functional requirements and non-functional requirements for family therapy prototype system.

4.1.2.1 Functional Requirements

Functional requirements for family therapy prototype involved general requirements that pertain the whole system and demarcation based on their relevance to the specific users of the prototype, that is, family therapists, family members and the administrator.

General requirements

General requirements that directly related to the entire prototype system.

- i. A server that host prototype and provide system data processing and storage capability.
- ii. A computer to enable access to prototype system functionality.
- iii. A display to enable users' registration and login to facilitate the accurate processing of sessions.
- iv. A computer to access the system with dashboards to provide family members, therapists and administrator with all functionality according to access control for therapeutic services.

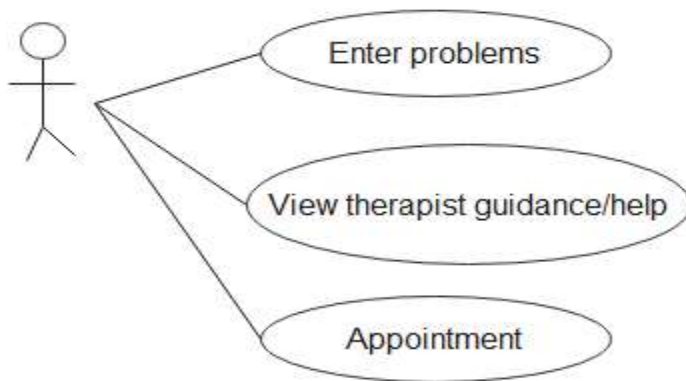
Family members

The functional requirements that directly relate to the family members as users of the family prototype system involves registration, login and entry of personal problems through the system family therapy.

Family members can view therapists, faith based leaders or local communities' counselors help messages and guidance on their problems and issues of concerns through the system and are able to log out of the prototype system.

Family member use case diagram

Figure 9: Family member use case diagram

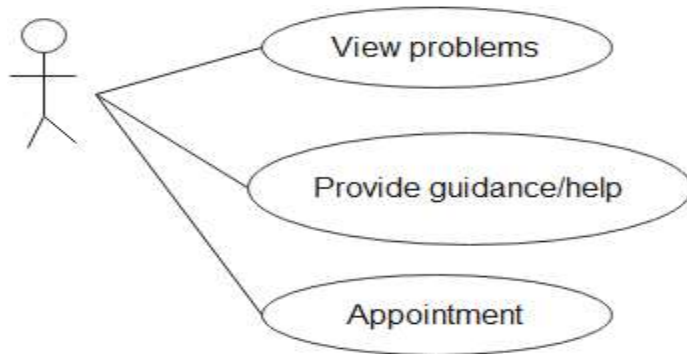


Family therapists

Professional family therapists, faith based leaders or local communities counsellors logged into the system well using their username and password. After approval by the administrator, they were able to view family members' problems, provide guidance and help on how to resolve the underlying issues through messages. Appointments can be made where needed for family therapeutic services to family members. The therapists can log out from their sessions when done.

Family therapists use case diagram

Figure 10: Family therapists use case diagram

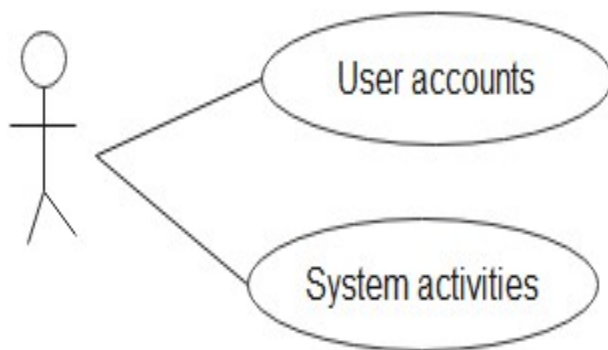


Administrators

Administration functional requirements of the prototype system entail all activities in the system including approval of the family therapists, local counselors and faith based leaders from using the system. The administrator manages the users of the system, view all system events and changes made to records and can log out of the system.

Administrator use case diagram

Figure 11: administrator use case diagram



4.1.2.2 Non-Functional Requirements

Non-functional requirements of family therapy prototype system include safety, security, operational and maintenance.

- i. Safety non-functional requirements include the ability of the system to log every state change of system and to display menus at all times to facilitate family therapy efficiency.
- ii. Security – involves encryption of the password used by users of the system and must be eight character and above. The system was able to handle sessions to enhance higher security.
- iii. Performance requirements - the server is capable of supporting an arbitrary number of active family members entering problems and complains for help while family therapists providing help and guidance with no problems or help being lost.

4.2 Prototype Design

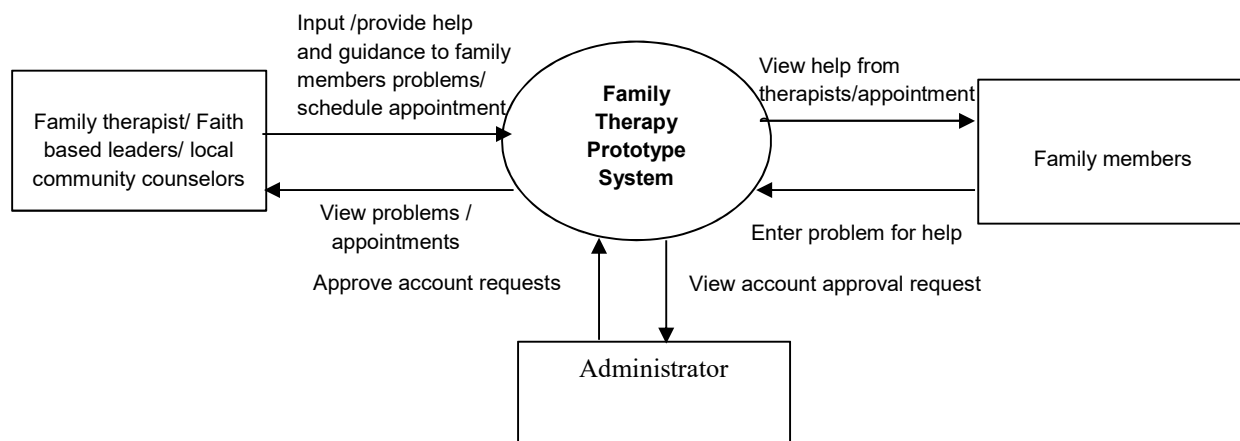
Systems design refers to the process of defining architecture of the software, interfaces, modules, components and software system data to meet specifications identified during system analysis (Iivari et al., 2005).

4.2.1 Prototype system architecture

The prototype system has three active sections that is the administrator, family members and family therapists who can access the prototype in one co-operating system. Any communication can be through the family therapy prototype system. The division of the prototype into sections was for efficiency and improved usability of the family therapy prototype system.

The figure below is shows the family therapy prototype context diagram.

Figure 12: Context diagram



4.2.1 Key prototype elements

The family therapy prototype key elements include the users, inputs and outputs.

4.2.1.1 Users

The users include the family members, professional/licensed therapists, local communities' counselors and the faith based leaders.

4.2.1.2 Inputs

Inputs provided by users such as family members, therapists and faith based leaders in the prototype system. Family members input their problems for assistance by family therapists who also input help and assistance to family members.

4.2.1.3 Outputs

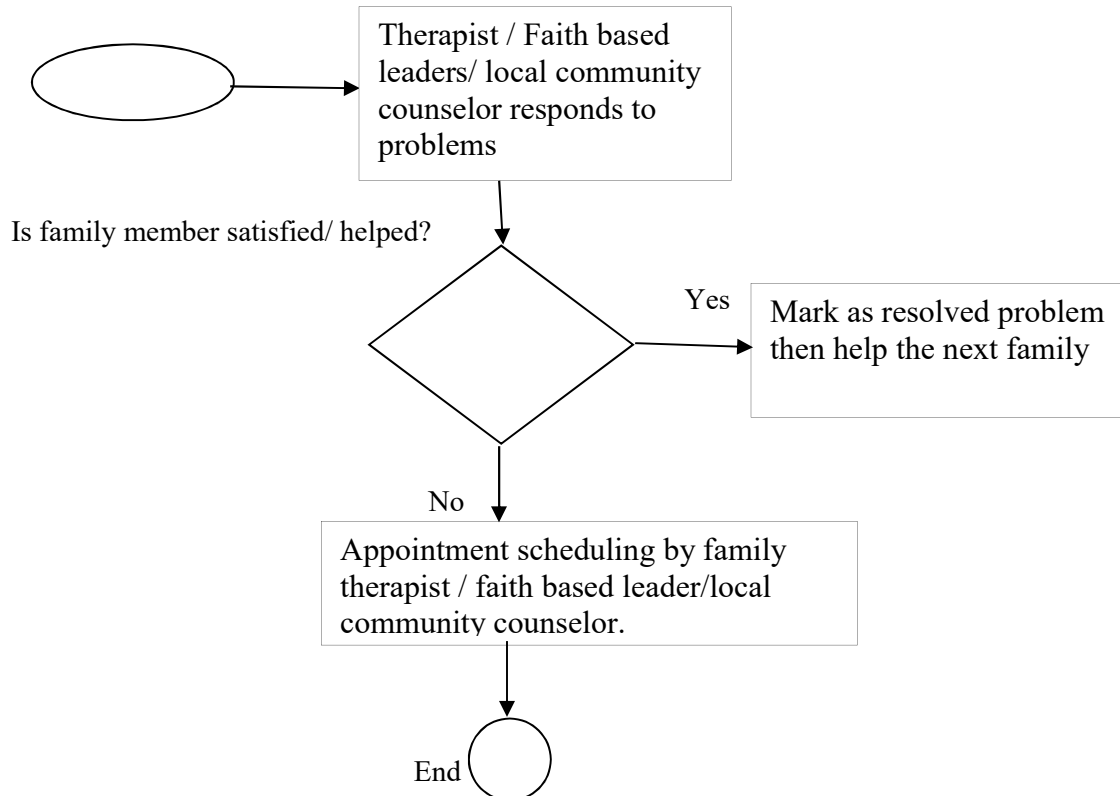
The prototype output involves a notification to the family member when their problem is resolved and appointment when needed.

