Online Faraid Calculator System

By

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CERTIFICATION OF APPROVAL

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Approved by,

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CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

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ARIF AIZUDDIN BIN MOHD SA'AD

ABSTRACT

This document contains all the documentation and information related to the project developed by the student. The project mainly focused on the development of an Online Faraid Calculator System to improve the current system being used by the government agency specifically the 'Majlis Agama Islam Negeri'. The purpose of developing the system is to facilitate muslims people in order to make the inheritance process in the family to run smoothly without any problems. It is also created to integrate the ruling of Islam with technology where nowadays, information technology plays a vital role in everyday life and the ruling of Islam should be able to cope with the changes. Islamic Inheritance Law is one complex distribution system. It covers many aspect of wealth distribution based on the Quranic verses that become the main reference of all scholars to determine the percentage and value of the wealth distribution system. Understanding 'Faraid' is one essential knowledge need to be learned by all Muslims in order to avoid many problems. There are many issues regarding faraid and many people are having very little knowledge about it thus causing an unnecessary fight among family members that could lead to a fight among families. The system in general will look up deep into the process of 'Faraid' and calculate the wealth distribution among family members. Important information regarding inheritance will be gathered and used to create the system.

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INTRODUCTION

This chapter will brief in details about the project and it will also cover certain topic:

- Background of Study
- Problem Statement
- Objective of Study
- Scope of Study
- Significance and Feasibility of Study

1.1 Background of study

1.1.1 Online Faraid System

Online Faraid Calculation System is a system that will facilitate Muslims to calculate the distribution of wealth among the rightful family members after a person passed away. The system will follow a set of ruling based on the Islamic Inheritance Law which is called Faraid. The system is a web-based system that will generate an intelligent calculator to calculate the division of wealth to be distributed among the nearest family members.

There are a lot of complex requirement to follow in order to produce accurate and right amount of portion to be distributed as from every level, the portion is difference. By having the entire requirement needed, the algorithm is formed to get all the needed information and it will automatically calculate the value. The system is an integration of Islamic law with the technology.

1.1.2   Islamic Inheritance Law (Faraid)

The law of Faraid had been pre-ordained by Allah s.w.t. which can be read in Surah an-Nisa' verses 7, 11, 12 and 176. In verses 7, it clearly shows an order from Allah s.w.t. to all Muslims to apply Faraid when someone passed away, be it the father or the mother.

لِّلرِّجَالِ نَصِيبٌ مِّمَّا تَرَكَ ٱلْوَٰلِدَانِ وَٱلْأَقْرَبُونَ وَلِلنِّسَآءِ نَصِيبٌ مِّمَّا تَرَكَ ٱلْوَٰلِدَانِ

وَٱلْأَقْرَبُونَ مِمَّا قَلَّ مِنْهُ أَوْ كَثُرَ نَصِيبًا مَّفْرُوضًا ۝

There is a share for men and a share for women from what is left by parents and those nearest related, whether, the property be small or large - a legal share. (An-Nisa':7)

According to the verse from Quran, it shows the obligation of Muslims to learn and understand the concept of Faraid and apply it in their life. It is like in the hadith of Prophet Muhammad (p.b.u.h) where Rasulullah said:

There are three types of knowledge; apart from the three is additional knowledge.
- *Quranic verses*
- *Sunnah of the Prophet (p.b.u.h)*
- *Fair division of Faraid.*

(Abu Dawud and Ibn Majah)

The calculation of Faraid as what had been studied by scholars are all taken from Quran as there are no hadith showing the step to conduct Faraid. The wealth that will be distributed by using Faraid is not just in term of money, it is also consist of the asset and the right of the deceased passed down to the heir.

Nowaday, the Islamic Inheritance Law had become a complete and comprehensive system for Muslims to give the right to the beneficiaries (Awang). The ruling had been set on how to distribute the wealth equally as what had been ordered by Allah s.w.t. in the Quran. In Malaysia, Faraid can be done among family members if they have the knowledge of Faraid. If they found some problems regarding the division of Faraid, they can refer this to the nearest Islamic Department (Majlis Agama Islam Negeri) to get some information and guidance.

1.2 Problem statement

An interview with the expert regarding Faraid law has been made to collect some information and to have deeper understanding on how to apply Faraid law. In the issue of Faraid, there is a lot of confusion on how to distribute the wealth in a right way as had been teaches by Allah. The issue is the lack of knowledge on Faraid system.

The result from this issue had produced many problems as the wealth leaved by the deceased is unknown to the family members causing the wealth not being claimed by the heir. When this happen, all the wealth will be considered as unclaimed wealth and the wealth will goes to Baitulmal. Another thing is that it will create uproar among the family because of the lack of knowledge as the people want to claim all the wealth for themselves feeling that they deserve more than other people whereas Allah had stated the portion that should be given on every level. Due to this, some of the families had come to term and some of them had also cut their family ties as they are not satisfied with the distribution of the wealth.

Ustaz Dawi Cahyono, Head of An-Nur Islamic Centre (NIC) of Universiti Teknologi PETRONAS had said that some of the problems occurred in term of wealth distribution is that there is no agreement signed by the family on the portion distributed among each of the family (Nurdin D. C., 2013). The problems had caused the wealth left undistributed until the third or fourth generation. For example, when the grandfather passed away, his wealth will go to his wife, father and mother and also the sons and daughters. The problem occurred when the wealth are not being distributed properly and after that one of the sons or daughters passed away, their portion of the wealth should be distributed to their children as well. Therefore it will be hard to explore the root of the distribution as the information is not there. This will caused the process of Faraid to be interrupted and it will not go smoothly. The heir will also claim for their right to obtain the wealth.

As for these cases that had happen, it is crucial to understand the concept of Faraid to avoid unnecessary fight among families to claim the wealth left by the deceased. To understand Faraid need a deep understanding as it is a very complex knowledge. The calculation of Faraid is very accurate to give a fair portion to each of the heir that can receive the wealth according to Islam. By developing the Online Faraid Calculator System, it is hoped that it can facilitate the Muslims to distribute the wealth properly among the family members.

There are certain system had been created for faraid calculator system. For example the USM student had also developed an online faraid calculator system. However, the calculation is just showing the partition to be given to each of the family members but does not show the exact amount of wealth to be distributed. The development of the system is hopefully can improve the existing system out there. The system can be seen through this link: http://maths.usm.my/faraid/msl/faraid.asp. (Sistem Maklumat Faraid)

Another system is developed by As-Salihin where the graphical presentation seems to be much smooth and arranged accordingly. However the presentation could make the user to adjust many things and does not use the application to really calculate the division of inheritance.

1.3 Objective of study

The study is being conducted to research and gather the information needed to develop the Online Faraid Calculator System and also to create the prototype for user testing. It is hoped that the system will satisfied the need of the people responsible for managing the Faraid issue. It will very much be a good assistant to them in managing the issue related to inheritance.

For the development of the system, the objective is to create a system that can provide users with the following functionalities:

1. Integrating Information Technology with Islamic Ruling (Sharia Law)
2. Creating faraid calculator systems that have an accurate calculation with a user-friendly interface to ease the users.
3. Help solve certain issues regarding faraid.
4. Provide a one-stop solution for users to gain information about faraid and the calculations.

1.4 Scope of study

In this part, it will cover certain area that will describe the progress of the study in the future that will help in developing the system and completing this project that is:

- Understanding the Faraid system.
- Information gathering.
- Development of the system.

1.4.1 Understanding the Faraid system

Creating a system will become easier if the developer have a deeper understanding about the subject matter. Therefore it is crucial to understand the Islamic Inheritance Law (Faraid) and learning the application of Faraid in everyday life. There are a lot of resources that can be used to gain more understanding of the subject matter. Faraid system is a law derived directly from Quran and the scholars had reached the consensus that it is the only method in Islam. Therefore, there are vast of resources to be look up for.

To make the scope smaller, it will only covers on the situation happen in Malaysia. Therefore, the case study and many more will focus on the situation that is really happening in Malaysia.

There are also a lot of books telling about faraid and the distribution system. In this study, it will be focused on only one Mazhab that is Mazhab Shafie as Malaysian practices Islam through this Mazhab. Apart from that, the information can also be reached through journals, articles and also government agency that is responsible to manage faraid issue.

