Software Requirements Specification

for

MAMTA - A CHILDBIRTH AND MATERNITY APP

Prepared by AKASH B K (1MY18MCA01)

<organization>

<date created>

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Purpose

Mobile applications are soft tools for connecting users to Internet services.Mobile technology has made life easier, it serves the users in different aspects and can be used as an essential gadget to users worldwide. According to [1] mobile medical apps are more popular among women as compared to men. This popularity range from elaborating simple and common health patterns to experimenting personalized tests. In addition, as per the results of [2] on how women are using technology today which studied completive number of women using technology showed that women are always in a hunt of technology which help them to follow up with their active lifestyles.

From the exact sense, it is obvious that specific life-cycle like pregnancy requires the use of mobile technology to manage and monitor the pregnancy status week-by-week, provide feedback information and provide essential support and time management. On the other hand, mobile apps are customary in the healthcare development, and have achieved dominant progress in the aspect of developing healthcare mobile applications.

1.2 Document Conventions

For this Software Requirement and Specification document the following standard is followed:

- The font style for the text is Times New Roman.
- The Main Headings must make use of Font size 16 numerals
- The second Headings must make use of Font size 14 numerals.
- The content must make use of Font size 12 numerals.

1.3 Intended Audience and Reading Suggestions

This document provides a description for the system to be developed. It acts as a reference document for the developers, testers, project managers to look upon during their work on their software.

The Software Requirements document is intended for:

- Developers who can review the project's capabilities and more easily understand where their efforts should be targeted to improve or add more features.
- Project testers can use this document as a base for their testing strategy as some bugs are easier to find using a requirements document. This way testing becomes more methodically organized.
- Project managers for keeping check on implantations of the requirements against the application.
- End users of this application who wish to read about what this project can do.

1.4 Product Scope

Develop a complete self help android based application that will enable a pregnant woman to resolve all her pregnancy related issues, help her reach her doctor and get required emergency medical help, all at the click of a button.
SCOPE:

- Can be used as a self help app, for women who cannot afford to have frequent visits to the doctor, to clarify small doubts.
- Easy to understand by the user.
- The emergency button will allow the woman to rest assured that she is well equipped with emergency medical help.
- Provides the driver tracking facility.
- Can be used by doctors to upload reports and verify them online.
- A good UI/UX.

1.5 References

I am highly thankful to all the developers of websites that helped me by valuable suggestions in completing the documentation part of this project .

- "Webmd Mobile Apps". WebMD. N.p., 2017. [Online]. Available: http://www.webmd.com/mobile.
- "Pregnancy ++ ". App Store. N.p., 2017. [Online]. Available: https://itunes.apple.com/us/app/pregnancy/id505862554?mt=8.
- MedHelp, "I'M Expecting Pregnancy App and Baby Guide". App Store. N.p., 2017. [Online]. Available: https://itunes.apple.com/us/app/im-expectingpregnancy-

2. OVERALL DESCRIPTION

2.1 Product Perspective

Existing System:

As per the research and survey made by our team, there are several apps that provide various services to comfort the life of pregnant women, but none of them have all the functionalities.There are several apps, like mom – o – meter, which aids pregnant women in achieving healthy weight gain during pregnancy. Apart from that, there are apps like maya, which is basically a menstrual cycle tracker.