Flowchart

Family therapy process involves steps that are shown in the flowchart below -:

Figure 13: Flowchart

Family member enter the problem

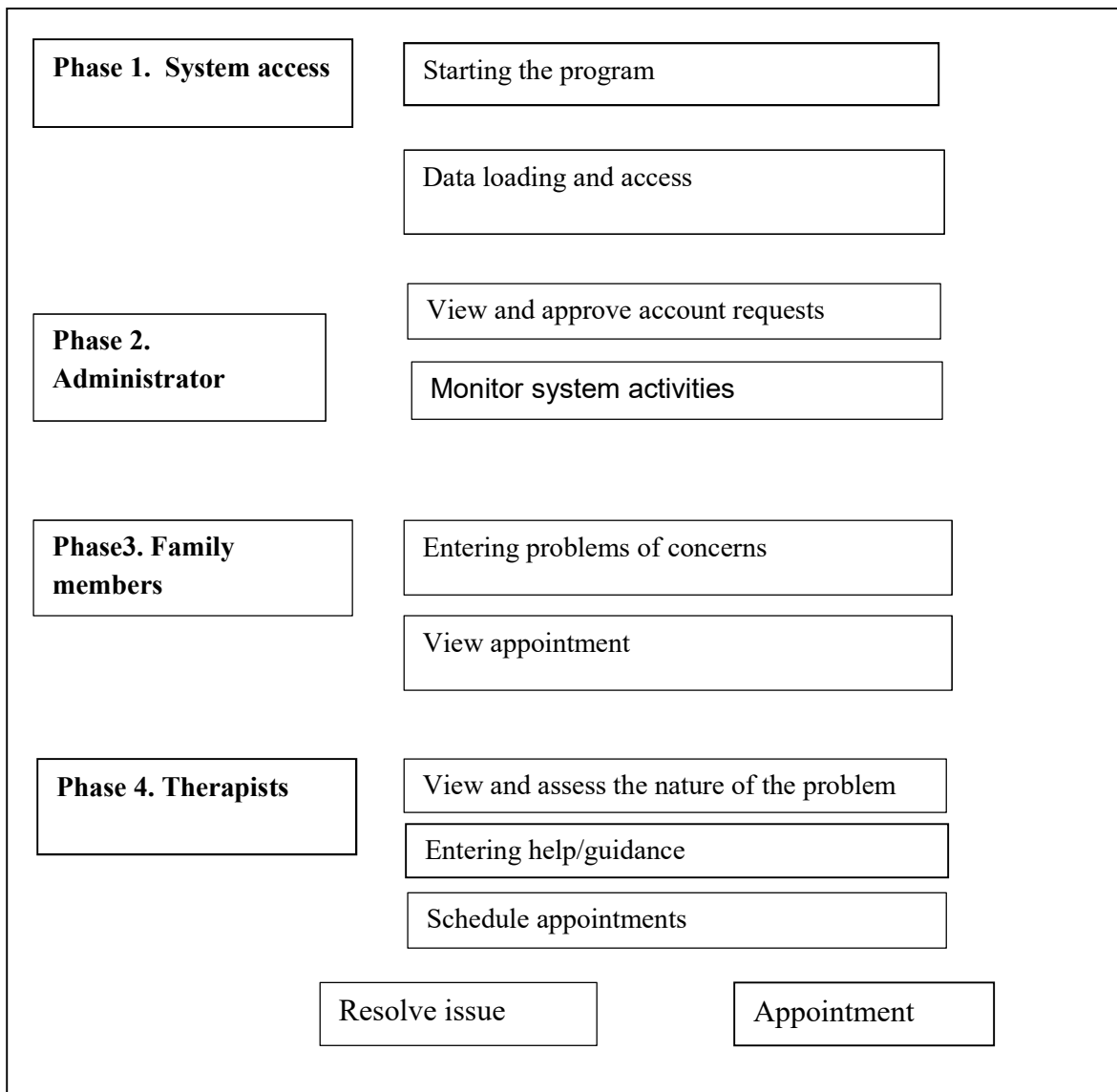


4.2.2 User interface design

User interface involve the interaction between the users and the system. User interface design of the prototype focused on the user experience and interactions such as navigations, menus, data entry and validations. Family members enter their problems into the system where the family therapists, local community counselors or faith based leader can assist them by entering the therapeutic guidance. Family therapists, local communities' counselors, or faith based leaders can then mark the issue as resolved or request for an appointment.

Family Therapy Prototype diagram

Figure 14: Design diagram



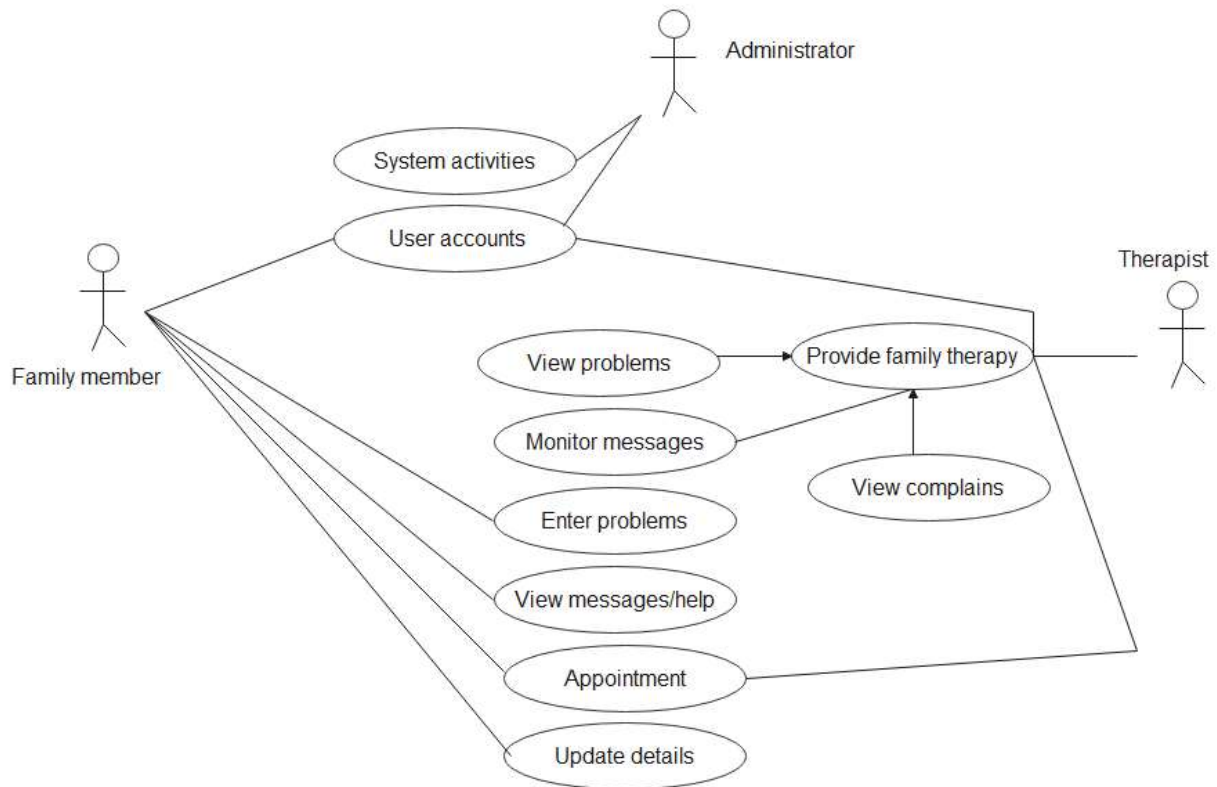
4.2.3 Models

Interaction model

An interaction model supports the conceptual models of its target users by binding an application together. The model hold the application together and defines how objects and actions interrelate in ways that mirror and support real-life user interactions (Nieters J, 2012). The use case below shows how the family therapy prototype system interacts with its environment.