In this project, the aspect of who will get the inheritance will also be considered as they are certain different level and hierarchy in those who will receive the inheritance. The details are as like in the table.

No.	Heir on male side
1	Son
2	Son of Son
3	Father
4	Father of Father
5	Full Brother
6	Consanguine Brother
7	Uterine Brother
8	Son of Full Brother
9	Son of Consanguine Brother
10	Full Brother of Father
11	Consanguine Brother of Father
12	Son of Full Brother of Father
13	Son of Consanguine Brother of Father
14	Husband
15	Male Slave Master

Table 1 - List of eligible heirs from male side

Table 1 shows the eligible heirs from male side which is the person that can receive the inheritance if the family member passed away. However not all will receive it as they are certain condition to be look for. The condition is if the closes related family is still

alive, they will receive the inheritance and the others will not receive it. They will only receive it when the condition is not met. The closes relation will be from:

    i.   Father

    ii.   Son

    iii.   Husband

When these people are alive, they will receive the inheritance and the others members are blocked by it. In Islamic term, this kind of event is called 'mahjub' where the other are prevented to gain the inheritance as they are not eligible to receive it.

No.	Heir on female side
1	Daughter
2	Daughter of Son
3	Mother
4	Mother of Mother
5	Mother of Father
6	Full Sister
7	Consanguine Sister
8	Uterine Sister
9	Wife
10	Female Slave Master

Table 2 - List of eligible heirs from female side

Table 2 shows the potential heirs from female side. It is the same like from male; there are certain people who will receive the inheritance according to the condition given. Other members will only receive it if the conditions are not met.

If all heirs in Table 2 exist, only 5 heirs will receive the inheritance that is:

    i.   Daughter

    ii.   Daughter of Son

    iii.   Mother

iv.   Full Sister

v.   Wife

If all 25 heirs in Tables 1 and 2 exist, priority is given to only 5 heirs:

i.   Father

ii.   Mother

iii.   Son

iv.   Daughter

v.   Husband or Wife

1.4.2 Information Gathering

Information regarding faraid system and the case happen can be achieved by having an appointment with the government agency such as the State Islamic Council (Majlis Agama Islam Negeri), specifically those who are responsible in Faraid. The data will check on the requirement needed by the council in order to develop the Faraid system. There are also some other private sectors that also run the matters related to Faraid. Some of them are:

1.   Wasiyyah Shoppe Sdn. Bhd.

2.   Amanah Raya Berhad

3.   Rockwills Corporation Sdn. Bhd.

1.4.3 Development of the system

This step will take part after the information gathering and getting the understanding of Faraid. All of the information will be used in the development phase of the system. The requirement will be used as the guide to develop the accurate calculation system for the calculator.

There will be some improvement for the system. It will consist of certain usability element that will be used for the development phase. There are 4 of these usability elements that will be implemented in the development phase that is:

1) Manage user attention
2) Feature exposure
3) Simplicity
4) Easy to use

Having these elements will help improved the system from the current available system. It is because the user of the system is not a person who is well-acquainted with computer system.

1.5 Significance and feasibility of study

Online Faraid Calculator System is very significant in the current situation for Muslims nowadays. There are many wealth left by the deceased unclaimed and it will only be freeze into the Baitulmal if there are no heirs to claim them. Based on the recent advancement in technology, the system need is created to assist all Muslims to manage the matter of Faraid with ease.

The system will be developed in two semester period. The first semester will be focused on gathering data and information for the study and will be ended by developing the prototype. The second semester will be focused on the development and completion of the system.

As of now there are two similar applications on the internet. As faraid is a fixed ruling in Islam, nothing can be changes to its rules but to make it better is to increase the performance and the usability of the application developed for the user. Aspect of usability like the interface design and the performance of the application will be a priority in this project to improve the currently available program on the internet.

CHAPTER II

LITERATURE REVIEW

This chapter discusses the general concept of the project. The background information of the research and the theory views on the importance of Online Faraid Calculator System and the benefit of the system towards Muslims society in Malaysia.

2.1 Faraid System in Malaysia

The distribution of inheritance can only be distributed after the completion of these activities (Nurdin D. D.):

2.2.1 Funeral Management

Funeral management include the cost to manage the deceased before being buried. It include the cost of the coffin, pay for people who manage the deceased and other things related to manage the deceased.

2.2.2 Settling the deceased's debt

The debts of the deceased must be finished before continuing with the inheritance distribution. These include the debts towards human and also Allah that is zakat, jizyah, nazar, etc. Faraid can be done after all this had been settled.

2.2.3 Execute the will of the deceased

It is compulsory to execute the will of the deceased without having to consult with the eligible heirs unless the value exceeds 1/3 of the whole wealth. When it exceeds 1/3, the agreement among heirs should be taken before proceeding with the Faraid.

As the wealth left by the deceased consists of money, assets and land, all the wealth need to be valued first and the total will be distributed in the inheritance system. Assets like gold need to be valued at the gold store and the land need to be valued through Civil High Court or Jabatan Tanah to get the value of the land.

2.2 Faraid Calculation Method

Faraid calculation is different with different situation. It has many variables to look up before making the calculation. The calculation is based on the Quranic verses in Surah An-Nisa' 11, 12 and 176 (Explorer):

Verse 11

يُوصِيكُمُ ٱللَّهُ فِىٓ أَوْلَٰدِكُمْ ۖ لِلذَّكَرِ مِثْلُ حَظِّ ٱلْأُنثَيَيْنِ ۚ فَإِن كُنَّ نِسَآءً فَوْقَ ٱثْنَتَيْنِ فَلَهُنَّ ثُلُثَا مَا تَرَكَ ۖ وَإِن كَانَتْ وَٰحِدَةً فَلَهَا ٱلنِّصْفُ ۚ وَلِأَبَوَيْهِ لِكُلِّ وَٰحِدٍ مِّنْهُمَا ٱلسُّدُسُ مِمَّا تَرَكَ إِن كَانَ لَهُۥ وَلَدٌ ۚ فَإِن لَّمْ يَكُن لَّهُۥ وَلَدٌ وَوَرِثَهُۥٓ أَبَوَاهُ فَلِأُمِّهِ ٱلثُّلُثُ ۚ فَإِن كَانَ لَهُۥٓ إِخْوَةٌ فَلِأُمِّهِ ٱلسُّدُسُ ۚ مِنۢ بَعْدِ وَصِيَّةٍ يُوصِى بِهَآ أَوْ دَيْنٍ ۗ ءَابَآؤُكُمْ وَأَبْنَآؤُكُمْ لَا تَدْرُونَ أَيُّهُمْ أَقْرَبُ لَكُمْ نَفْعًا ۚ فَرِيضَةً مِّنَ ٱللَّهِ ۗ إِنَّ ٱللَّهَ كَانَ عَلِيمًا حَكِيمًا ۝

Allâh commands you as regards your children's (inheritance); to the male, a portion equal to that of two females; if (there are) only daughters, two or more, their share is two thirds of the inheritance; if only one, her share is half. For parents, a sixth share of inheritance to each if the deceased left children; if no children, and the parents are the (only) heirs, the mother has a third; if the deceased left brothers or (sisters), the mother has a sixth. (The distribution in all cases is) after the payment of legacies he may have bequeathed or debts. You know not which of them, whether your parents or your children, are nearest to you in benefit, (these fixed shares) are ordained by Allâh. And Allâh is Ever All¬Knower, All¬Wise.