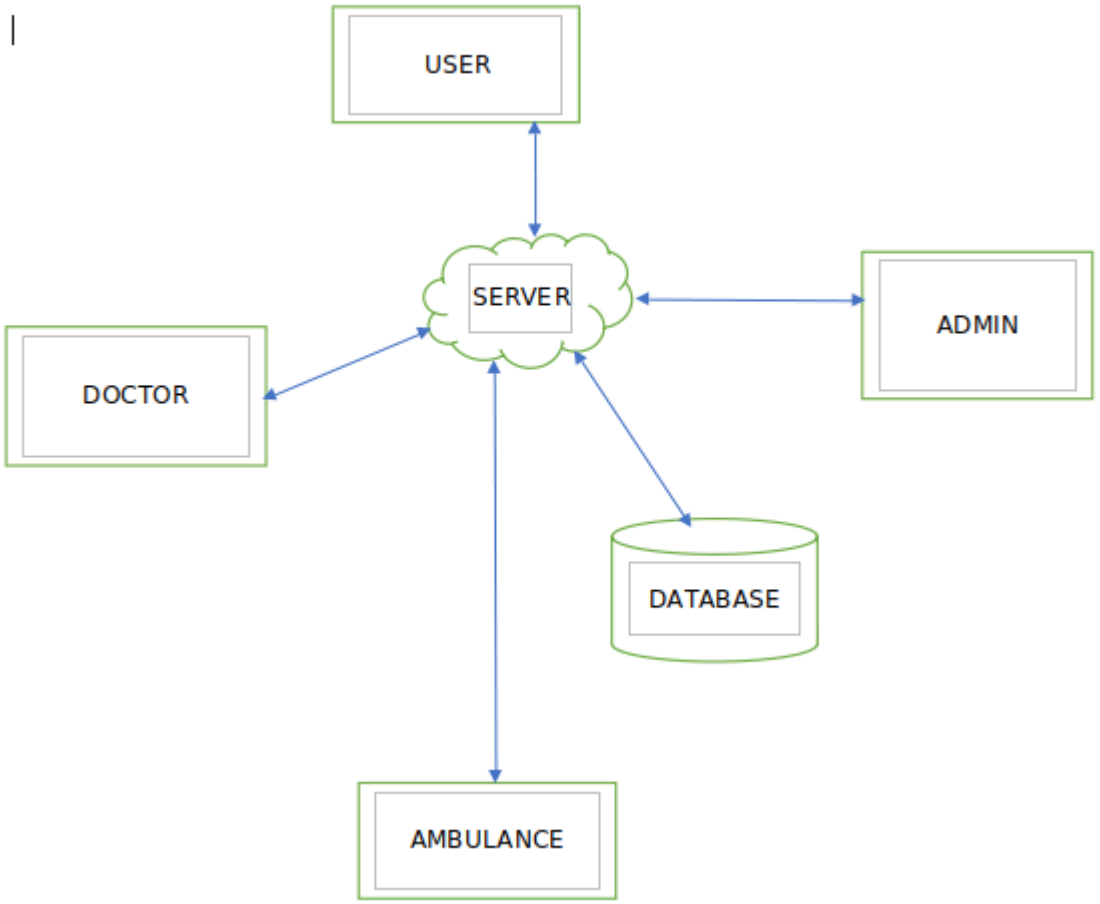
Proposed System:

This Mobile application is developed for the pregnant woman. In our project, we have attempted to think of all the possible problems that a woman may face during the most sensitive phase of her life and we have made attempts to find solutions to most of them.

2.2 Product Functions

Admin Tracks all the activities in the application. He can view, edit, and delete any pregnant woman,doctor or driver from the registered women list. Doctor can see all the patients that he is attending. He can upload reports of their corresponding patients.The user will be able to track the development of the baby week by week. The user will be able to get weekly updates and tips.The user will be able to use the kick tracker: Easily keep track of their baby's movements.