Prototype use case diagram

Figure 15: Prototype use case diagram

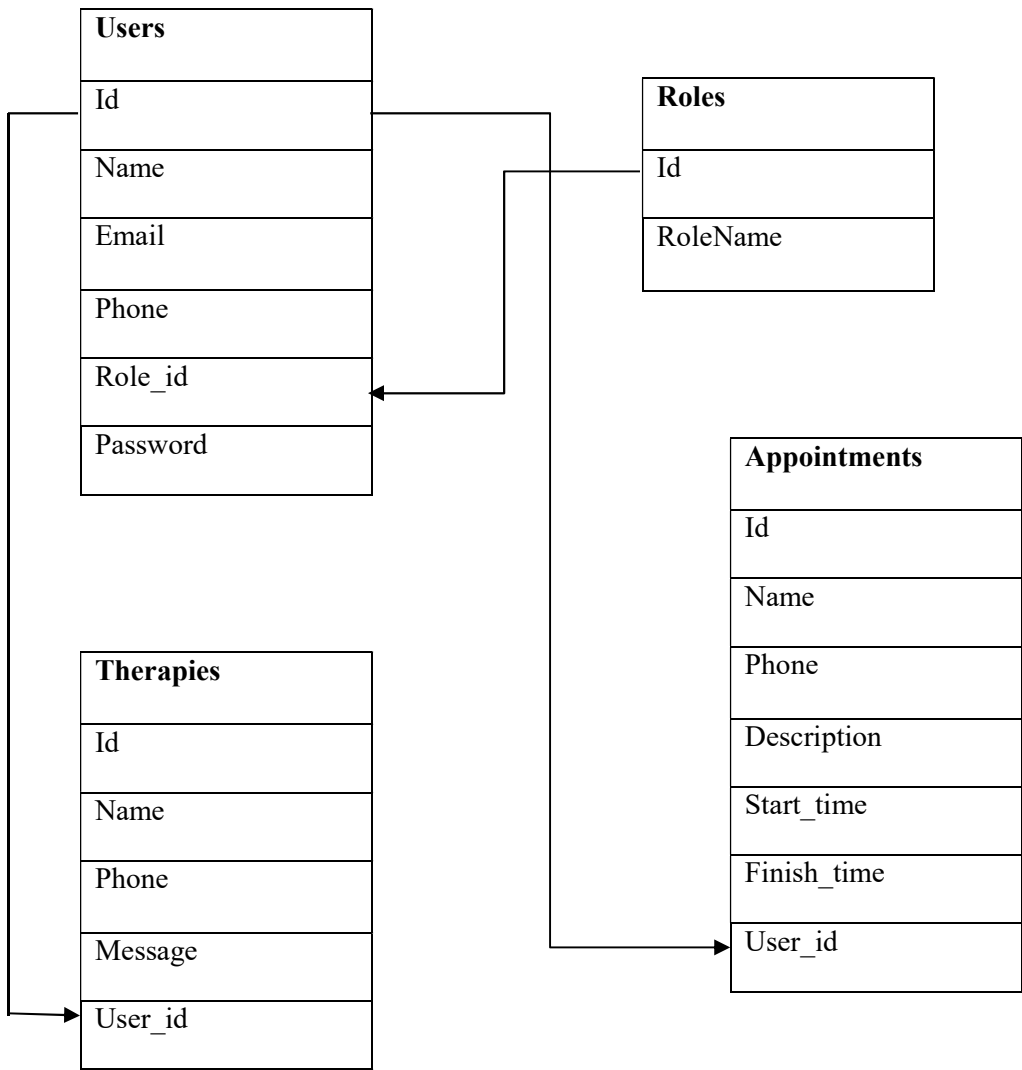


4.3 Database Design

The section presents the design of the database for the family therapy prototype. The family therapy prototype system uses the MySQL database management system and Apache server. MySQL database has a high performance, supports robust transactions, is easy to use, open-source and with strong data protection.

This following is the design of the tables that the family therapy prototype uses. The attributes, rows and relationship of the entities of the prototype system entail the following: -

Figure 16. Database design



CHAPTER FIVE: RESULTS AND DISCUSSION

The chapter presents the analysis and results discussion for family therapy prototype system for family conflicts resolutions at homes.

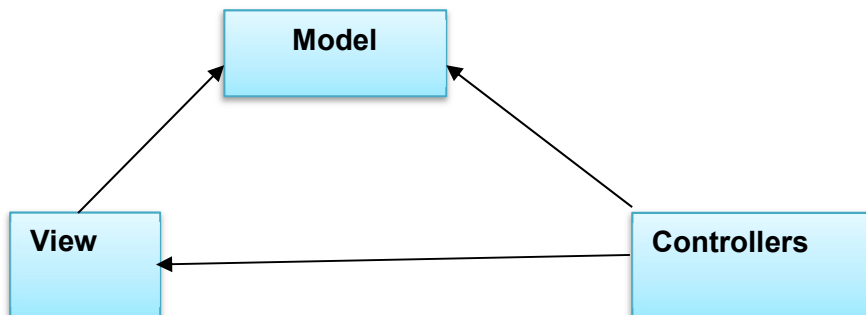
5.1 Prototype Implementation

Family therapy prototype implementation was done using the PHP and Laravel web framework which the researcher was conversant with. Laravel uses an MVC architectural pattern which consists of the model, view and controller.

5.1.1 The Model View Controller (MVC)

MVC involve an architectural pattern that separates an application into three main layers the model, view, and controller each handling specific development aspects of the application (Mr. Singh, S, 2020). MVC is a modern web development framework for creating extensible and scalable applications.

Figure 17: Model view controller (MVC)



Controller

Controller handles inputs and interactions from users' view module and update the database using the model component. Controllers interface between model and view modules to process all the requests and manipulate data using the model and interact with the views to render the final output (Mr. Singh, S, 2020).

View

The View component refers to all the user interface logic of the prototype that is the input fields, text boxes, dropdowns that the user interacts with.

Model

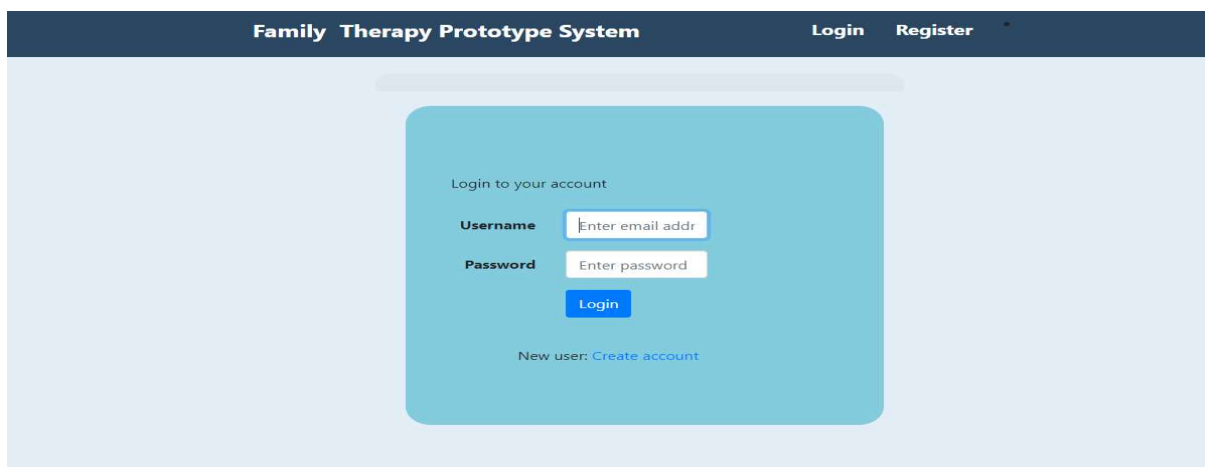
The model involves data-related logic that the users of the family therapy prototype works with. Users can enter their details, retrieve their information from the database and update the database.

5.1.2 Prototype interface

Family therapy prototype accessibility was through a URL address using the browsers. The family members and family therapists are required to register and login to access their respective dashboards with different roles and navigations. Family members can enter their problems and issues of concern for help by family therapists, local communities' counselors or faith based leaders. Family members can view therapists' help or guidance. The family therapists can enter help and guidance to family members and depending on the problems being handled, can schedule for an appointment which can notify the specified family members through short message service (SMS). Problems can be marked resolved when family members are satisfied with the help or guidance.