Verse 12

وَلَكُمْ نِصْفُ مَا تَرَكَ أَزْوَٰجُكُمْ إِن لَّمْ يَكُن لَّهُنَّ وَلَدٌ ۚ فَإِن كَانَ لَهُنَّ وَلَدٌ

فَلَكُمُ ٱلرُّبُعُ مِمَّا تَرَكْنَ ۚ مِنۢ بَعْدِ وَصِيَّةٍ يُوصِينَ بِهَآ أَوْ دَيْنٍ ۚ وَلَهُنَّ ٱلرُّبُعُ مِمَّا

تَرَكْتُمْ إِن لَّمْ يَكُن لَّكُمْ وَلَدٌ ۚ فَإِن كَانَ لَكُمْ وَلَدٌ فَلَهُنَّ ٱلثُّمُنُ مِمَّا تَرَكْتُم ۚ مِّنۢ بَعْدِ

وَصِيَّةٍ تُوصُونَ بِهَآ أَوْ دَيْنٍ ۗ وَإِن كَانَ رَجُلٌ يُورَثُ كَلَٰلَةً أَوِ ٱمْرَأَةٌ وَلَهُۥٓ أَخٌ أَوْ أُخْتٌ

فَلِكُلِّ وَٰحِدٍ مِّنْهُمَا ٱلسُّدُسُ ۚ فَإِن كَانُوٓا۟ أَكْثَرَ مِن ذَٰلِكَ فَهُمْ شُرَكَآءُ فِى ٱلثُّلُثِ ۚ مِنۢ

بَعْدِ وَصِيَّةٍ يُوصَىٰ بِهَآ أَوْ دَيْنٍ غَيْرَ مُضَآرٍّ ۚ وَصِيَّةً مِّنَ ٱللَّهِ ۗ وَٱللَّهُ عَلِيمٌ حَلِيمٌ ﴿١٢﴾

In that which your wives leave, your share is a half if they have no child; but if they leave a child, you get a fourth of that which they leave after payment of legacies that they may have bequeathed or debts. In that which you leave, their (your wives) share is a fourth if you leave no child; but if you leave a child, they get an eighth of that which you leave after payment of legacies that you may have bequeathed or debts. If the man or woman whose inheritance is in question has left neither ascendants nor descendants, but has left a brother or a sister, each one of the two gets a sixth; but if more than two, they share in a third; after payment of lagacies he (or she) may have bequeathed or debts, so that no loss is caused (to anyone). This is a Commandment from Allâh; and Allâh is Ever All¬Knowing, Most¬Forbearing.

Verse 176

يَسْتَفْتُونَكَ قُلِ ٱللَّهُ يُفْتِيكُمْ فِى ٱلْكَلَـٰلَةِ ۚ إِنِ ٱمْرُؤٌا۟ هَلَكَ لَيْسَ لَهُۥ وَلَدٌ وَلَهُۥٓ أُخْتٌ فَلَهَا

نِصْفُ مَا تَرَكَ ۚ وَهُوَ يَرِثُهَآ إِن لَّمْ يَكُن لَّهَا وَلَدٌ ۚ فَإِن كَانَتَا ٱثْنَتَيْنِ فَلَهُمَا ٱلثُّلُثَانِ مِمَّا تَرَكَ ۚ وَإِن

كَانُوٓا۟ إِخْوَةً رِّجَالًا وَنِسَآءً فَلِلذَّكَرِ مِثْلُ حَظِّ ٱلْأُنثَيَيْنِ ۗ يُبَيِّنُ ٱللَّهُ لَكُمْ أَن تَضِلُّوا۟ ۗ وَٱللَّهُ بِكُلِّ

شَىْءٍ عَلِيمٌۢ ﴿١٧٦﴾

They ask you for a legal verdict. Say: "Allâh directs (thus) about Al¬Kalâlah (those who leave neither descendants nor ascendants as heirs). If it is a man that dies, leaving a sister, but no child, she shall have half the inheritance. If (such a deceased was) a woman, who left no child, her brother takes her inheritance. If there are two sisters, they shall have two-thirds of the inheritance; if there are brothers and sisters, the male will have twice the share of the female. (Thus) does Allâh makes clear to you (His Law) lest you go astray. And Allâh is the All-Knower of everything."

(Translation taken from: http://www.quranexplorer.com/Quran/Default.aspx)

According to the three verses, it can be concluded that the inheritance distribution in Islam is that a male beneficiary get two parts of the female beneficiary based on verses 11 (Awang). The overall of the verses shows us the portion of each members of the family. Not all will receive the inheritance as there are certain levels that will be block by the levels before it. Table below will show the portion on each level based on the verses of Quran in Surah An-Nisa':

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PORTION	LEVEL
Husband of the deceased	
1/2	The deceased does not have children OR does not have grandchildren from the son
1/4	The deceased have children OR have grandchildren from the son
Wife of the Deceased	
1/4	No children OR no grandchildren from the son
1/8	Have children OR have grandchildren from the son
Daughter of the Deceased	
1/2	The only daughter AND no son
2/3	2 daughters or more AND no son
Asabah bi-ghayr	Have son – son will get two parts while daughters get one part each.
Granddaughter from the Son of the Deceased	
1/2	Only one AND no other children
2/3	2 granddaughters or more AND no children
1/6	One or more granddaughters with a daughter
Asabah bi-ghayr	Have a grandson – will get half from grandson portion from the son. Block caused by having a son OR two daughters or more.
Father of the Deceased	
1/6	Have a son OR grandson from the son
1/6 and Asabah	Have a daughter OR granddaughter from the son
Asabah	No children OR grandchildren from the son
Mother of the Deceased	
1/6	Have children OR grandchildren from the son OR have two siblings OR sibling with the same father
1/3	Does not have children OR grandchildren from the son OR no two siblings OR sibling with the same father
1/3 from balance	Have a father, husband OR wife
Grandfather of the Deceased	
Same like Father	Will only get if the deceased have no father

Table 3: Portion for family members in Inheritance

The table above shows the portion received by the family members for inheritance. Additionally, there are also the sister siblings with the same parent of the deceased, sister sibling with the same father and siblings with the same mother who are eligible to claim the inheritance but they are all blocked if the deceased still have his parent and son which is the high priority family members to receive the inheritance.

2.3 Requirement for the system

There are several systems already available in the internet such as the Faraid calculator produced by the Universiti Sains Malaysia (USM) and some other calculator software used by Jabatan Kemajuan Islam Malaysia (JAKIM). The system will be taken as a benchmark to build the Online Faraid Calculator System.

To build the system, it must go for several processes where to make the calculation to be accurate; the variables need to be acquired by the system to users. Therefore, several questions would be asked to the user to match up their cases with the calculations. If the condition suit the condition set by the Quran that is embedded into the system, it will be calculated accordingly and will give the value to the users and facilitating them to distribute the wealth evenly.

As Faraid is very complex, the system need to have accurate and careful calculation to apply certain conditions. Therefore, the best method to build up the system is using the method of requirement engineering. The system will have to get a high degree of interaction between people and the software due to its complexity. Requirement engineering offers some technique that can deal with the complexity of a system that is abstraction, decomposition and projection (Easterbrook, 2004). For this system, decomposition technique seems suitable as it will break the condition into several parts so that it will be applied little by little to produce a complete set of systems.

CHAPTER III

METHODOLOGY

Using the right method is very important in the development phase. It will ensure the project to be completed within the timeframe allocated. Different methodologies will cater different needs of problems and solutions. Therefore, this chapter will be focusing on the methodology used to implement the Online Faraid Calculator System. It will emphasize certain topic that is:

- Methodology
- Product Development Phases
- Methods of Information Gathering
- System Architecture
- Gantt chart
- Development Tools

3.1 Methodology

Several methods will be used to check on the scope of the study that has been stated above. Some of the methods are:

- Research on the tafseer or the Quranic verses related to Faraid.
- Check on the latest article and journals by scholars specifically from Malaysia to get the latest Faraid issue and the obtaining wider scope of Faraid management in Malaysia.
- Interviews to collect information about the current system used to manage Faraid issue and the improvement needed to be done. It will be conducted with the Islamic Council, Scholars, and Private Sectors.