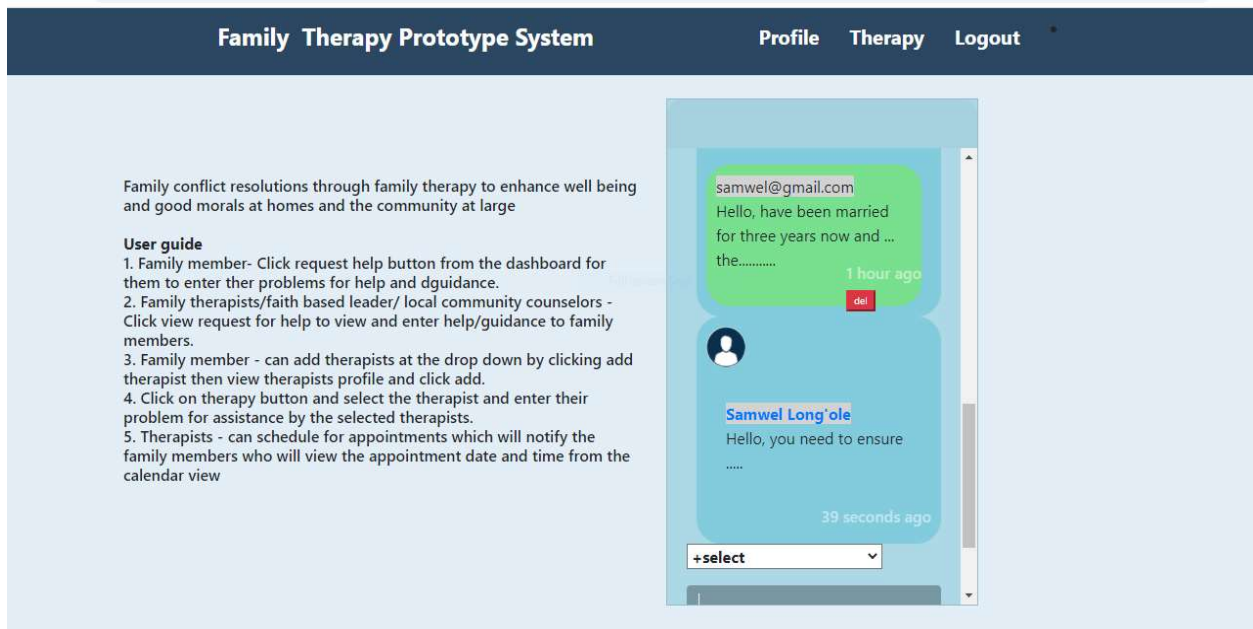
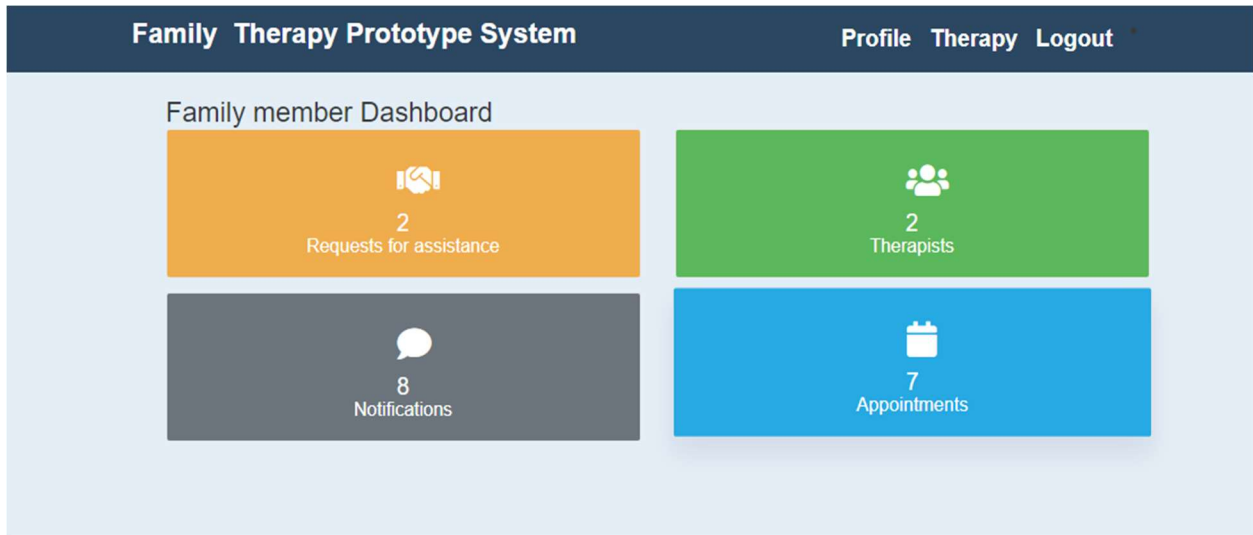
Prototype screenshots

Figure 18: User interface



Users need to enter their username and password to access their respective accounts. The prototype validates the inputs from users and outputs an errors message when the details entered are not correct.

Family member dashboard



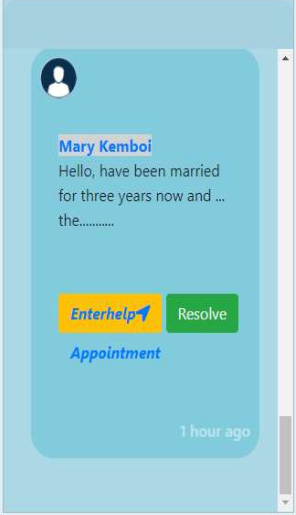
Family therapists

Family Therapy Prototype System Profile Therapy Logout


Family conflict resolutions through family therapy to enhance well being and good morals at homes and the community at large

User guide

1. Family member- Click request help button from the dashboard for them to enter their problems for help and dguidance.
2. Family therapists/faith based leader/ local community counselors - Click view request for help to view and enter help/guidance to family members.
3. Family member - can add therapists at the drop down by clicking add therapist then view therapists profile and click add.
4. Click on therapy button and select the therapist and enter their problem for assistance by the selected therapists.
5. Therapists - can schedule for appointments which will notify the family members who will view the appointment date and time from the calendar view



Enter help or guidance to **Mary Kemboi**




Familymember


Email:mary@gmail.com
Phone: 0712576168
About: A mother of four


submit

Appointment creation



Familymember
Email: mary@gmail.com
Phone: 07125761 xxxxxx
About: A mother of four
Current residence: Nakuru

Start time:
 

Finish time:
 

[submit](#)

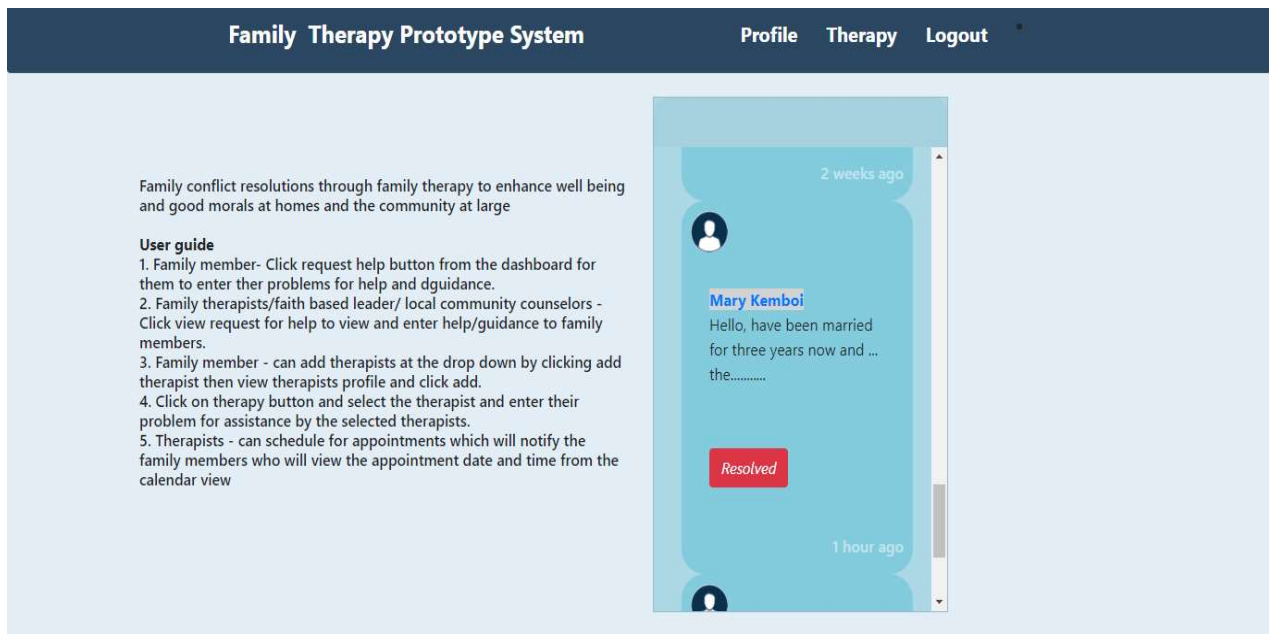
Appointment schedule

Family Therapy Prototype SystemProfile Therapy Logout

List view

Nov 14 – 20, 2021 today < >

	Sun 11/14	Mon 11/15	Tue 11/16	Wed 11/17	Thu 11/18	Fri 11/19	Sat 11/20
all-day							
6am							
7am							
8am							
9am		9:00 Mary Kemboi (=>Samwel Longole)					
10am							
11am							
12pm							
1pm							