In overall, the system is implemented according to the System Development Life Cycle (SDLC) in which is a framework that explains the actions taken in every stage of a software development. In total, there are five stages in the SDLC that is:

1- Planning and Investigation
2- Analysis
3- Design
4- Implementation (Programming, Testing and Documentation
5- Maintenance

In SDLC it has several methodologies used to create software or a system which will also be covered in this chapter. Each methodology has different type of approach. In this project, only one type of methodologies are being used to develop the system while in the stage of planning and analysing, requirement engineering method are being used to get the requirement needed to develop the system.
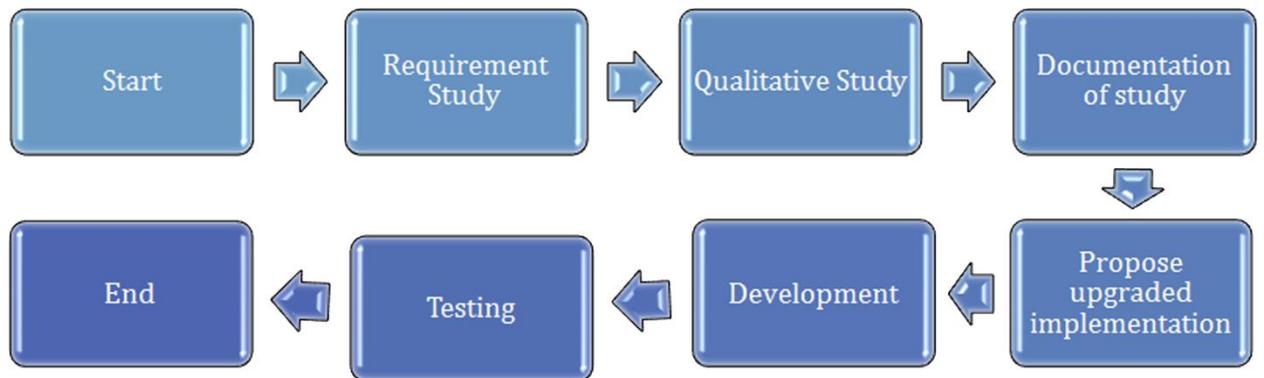

Figure 1 - Study Process Flow

3.2 Product Development Phases

The aim of this project is to develop an online calculator that can be used by all Muslims in Malaysia to calculate the distribution of inheritance using Faraid. The decided system to be developed is a website. Therefore, there are certain areas needed to be taken into account in the product development phases according to this step:

- Research on the website requirements.

- Design of the website and the contents needed.

- Phase for website development

- User acceptance test.

As to this part, requirement engineering is used to optimize some time to get the requirement of the web system. The step involved in the requirement engineering is as figure below.
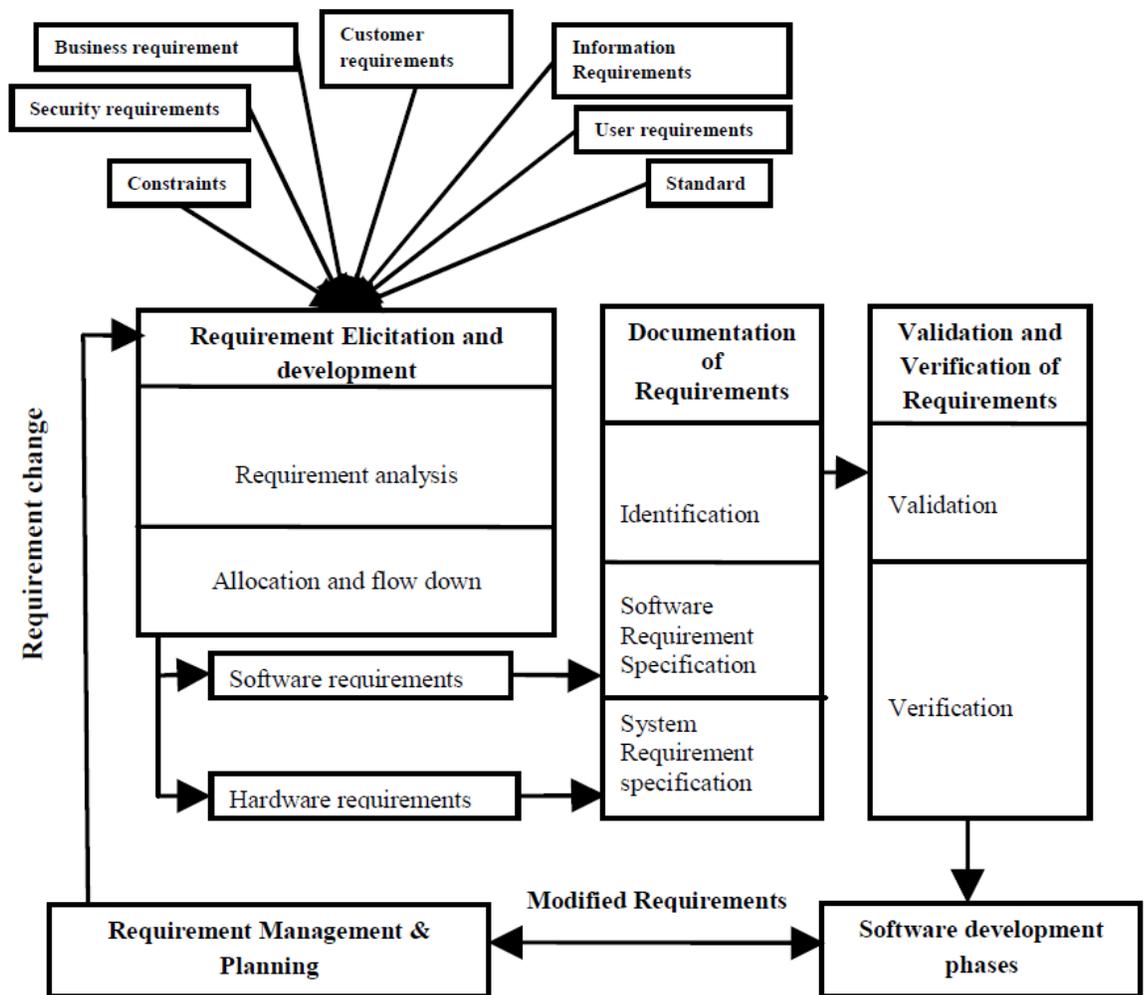

Figure 2 - Requirement Engineering Method

In Figure 1, it shows the method involved in using the requirement engineering as a based to develop the software. As to that, the software will be created according to the user's requirement and need. Therefore, the software will apply the usability element that had been mention that is easy to use and manage user's attention.

After having the requirement, it will be validated and verified before going to the software development phase based on the user requirement on the software.

3.3 Methods of Information Gathering

Several methods will be used to collect the data. The methods are listed below:

- Interview with the State Islamic Council (Majlis Agama Islam Negeri) or Jabatan Kemajuan Islam Malaysia (JAKIM) to get the details on Faraid management in Malaysia. It is important to know the issue and get the requirement from the agency for system development.
- Some information will be gathered through books, journals and research paper to gain the specific calculation method and producing the algorithm and arithmetic logic to develop the system function.
- Private sectors that also manage inheritance issue will also be interviewed to get the information and increase the commercial value of the system according to certain commercial requirement.

3.4 Development Tools

There are several tools used for this study.

- Development Tools – Adobe Photoshop CS5, Notepad++, XAMPP
- Programming Language – PHP, Java, HTML, CSS, SQL

3.5 System Architecture

System architecture is a conceptual model that will help define the behaviour, structure and in-depth view of a system. In this part, the structural and conceptual model on this particular system will be explained.

For the Online Faraid Calculator System, it will be a system that can be access by public as a service provide to them. The system will take all the input from the users and all the input will be collected and based on the final input given by the users, the system will run the query through the database system according to the condition matching with the algorithm. Once the system read the query, it will calculate the final calculation for the users to get the output of the results.