5.2 Testing and Evaluation

Software testing was crucial to ensure quality and functionality of the prototype system was achieved. Family therapy prototype involved a number of tests at different stages of the development cycle. Testing aim involved: -

- Initialization and termination errors
- Errors in database structure and access
- Interface errors
- Performance errors

5.2.1. Functional testing

Functional tests conducted for the family therapy prototype to check whether it meets the functional requirements and behaves as expected. The following are some selected test cases done on the family therapy prototype to test the functionalities of the prototype: -

Table 2: Prototype functional testing

Tests Numbers	Action	Results	Remark
Test 001	User fill registration form and click register button	User was registered and redirected to dashboard	Passed
Test 002	User click login button	Login form open where user enter details for login	Passed
Test 003	Family member click therapy button to enter their problems	Message box open where they enter problems and sent to therapists	Passed
Test 004	Family therapist click to view family member problems	View family members problems and provide help	Passed
Test 005	Family therapist click to enter help or guidance	Enter help or guidance and sent to family member	Passed
Test 006	Family therapist schedule for an appointment	Schedule for an appointment with family member	Passed

5.2.2 Usability testing

Usability is an important factor for all software quality as it influences its acceptance (Nielsen J, 1993). Usability testing attempts to discover aspects of the system that users may have issues with.

Nielsen attributes of usability included learnability, efficiency, memorability, errors and satisfaction. The developed family therapy prototype usability tests involve a quantitative survey to determine the usability by measuring the specific metrics such as effectiveness, efficiency and user satisfaction.

5.3 Methods

A summative survey was done to evaluate the prototype usability basing on the system usability scale (SUS) created by John Brooke. SUS showed to be the most accurate for the fewest number of participants hence was chosen for analysis (Tullis & Stetson, 2004). Prototype link and questionnaires were shared with family members, family psychologists, local communities' counselors and faith based leaders. 143 participants were selected randomly and participated voluntarily in the study. After each usability testing session, users had to fill the questionnaire. The questions were designed to get quick feedback for each testing session after performing some tasks on the prototype. System usability scale scoring based on a 5-point Likert scale that is strongly disagree, disagree, Neutral, agree and strongly agree. The following are the tasks that were performed by the participants: -

Tasks included: -

- a. Login
- b. Update profile information
- c. Enter problems for help
- d. Provide help and guidance
- e. Create appointments and view appointments
- f. View notification and messages
- g. Logout

Problems and issues of concerns were created by family members then sent to family therapist, faith based leader or local community counselor. Family problems were only visible to specified therapists after their account was approved. Family therapists, faith based leaders or local communities' counselors were able to view the problems and provide guidance and help. Appointments was made by the family therapists and notification message send to the family members. Family members and family therapists were able to track the appointments through the prototype system calendar.

System usability scale (SUS) questionnaire was used where participants filled the questions after the usability test. The SUS questions were modified and improved to be specific for family therapy prototype system as shown in the appendix 2. The questions classification involved a scale from 1 to 5.

Testing of the prototype involved use of the laptop and desktop computers where the data from the survey was analyzed for the quantitative usability metrics such as the efficiency, satisfaction and effectiveness.

5.4 Research Findings and Discussions

The study involved 143 participants who gave their response on the usage of the family therapy prototype. Users had no previous experience of the prototype system hence the good response result was due to the need for family therapy for wellbeing in the family and resolution of conflicts at homes.

Demographic distribution

Gender and age demographic breakdown for the family therapy prototype is as shown in table below.

Gender

44% of the study were male and 56% were female respondents

Table 3: Gender distribution

Gender	
Male	44%
Female	56%

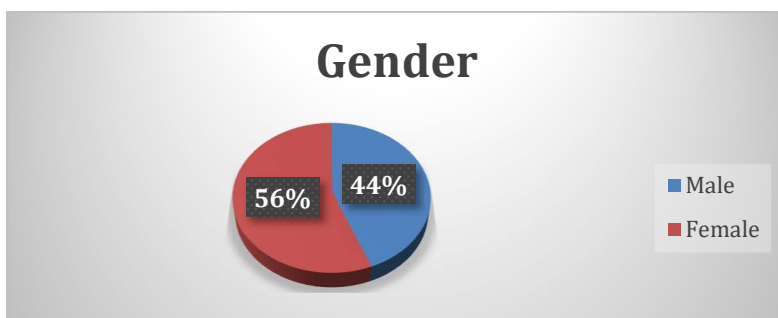


Figure 19: Gender distribution

Age

The respondents' age distributions were as below.

Table 4: Age distribution

Age	
14-21	13%
21-30	29%
31- 40	23%
41- 50	16%
51- Above	19%

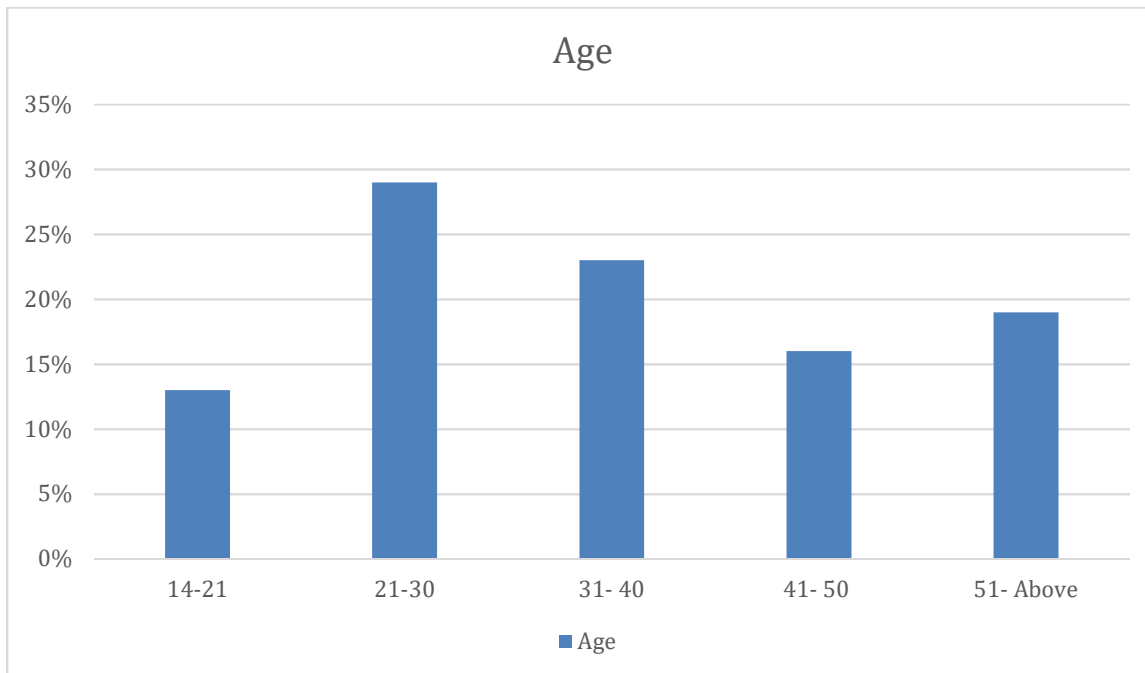


Figure 20: Age distribution

Satisfaction

The metrics for measuring user satisfaction were the fulfillment that users had after using the family therapy prototype. The system usability scale scoring of the questionnaire was done according to the method outlined by Brooke (1996) for system usability scale. The results are as illustrated in the figure below.

Table 5: User satisfaction

User satisfaction	
Strongly Disagree	5%
Disagree	8%
Neutral	7%
Agree	21%
Strongly agree	59%

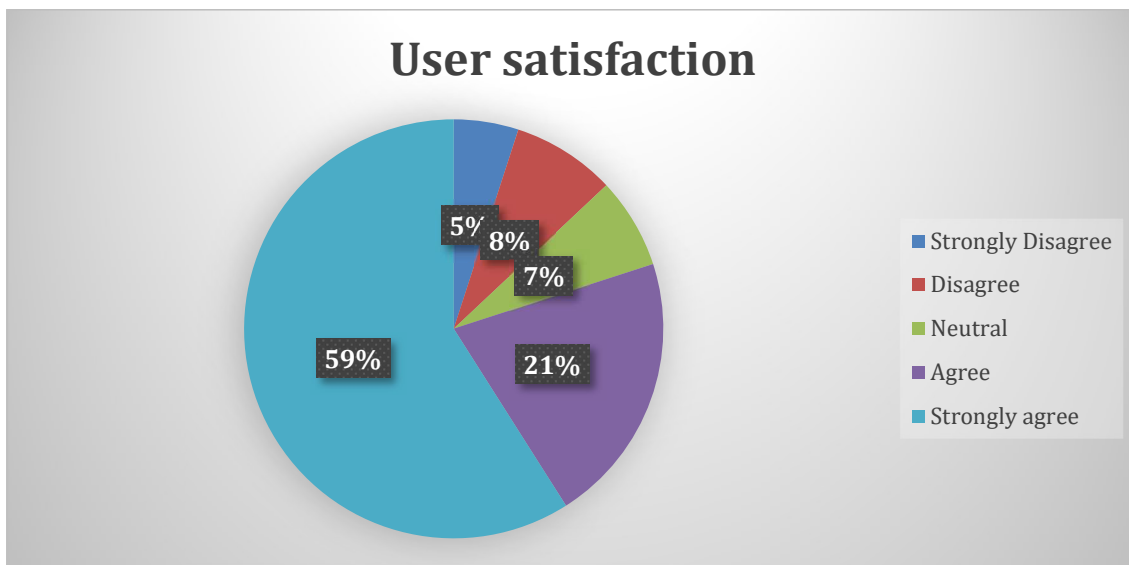


Figure 21: User satisfaction

The 87% of users were satisfied with the family therapy prototype with a few percentage of the users disagreeing with the prototype.