The output itself would represent the portion of the division among family members together with the value of each family members will get according to the faraid ruling. Here is a simple example showing on how the calculation will be made.
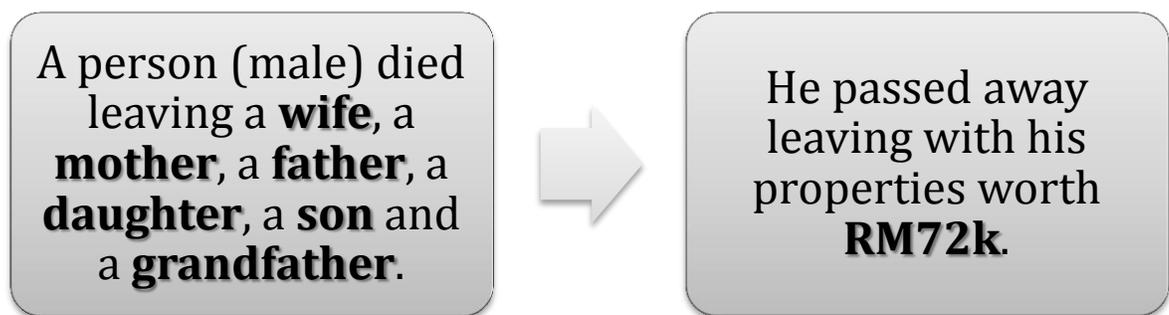

Figure 3 - Case Study Example

According to the figure above is one cases of faraid where the deceased left behind some of his family. Therefore, faraid should be done by taking the requirement of all the things left out of his wealth. First of all, they need to settle all the necessary thing after the deceased passed away. After all of that had been managed, the final amount of the deceased money will be input in the system together with the family members left behind that is still alive. Therefore, if according to the case study above, the calculation will be read by the system as per below.
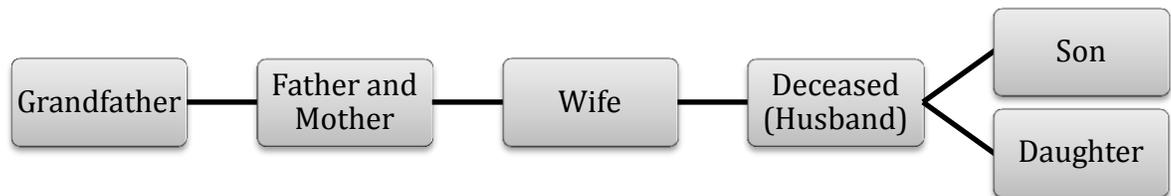
Figure 4 – Inheritance Tree Charts

Based on this chart, it shows the members who are eligible to receive the inheritance. According to this, the algorithm will put like this:

- Grandfather would be blocked by father of the deceased as the father is still alive
- Both father and mother will receive 1/6 portion of the wealth as the deceased are married and have a children.
- The wife of the deceased will received 1/8 of the portion as they have children
- While the condition when the deceased have a son, the son should get all the remaining balance of the wealth but the deceased also have a daughter. Therefore, according to the ruling, the division will be 2 parts of son and 1 parts of daughter. That would make the remaining balance to be divided into three parts.
- Therefore 2/3 of the inheritance will go to the son and the remaining 1/3 will go to the daughter.

Based on that logic, the system will generate the value given to each eligible family member who will receive the inheritance. In this example, the calculation will be like this:

- Divide first to the deceased wife, father and mother.
- The balance will go to his children as Asobah.
- Father 1/6 X RM 72k   =   RM12k
- Mother 1/6 X RM72k   =   RM12k
- Wife 1/8 X RM72k   =   RM9k
- **TOTAL**   **=**   **RM33k**

After calculating for the parents and wife, the remaining will go to the children. The calculation will be like this:

- Balance: RM72k – RM33k   =   RM39k
- A son will got 2 times a daughter.
- Therefore the proportion will be 3/3 =   RM39k
- Son 2/3 X RM39k   =   RM26k
- Daughter 1/3 X RM39k   =   RM13k
- **TOTAL**   **=**   **RM39k**

By that calculation, the system will be developed so that it will suit the calculation condition. Simple storyboard is created to show the early sketch to design the prototype of the system.
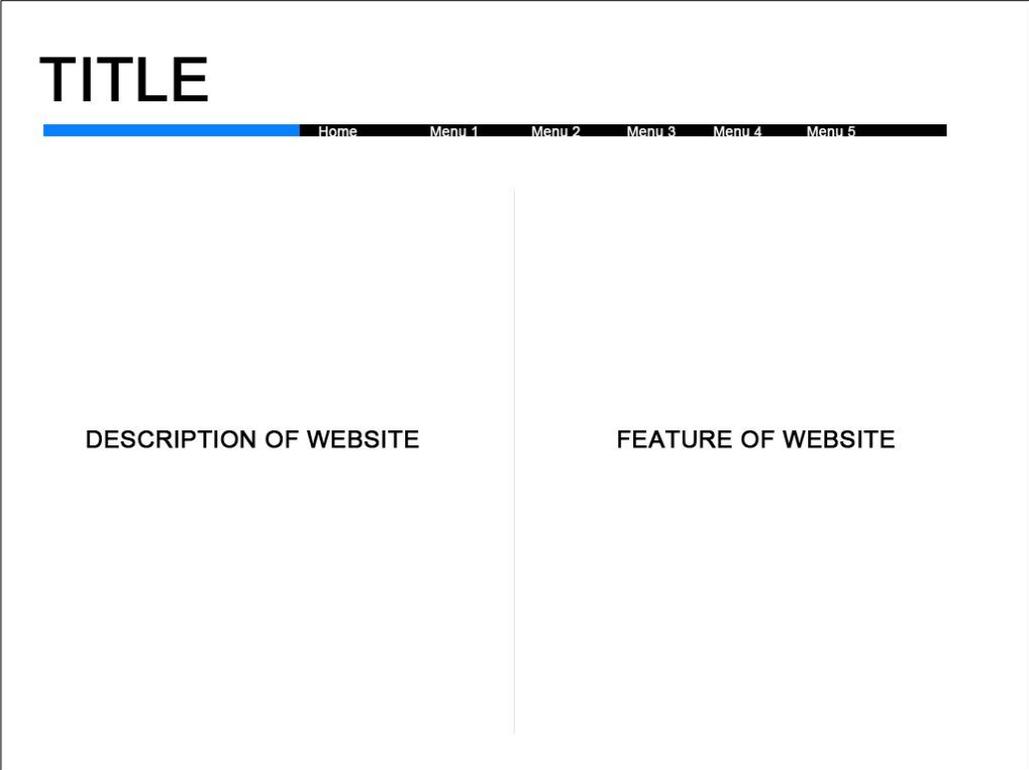
The sketches can be seen in the figure below:

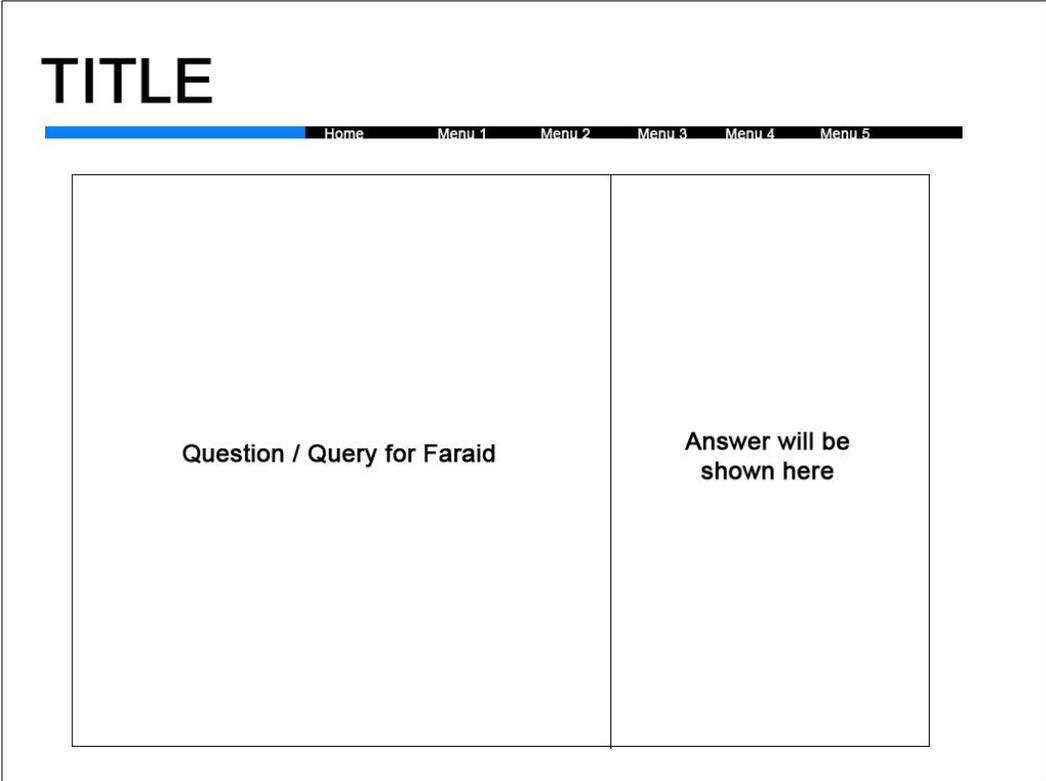**Figure 5 - Home screen sketches for the system**

Figure 6 - Function screen

3.6 Gantt chart

See Appendix 1: Gantt chart

3.7 Key Milestones

See Appendix 2: Key Milestone

CHAPTER IV

RESULTS AND DISCUSSION

4.1 Interview with Faraid Expert

According to the expert, by taking the arithmetic's calculation for Online Faraid Calculator System, it should be no problem with the system and it is expected to produce the correct results. The portions are all had been stated in the Quran. Below are some of the details extracted regarding the portion. The table consists of the grouping of condition that will receive the same portion of inheritance.