Effectiveness

Effectiveness refers to whether users can successfully achieve their objectives or complete a task when using the system (Rosato J, et al., 2004). The key metrics measured for the effectiveness of the prototype during usability test involves percentage of completion rate and the number of errors found in a prototype system.

The results are as shown below:-

Table 6: Effectiveness of the prototype

Tasks	Completion rate	Errors found
Login	100%	0%
Update profile information	79%	21%
Enter problems for help	97%	3%
Provide help and guidance	91%	9%
Create appointments and view appointments	82%	18%
View notification and messages	73%	27%
Logout	100%	0%

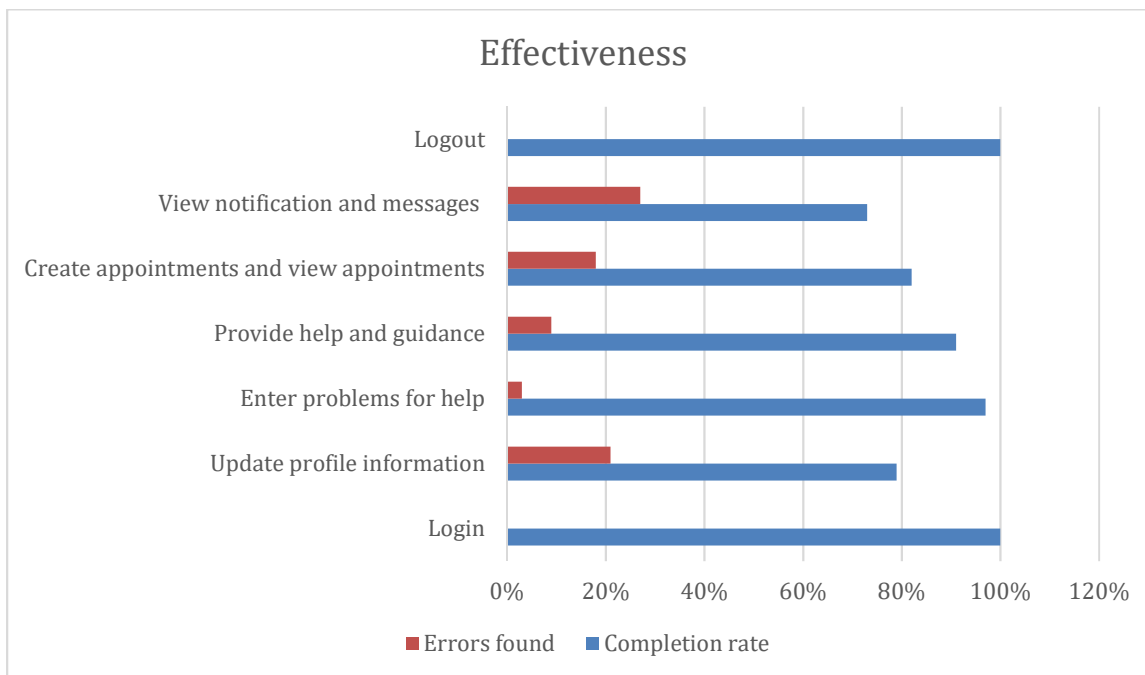


Figure 22: Effectiveness of the prototype

From the results it was clear that most users were able to login and logout of the prototype with some facing difficulties with the tasks on the prototype system.

Efficiency

The efficiency of the prototype involved the measure of the percentage of users' task successful completion rate for every unit time.

The shortest time users took to complete a task the more efficient the task was. Logging in and out of the system has the lowest completion time as shown below.

Table 7: Efficiency of the prototype

Tasks	Time(seconds)
Login	2
Update profile information	15
Enter problems for help	23
Provide help and guidance	37
Create appointments and view appointments	41
View notification and messages	18
Logout	3

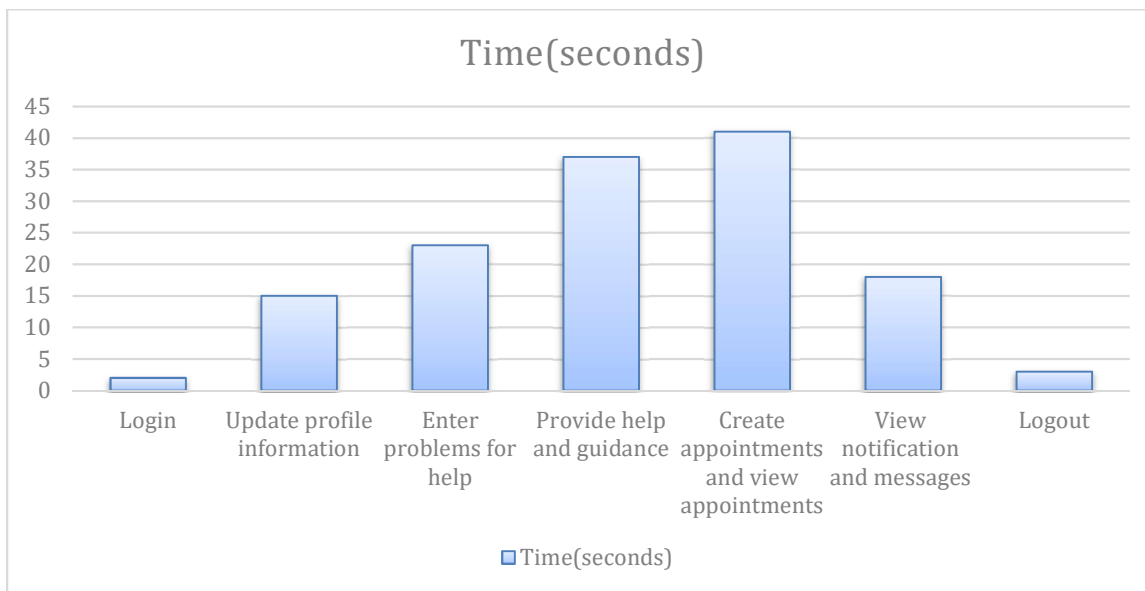


Figure 23: Efficiency of the prototype

Overall performance

The family therapy prototype overall performance was determined basing on the user interface’s responsiveness, navigation, ease of use and task completion success rate. The prototype was positively rated basing on the metrics as illustrated below.

Table 8: prototype overall performance

Overall performance	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Responsiveness	1%	0%	3%	5%	91%
Ease of use	0%	1%	2%	8%	89%
Task completion success rate	0%	0%	4%	9%	87%
Navigation	1%	0%	2%	7%	90%
Learnability	0%	2%	6%	11%	81%

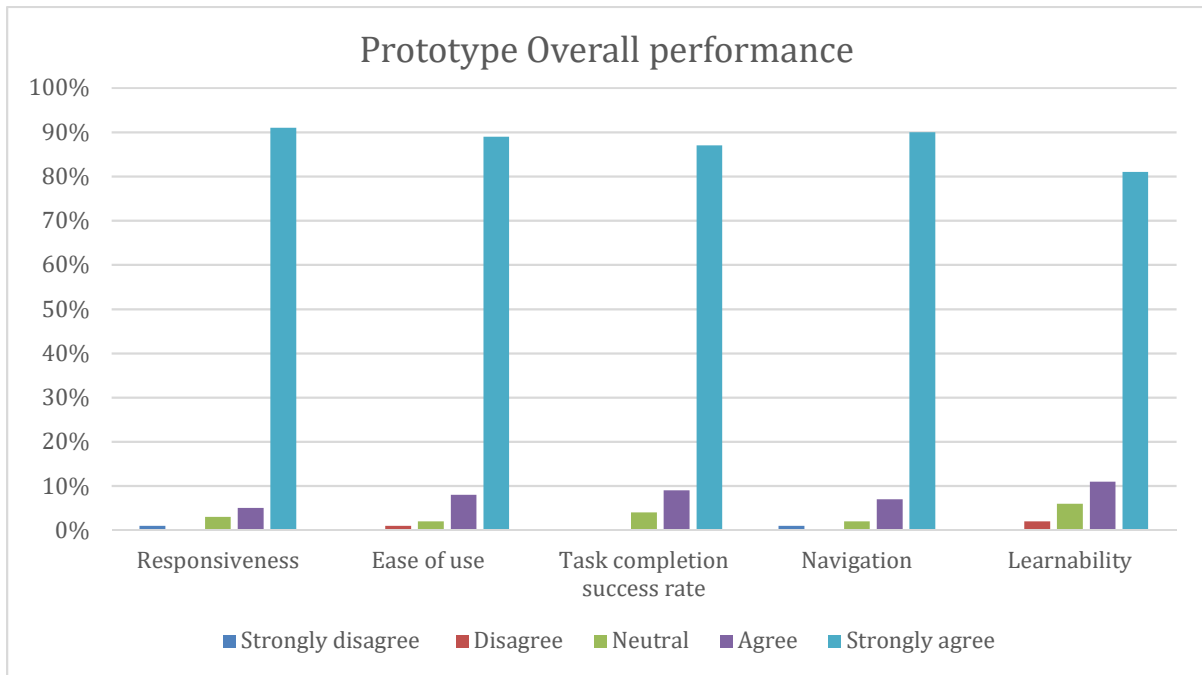


Figure 24: Overall prototype performance

Findings

After evaluation of the prototype system, the following areas were evaluated to provide answers to the research questions of the research project.

Answers to research questions

i. Determining the accessibility of family therapy by family members for home conflicts resolutions.

In order to determine this, the family therapy prototype URL was shared with the users who accessed via the browsers such as Internet Explorer, Chrome, and Firefox among other browsers and performed the tasks as shown in figure 23 above. The key metrics measured for the accessibility and effectiveness of the prototype during usability test involved percentage of completion rate and the number of errors found in a prototype system. The results are as shown in the figure 22 above.

ii. Determining families' communications needs and how it can be addressed to help reduce conflicts at homes.

Addressing the communication need for family members with professional family therapists is crucial to avoid escalation of problems. To ascertain this, testing was done where users performed tasks on the family therapy prototype. The prototype was found to be able to fulfill the communication needs of the family members as users were able to present their problems of concerns for assistance. Therapists were able to provide guidance and assistance to family members. Users were satisfied with the prototype as shown in the figure 21 above.

iii. Measuring the success rate of incorporating professional therapists, local communities' counselors or faith based leaders in family therapy for timely home conflict resolutions.

The incorporation of the professional family therapists, local community counselors and faith based leaders was vital to handle the increasing number of families in crisis situations at homes. In carrying out this evaluation, users registered and logged in concurrently and performed tasks on the family therapy prototype. An instant notification was sent to users' phone via SMS API for appointments. The aim was to measure the percentage of users' task successful completion rate for every unit time. The table 7 above presents a summary of the statistics taken in this experiment.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

The section presents research findings summary, conclusions and recommendations for home conflicts resolutions through family therapy.

5.1 Summary of research findings

This sub-section presents the objectives and the research findings summary for the research project.

Objective 1: To investigate accessibility of family therapy by family members and how family therapy can be used for resolution of home conflicts using family therapy prototype system.

The research established that families face difficulties of accessing family therapy which has led to increased conflicts among family members in the country. Family therapy provides the most natural way of dealing with crisis situations and psychological problems at homes hence enabling communication of emotions without fear. Evaluation of the developed prototype showed the prototype was able to fill the gap as users were able to access and request family therapeutics services successful for help by family therapists.

Objective 2: To determine the communication needs for the family members and implement a family therapy prototype system where family members can access and request family therapy as soon as disagreement arises.

The research established that family members face challenges to timely communicate their problems to family therapists for help hence end up taking wrong actions resulting to conflicts. The implemented family therapy prototype addressed family members' communication needs where family members accessed and requested family therapy for help as soon as disagreement arises. The use of the family therapy prototype provides timely resolutions of conflicts at homes. From the results, the prototype showed acceptance and users satisfaction for family therapy prototype to aid in conflicts resolution at homes.

Objective 3: To develop a family therapy prototype system that can help incorporate professional therapists, local communities' counselors or faith based leaders in family therapy for timely home conflict resolutions.

The family therapy prototype was developed to aid in provision of therapeutic services to enhance easy access of family therapy by family members for conflict resolutions. The developed family therapy prototype enabled incorporating professional therapists, local communities' counselors or faith based leaders in family therapy for family members' help and guidance on their problems of concern for home conflict resolutions. The research established that the incorporation of the professional therapists, local communities' counselors or faith based leaders in family therapy enabled easy handling of the increased number of families with problems and issues of concerns while decreasing congestion at the limited counseling centers in the Country. The prototype was efficient in handling the concurrent tasks performed by users who were satisfied as shown in the figure 21 above.

5.2 Conclusions

To conclude, it's clear from the research that the increased number of conflicts in the Country was due to lack of timely access to family therapy by family members for guidance and help. The project focused on the development of the family therapy prototype system to enable easy access of family therapy by authorized family members for conflict resolutions at homes. The prototype also enabled family members to communicate their problems of concerns to family therapists, local community counselors and the faith based leaders who were concurrently accessing the system to offer family therapy. The results from the evaluations done indicated successful and satisfaction for the tasks performed by users.

The family therapy prototype development was successful with family members being able to present their problems of concerns to family therapists for help. The prototype handled family members' communication needs and aided in provision of timely guidance on their problems for conflict resolutions at homes and the society at large.

The prototype can be integrated with healthcare systems to address mental health conditions and Country's therapeutic services. The prototype implementation involved modern model view controller (MVC) architecture with application programming interface (APIs) integration

capabilities for integration with existing healthcare management systems. This address the timely access of family therapy by family members at homes for handling mental health problems and family crisis situations that leads to conflicts. This prompt early discovery of conflicts at homes while at the same time minimizing the increased vices among family members, ensuring well-being and good morals among family members and the society at large.

5.3 Research Limitations

The research focused on the use of family therapy for conflict resolution at homes and the implementation of family therapy prototype for easy access of family therapy services by family members for conflicts resolution at homes. This involved the evaluation of the prototype by the users that included the family members, family therapists, communities' counselors and the faith based leaders.

5.4 Recommendations

Further research can be carried out to enable the incorporation of artificial intelligence capabilities to enhance the prototype functionalities.

The family therapy prototype can also be integrated using APIs with other healthcare systems for commercial use in counseling centers and hospitals health information system.

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A PPENDICES

Appendix 1: Interview Questions

Some of the questions asked during the interviews with family members and family therapists are as follows:-

1. What are the causes of family conflicts at homes?
2. What is the main aim of family therapy in conflict resolutions at homes?
3. What are challenges faced by family members when in need of accessing family therapy?
4. What are challenges are faced by limited professional family therapists in handling the increased number of family members?
5. How can family members communication needs be addressed without fear for help and guidance?
6. How can family members' situations be monitored and recorded for follow ups and help?
7. How can local communities' counselors and faith based leaders be incorporated in family therapy to decongest counseling centers with limited professional therapists?
8. What are the immediate measures taken when disagreement arise at homes?
9. What are major challenges faced by families residing in marginalized areas when in need of timely family therapy?
10. When and how often do you visit family counselors or family therapists?
11. What number or percentage of people in the country who are not able to access family therapy and how can the situations be improved?

Appendix 2: Prototype summative evaluation

In order to improve on the functionality of the family therapy prototype, the following questions were asked to get users feedback.

1. I think that I would like to use this family therapy prototype system frequently.

- Strong disagree
- Disagree
- Neutral
- Agree
- Strongly disagree

2. I found the family therapy prototype system unnecessarily complex.

- Strong disagree
- Disagree
- Neutral
- Agree
- Strongly disagree

3. I thought the family therapy prototype system was easy to use.

- Strong disagree
- Disagree
- Neutral
- Agree
- Strongly disagree

4. I think that I would need the support of a technical person to be able to use this family therapy prototype system.

- Strong disagree
- Disagree
- Neutral
- Agree
- Strongly disagree

5. I found the various functions in this family therapy prototype system were well integrated.

- Strong disagree

- Disagree
- Neutral
- Agree
- Strongly disagree

6. I thought there was too much inconsistency in this family therapy prototype system.

- Strong disagree
- Disagree
- Neutral
- Agree
- Strongly disagree

7. I would imagine that most people would learn to use this family therapy prototype system very quickly.

- Strong disagree
- Disagree
- Neutral
- Agree
- Strongly disagree

8. I found the family therapy prototype system very cumbersome to use.

- Strong disagree
- Disagree
- Neutral
- Agree
- Strongly disagree

9. I felt very confident using the family therapy prototype system.

- Strong disagree
- Disagree
- Neutral
- Agree
- Strongly disagree

10. I needed to learn a lot of things before I could get going with this family therapy prototype system.

- Strong disagree
- Disagree
- Neutral
- Agree
- Strongly disagree

11. I found the information and steps provided by the family therapy prototype easy to understand.

- Strong disagree
- Disagree
- Neutral
- Agree
- Strongly disagree

12. I needed more information in order to understand the family therapy prototype system.

- Strong disagree
- Disagree
- Neutral
- Agree
- Strongly disagree

Appendix 3: Prototype sample codes

Controllers

User account creation/registration controller

```
protected function validator(array $data)
{
    return Validator::make($data, [
        'name' => ['required', 'string', 'min:3', 'max:25'],
        'email' => ['required', 'string', 'email', 'max:50', 'unique:users'],
        'password' => ['required', 'string', 'min:8', 'confirmed'],
        'phone' => ['required', 'numeric', 'unique:users'],
        'type' => ['required', 'string', 'min:3', 'max:255'],
        'status' => ['required'],
    ]);
}
/**
 * Create a new user instance after a valid registration.
 *
 * @param array $data
 * @return \App\User
 */
protected function create(array $data)
{
    return User::create([
        'name' => $data['name'],
        'email' => $data['email'],
        'password' => Hash::make($data['password']),
        'phone' => $data['phone'],
        'about' => $data['about'],
        'currentplace' => $data['currentplace'],
        'type' => $data['type'],
        'status' => $data['status'],
    ]);
}
```

```

        'image' => $data['image'],
    ]);
}