Heirs entitled to receive	Portion
Husband Not having any daughter or son OR Not having any daughter or son of son.	**Half (1/2)**
Daughter Only one AND have no son.	
Daughter of son Only one AND have no son.	
Full sister Full Sister Single with no daughter or son, daughter of son or son of son, father AND no heir that can make she Asabah.	
Consanguine Sister Single with no daughter or son, daughter of son or son of son, father AND no heir that can made she Asabah**.**	

Table 4 - Heirs entitled to receive Faraid portion according to the rule (1/2)

Heirs entitled to receive	Portion
Mother Have no son or daughter OR son or daughter of son OR 2 or more full/consanguine/uterine brother or sister	**Third (1/3)**
Mother Have father with husband or wife	
Uterine Sister and Brother One or more with no father, father of father and no son or son of son	

Table 5 - Heirs entitled to receive Faraid portion according to the rule (1/3)

Heirs entitled to receive	Portion
Husband Having daughter or son OR Having daughter or son of son	**Fourth (1/4)**
Wife Not having any daughter or son OR Not having any daughter or son of son	

Table 6 - Heirs entitled to receive Faraid portion according to the rule (1/4)

Heirs entitled to receive	Portion
Daughter of Son 2 or more with one daughter	**Sixth (1/6)**
Mother Have son or daughter OR son or daughter of son OR 2 or more full/consanguine/uterine brother or sister	
Father Have son OR son of son Have daughter OR daughter of son	
Father of father Have son OR son of son Have daughter OR daughter	

Table 7 - Heirs entitled to receive Faraid portion according to the rule (1/6)

Heirs entitled to receive	portion
Wife Having daughter or son OR Having daughter or son of son	**Eighth (1/8)**

Table 8 - Heirs entitled to receive Faraid portion according to the rule (1/8)

Heirs entitled to receive	Portion
Daughter 2 or more AND have no son	
Daughter of Son 2 or more AND have no son	**Two-Thirds (2/3)**
Full Sister Have 2 or more with no daughter or son, daughter of son or son of son, father AND no heir that can made she Asabah	
Consanguine Sister Have 2 or more with no daughter or son, daughter of son or son of son, father AND no heir that can made she Asabah	

Table 9 - Heirs entitled to receive Faraid portion according to the rule (2/3)

4.2 Currently available program on the Internet

There are two main applications available on the internet that is closely related to this project that is application from Universiti Sains Malaysia and the application from As-Salihin website. From Universiti Sains Malaysia, the system name is "Sistem Maklumat Faraid (SMF)" that is available on this link http://faraid.usm.my/msl/default.html while the application from As-Salihin can be seen at http://www.as-salihin.com/fastguide/index2.php
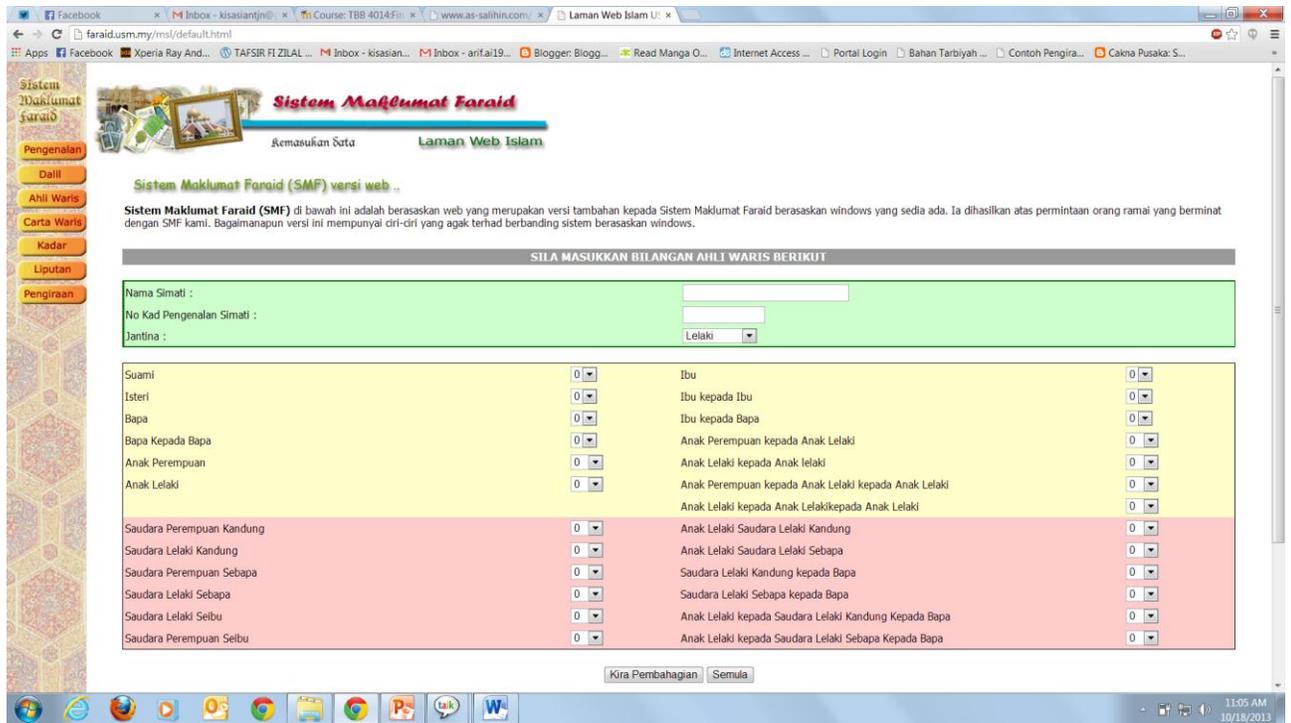
Figure 7 - Interface of "Sistem Maklumat Faraid" by USM


Figure 8 - Example of the information from USM Faraid Website

Figure 9 - Interface of As-Salihin faraid guide

Both applications are the same in term of functionality but they got some differences in term of usability and the interface. For SMF by USM, the calculator will only show how much portion that will be received by the inheritors. In As-Salihin, they also ask the user for their total assets and the result shown the portion each inheritors get together with the amount given to them.