```

Therapy controller

```
public function providehelpform($id)
```

```

{
    $user = DB::table('users')->where('id', $id)->first();
    $therapist = DB::table('therapists')->where('id', $id)->first();
    return view('therapists.providehelp',compact('user', 'therapist'));
}

```

```
public function SendTherapy(Request $request, Therapy $id){
```

```

    $therapy = new Therapy();
    $therapy->recipient_email = $request->input('recipient_email');

    if(!$therapy->recipient_email) {
        return redirect()->back()->with('messages', 'Field cannot be empty');
    }
    $messages = "A message has been sent";
    $therapy->message = $request->input('message');
    if(!$therapy->message) {
        return redirect()->back()->with('messages', 'Message field cannot be empty');
    }
    $messages = "Successfully sent";
    $therapy->recipient_name = $request->input('recipient_name');
    $therapy->created_byphone = $request->input('created_byphone');
    $therapy->created_byname = $request->input('created_byname');
    $therapy->created_byemail = $request->input('created_byemail');
    $therapy->created_byimage = $request->input('created_byimage');
}

```



```

    $therapy->user_id = $request->input('user_id');
    $therapy->save();
    return redirect("/therapy");
}
// get therapies requests/ help given
public function therapy()
{
    $therapies = Therapy::orderBy('created_at', 'asc')->where(function($q){
        $UID=Auth::id();
        $user = User::find($UID);
        $q->where('created_byemail',$user->email)->orWhere('recipient_email',$user->email);
    }->get());
    $therapists = Therapist::orderBy('created_at', 'asc')->where('created_by', $user->email)-
>get();

    return view('familytherapy',compact('therapies','therapists'));
}
//Delete therapy
public function delete($id)
{
    $therapy = Therapy::find($id);
    $therapy -> delete();
    return redirect()->back();
}

```

Therapists controller

```

public function store(Request $request)
{
    $request -> validate([
        'Name' => 'required|min:3',
        'Phone' => 'required|numeric|min:10',

```

```

]);

$therapist = new Therapist();
$therapist -> Name = $request -> Name;
$therapist -> Phone = $request -> Phone;
$therapist -> email = $request -> email;
$therapist -> user_id = $request -> user_id;
$therapist -> image = $request -> image;
$therapist -> created_by = $request -> created_by;
$therapist -> created_byphone = $request -> created_byphone;
$therapist -> save();
return redirect()->route('therapists');
}

```

Models

User model

```
<?php
```

```

namespace App;
use Illuminate\Notifications\Notifiable;
use Illuminate\Contracts\Auth\MustVerifyEmail;
use Illuminate\Foundation\Auth\User as Authenticatable;
class User extends Authenticatable implements MustVerifyEmail
{
    use Notifiable;
    protected $fillable = [
        'name', 'email', 'role_id', 'phone', 'currentplace', 'password', 'image', 'type', 'status', 'about',
    ];
    /**
     * The attributes that should be hidden for arrays.
     *

```

```

* @var array
*/
protected $hidden = [
    'password', 'remember_token',
];
/* Sets the relationships between a User
and Roles. */
public function Role() {

    return $this->belongsTo(Role::class);

}

```

Appointment model

```

<?php
namespace App;
use Illuminate\Database\Eloquent\Model;
use Illuminate\Database\Eloquent\SoftDeletes;
class Appointment extends Model
{
    protected $fillable =
['Name','Phone','Email','recipient_id','start_time','finish_time','created_byname','created_byemail',
'created_byphone','user_id'];

    protected $hidden = ['created_at', 'updated_at','deleted_at'];
}

```

Views

Login view

```
<center><div class="panel-heading">Login to your account</div></center>
<br/>
<div class="panel-body"><form class="form-horizontal" role="form" method="POST"
action="{{ url('/login') }}">
    {{ csrf_field() }}
    <div class="form-group{{ $errors->has('email') ? ' has-error' : " }}">
        <label for="email" class="col-md-4 control-label">Username</label>
<div class="col-md-6">
<input id="email" type="email" class="form-control" name="email" value="{{ old('email') }}"
placeholder="Enter email address" required autofocus>
        @if ($errors->has('email'))
            <span class="help-block">
                <strong>{{ $errors->first('email') }}</strong>
            </span>
        @endif
    </div>
</div>
<div class="form-group{{ $errors->has('password') ? ' has-error' : " }}">
<label for="password" class="col-md-4 control-label">Password</label>
<div class="col-md-6">
<input id="password" type="password" class="form-control" name="password"
placeholder="Enter password" required>
        @if ($errors->has('password'))
            <span class="help-block">
                <strong>{{ $errors->first('password') }}</strong>
            </span>
        @endif
    </div>
</div>
<div class="form-group">
```

```

<div class="col-md-8 col-md-offset-4">
  <button type="submit" class="btn btn-primary">
    Login
  </button><br/>
  <br/>
</div>
</div>
</form>

```

Therapy form

```

<form id="myForm" method="POST" action="{{ route('sendTherapy') }}" role="form"
enctype="multipart/form-data">
  {{ csrf_field() }}
  <fieldset>
    <div class="form-group">
      @if(Auth::user()->role_id ==2)
    <div class="multiselect">
      <div class="selectBox" onclick="showCheckboxes()">
        <select>
          <option>+select</option>
        </select>
        <div class="overSelect"></div>
      </div>

      <div id="checkboxes">
        <select id="therapist" name="recipient_email" data-select="false"
required="">
          <option value="">Select Therapists</option>
          @foreach ($therapists as $t)
            <option type="checkbox" value="{{ $t->email }}">{{ $t->Name }}</option>
          @endforeach
        </select>

```

```

        <a href="/therapist/create" > + therapist</a>
    </div>
</div>
    </div>
    </div>
    <div class="form-group">
<textarea id="" class="form-control type_msg" placeholder="" name="message" type="text"
rows="4" cols="50" autofocus required=""></textarea>
    </div>
<input type="hidden" name="created_byphone" value="{{Auth::user()->phone}}}"
class="form-control" id="phone">
<input type="hidden" name="created_byname" value="{{Auth::user()->name}}}"
class="form-control" id=" created_byname ">
<input type="hidden" name="created_byemail" value="{{Auth::user()->email}}}"
class="form-control" id=" created_byemail ">
<input type="hidden" name="user_id" value="{{Auth::user()->id}}}" class="form-control"
id="">
<div class="input-group-append">
<button id="submitBtn" type="submit" class="input-group-text send_btn"><i class="fas fa-
location-arrow"></i></button>
    </div>
</fieldset>
</form>

```

Appointment creation view

```

@if($user->role_id == 2 and $user->type == "Familymember")
    <form id="myForm" method="POST" action="{{ route('saveAppointment') }}"
role="form" enctype="multipart/form-data">
        {{ csrf_field() }}
        <div class="row justify-content-center">
            <div class="col-md-10">
                <input type="hidden" name="Name" value="{{ $user->name }}" id="Name">
                <input type="hidden" name="Phone" value="{{ $user->phone }}" id="phone">

```

```

<input type="hidden" name="Email" value="{{ $user->email }}" id="email">
<input type="hidden" name="recipient_id" value="{{ $user->id }}" id="id">
<b>Start time:</b><input type="datetime-local" name="start_time" class="form-control
datetime" value="{{ old('start_time', isset($appointment) ? $appointment->start_time : ") }}"
id="start_time" required>
<b>Finish time:</b><input type="datetime-local" name="finish_time"
id="datetimepicker12" class="form-control datetime" value="{{ old('finish_time',
isset($appointment) ? $appointment->finish_time : ") }}" required >
<div class="form-group">
    <center><button type="submit" class="btn btn-primary">submit</button></center>
</div>
</form>

```