4.3 Flowchart Algorithm for the Calculation
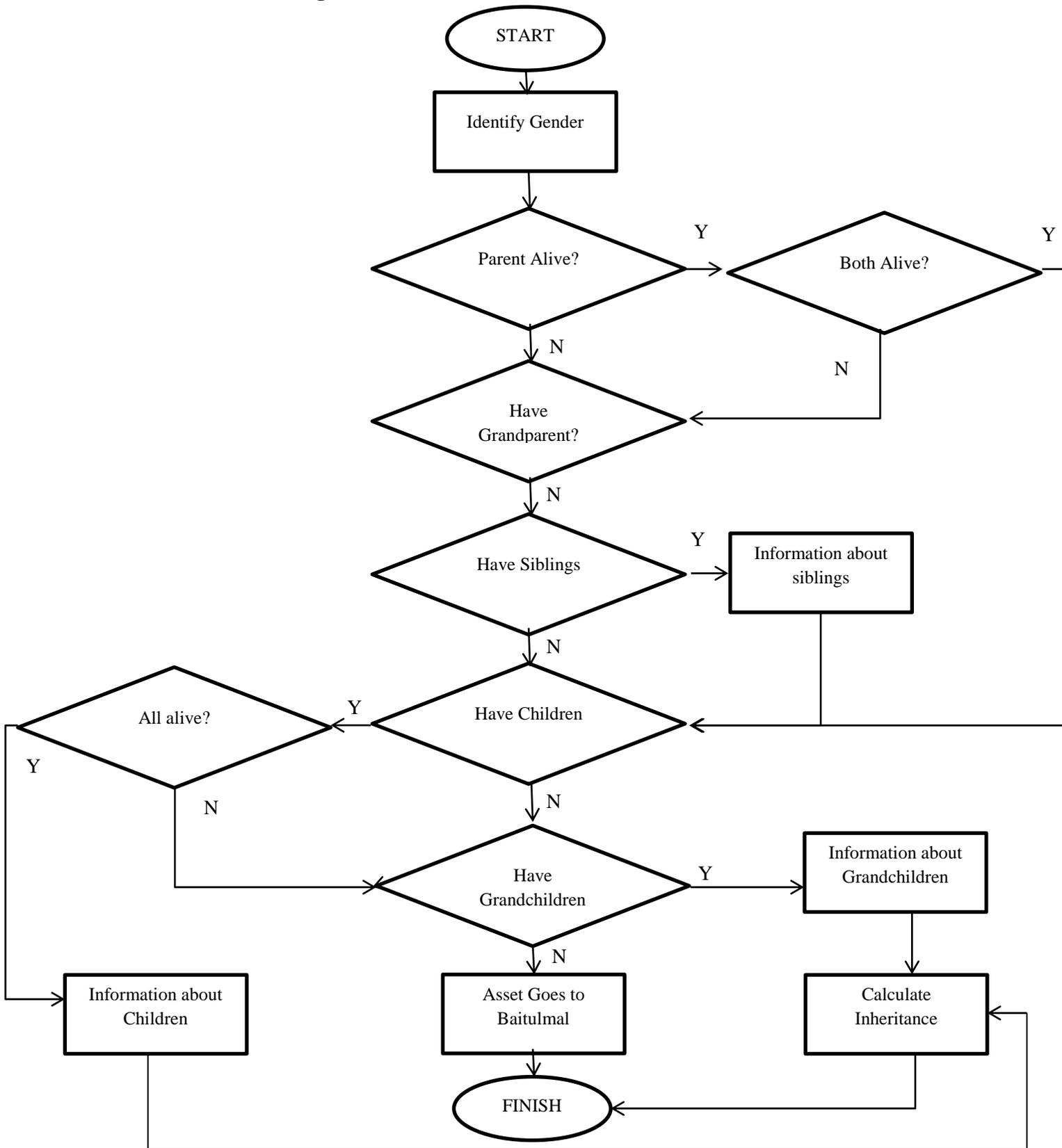
The flowchart shows the process of the faraid system to be executed. The process consists of many conditions and level. To get into the final calculation, all information are required to be submitted to the system as it will read the condition and do the calculation based on the condition given by the user.

In the flowchart, if all the condition is NO as to show that the deceased have no relative with him, all of his inheritance will go to Baitulmal to be managed by the authorities like Majlis Agama Islam Negeri.

On the other hand if certain conditions are met, the calculator will look into the conditions and do the calculation to show the distribution of inheritance that will be made.

4.4 Current Prototype

The current prototype have emphasized on the basic function for the most prioritized inheritors to get the portion of inheritance that is:

    i.   Father
    ii.   Mother
    iii.   Husband or Wife
    iv.   Son
    v.   Daughter

These five is the most prioritized heirs to receive the inheritance. The interface of the website is yet to be developed but the core functionality had been developed and need to be further developed to increase the usability of the system.
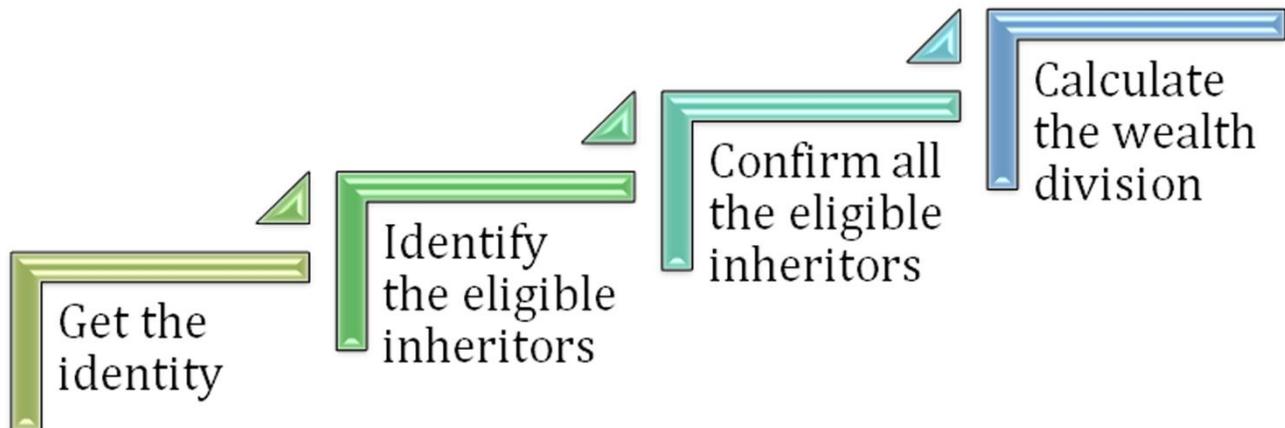
Figure 10 - Step to calculate the wealth division

As for now the function will give query to the user to select the gender of the deceased and also if the deceased have a spouse (husband or wife). Next thing, user will be ask if the deceased still have his/her parent alive or not. The condition may vary as there are some probability that both had passed away or maybe one of them that are still living. Lastly, the user needs to give the input of how many of the decease's children that are still living. After all the information had been given, user will then put a value to tell the system about the value of all the properties and asset left by the deceased.

The computer will then calculate the portion received by each of the inheritors for that particular property left by the deceased.

Question	Current Conditions
Question 1: What is the gender of the deceased? ◉ Male ◯ Female	Deceased is male
Question 2: Does the deceased have a spouse (husband/wife)? ◉ Yes ◯ No	Deceased has a wife
Question 3: Does the deceased have living parents? ◯ Father only ◯ Mother only ◉ Both ◯ None	Deceased has both a father and a mother
Question 4: Does the deceased have living children? Number of male children: [3] Number of female children: [2] ◯ None	Deceased has 3 male children and 2 female children
Question 5: How much is the property left by the deceased? [100000] [Submit]	

Figure 11 - Screenshot of the prototype

Question	Current Conditions
Question 1: What is the gender of the deceased? ◉ Male ◯ Female	Deceased is male
Question 2: Does the deceased have a spouse (husband/wife)? ◯ Yes ◉ No	Deceased has no spouse
Question 3: Does the deceased have living parents? ◯ Father only ◯ Mother only ◯ Both ◉ None	Deceased has no living parents
Question 4: Does the deceased have living children? Number of male children: [2] Number of female children: [3] ◯ None	Deceased has 2 male children and 3 female children
Question 5: How much is the property left by the deceased? [100000] [Calculate]	Results: 100000 male no 0 0 3 male children receive 28571.43 each female child receive 14285.71 each

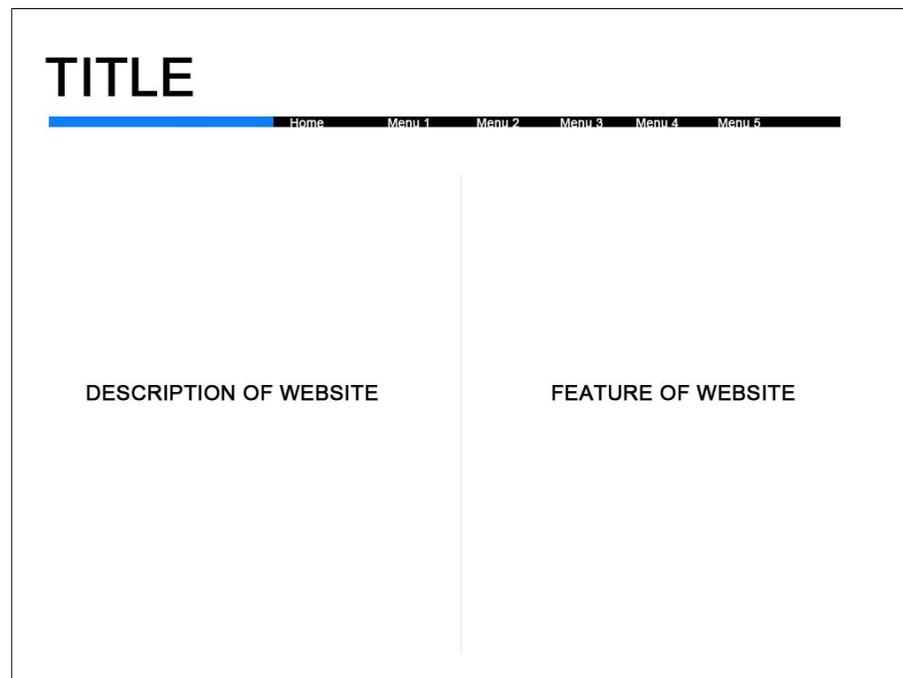**Figure 12 - Example of the value determine by the system**

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CHAPTER V

CONCLUSION

In conclusion, this is a project to improve and build a better Faraid Calculator System for the benefit of Muslims. The system is needed to help Muslims in managing their wealth properly and also educating people that Faraid is the problem solver for their inheritance issue. The research is being done to ensure the systems meet with the requirement of the users especially the one managing this issue. It will increase the efficiency of the agency to manage inheritance issue as well as increase the effectiveness. Hence, the system will be developed using the latest technology to make it a user-friendly system.

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Sistem Maklumat Faraid. (n.d.). Retrieved from Laman Web Islam USM: http://maths.usm.my/faraid/msl/faraid.asp

APPENDIX

TITLE

| Home | Menu 1 | Menu 2 | Menu 3 | Menu 4 | Menu 5 |

Question / Query for Faraid	**Answer will be shown here**

TITLE

| Home | Menu 1 | Menu 2 | Menu 3 | Menu 4 | Menu 5 |

DESCRIPTION OF WEBSITE	**FEATURE OF WEBSITE**

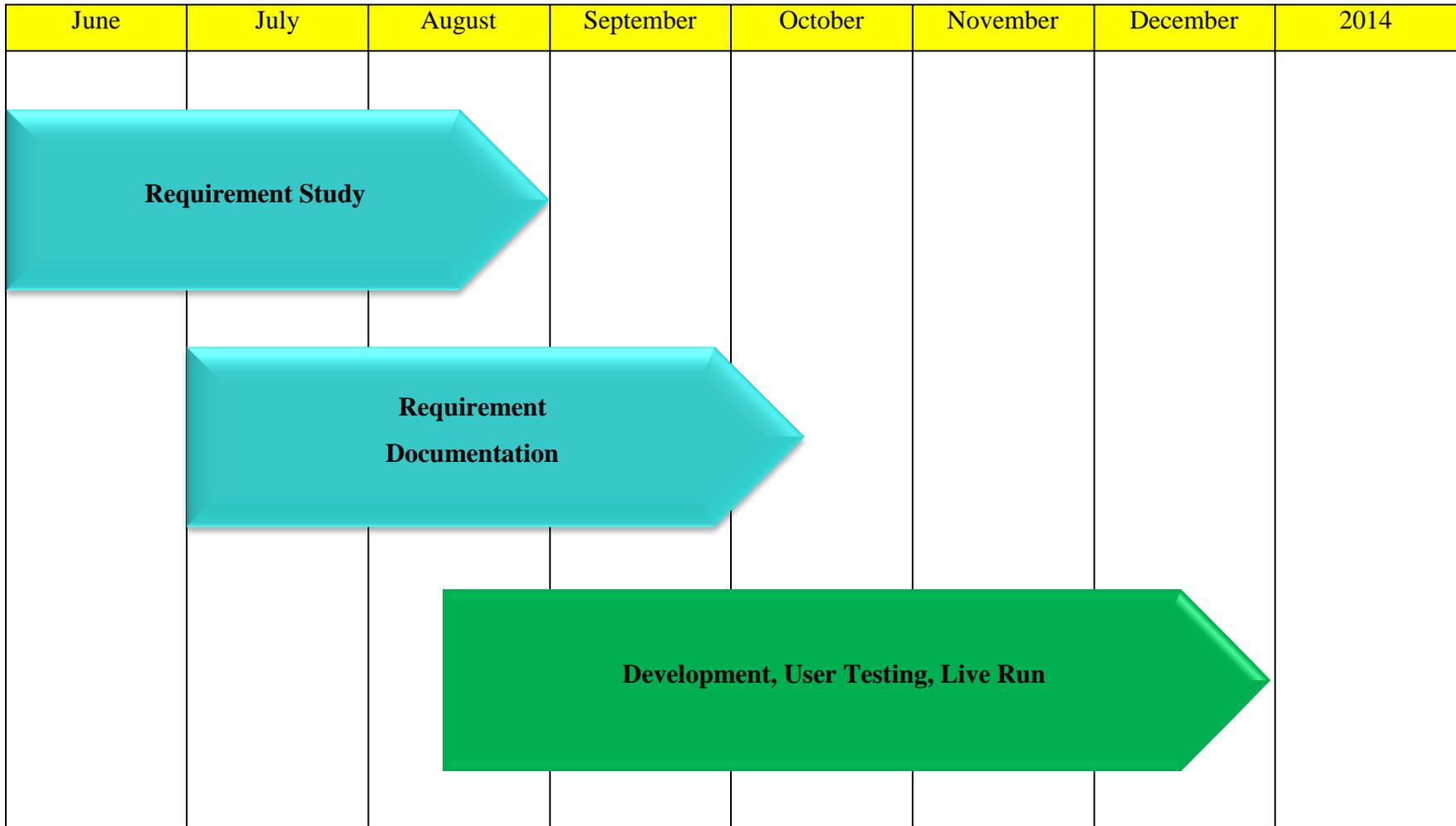| Question	Current Conditions
Question 1: What is the gender of the deceased? ◉ Male ○ Female	Deceased is male
Question 2: Does the deceased have a spouse (husband/wife)? ◉ Yes ○ No	Deceased has a wife
Question 3: Does the deceased have living parents? ○ Father only ○ Mother only ◉ Both ○ None	Deceased has both a father and a mother
Question 4: Does the deceased have living children? Number of male children: 3 Number of female children: 2 ○ None	Deceased has 3 male children and 2 female children
Question 5: How much is the property left by the deceased? 100000 Submit	

Question	Current Conditions
Question 1: What is the gender of the deceased? ◉ Male ○ Female	Deceased is male
Question 2: Does the deceased have a spouse (husband/wife)? ○ Yes ◉ No	Deceased has no spouse
Question 3: Does the deceased have living parents? ○ Father only ○ Mother only ○ Both ◉ None	Deceased has no living parents
Question 4: Does the deceased have living children? Number of male children: 2 Number of female children: 3 ○ None	Deceased has 2 male children and 3 female children
Question 5: How much is the property left by the deceased? 100000 Calculate	Results: 100000 male no 0 0 3 male children receive 28571.43 each female child receive 14285.71 each

Business requirement

Customer requirements

Information Requirements

Security requirements

User requirements

Constraints

Standard

Requirement Elicitation and development

Requirement analysis

Allocation and flow down

Software requirements

Hardware requirements

Documentation of Requirements

Identification

Software Requirement Specification

System Requirement specification

Validation and Verification of Requirements

Validation

Verification

Requirement change

Requirement Management & Planning

Modified Requirements

Software development phases

Task/Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Project Work Continues	■	■	■	■												
Submission of Progress Report				■												
Project Work Continues				■	■	■	■	■	■	■	■	■				
Pre-SEDEX										■						
Submission of Draft Report											■					
Submission of Dissertation (soft bound)											■					
Submission of Technical Paper												■				
Oral Presentation													■			
Submission of Project Dissertation (Hard Bound)															■	

Appendix 1 - Gantt Chart

June	July	August	September	October	November	December	2014

Requirement Study

Requirement Documentation

Development, User Testing, Live Run

Appendix 2 - Key Milestones