2.2.1 SYSTEM ARCHITECTURE:



2.2.1 Data Flow Diagram(DFD):

2.2.1.1 DFD 1

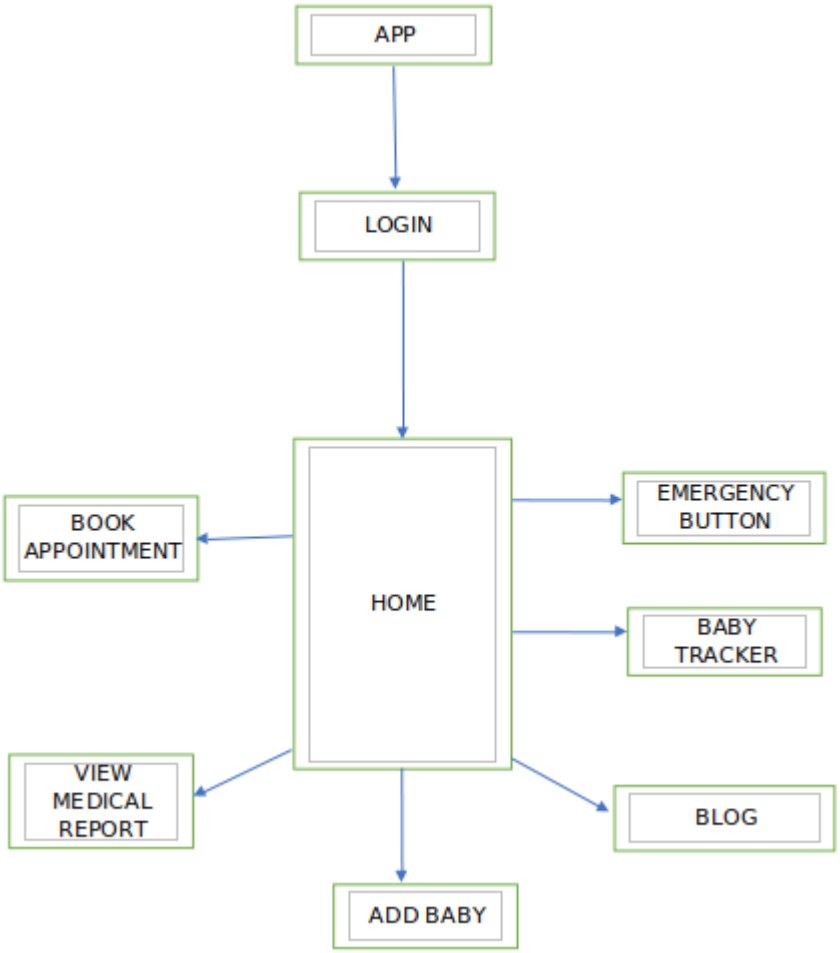


Fig 2.1 – DFD1 Diagram indicating the basic data flow of User

2.2.1.2 DFD 2

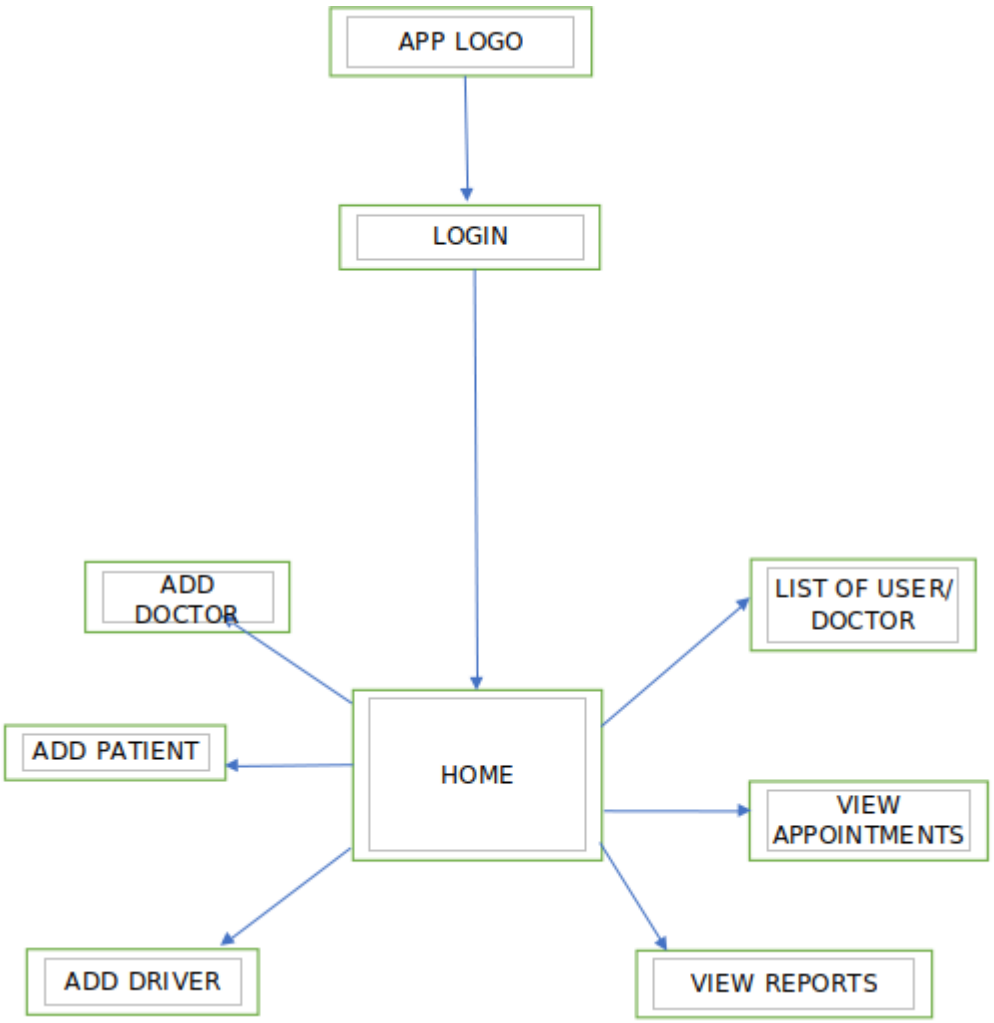


Fig 2.2 – DFD 2 Diagram indicating the basic data flow of Doctor.

2.3 Operating Environment

Operating environment for the management system is as listed below.

- Operating system : Windows 7 ,8 OR 10 (PC),
  Android 3.2.1 and above(Mobile Phones)

Hardware Platform:

- Processor : Pentium -lV 2GHz and above
- Processor Speed : 1.5GHz processor speed
- RAM : 2 GB (Recommended) or more
- Hard disk space : 20 GB (Recommended)

2.4 Design and Implementation Constraints

2.4.1 Android Studio:

Android Studio is the official integrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development. It is available to download and install on Windows, macOS and Linux based operating systems. It is a replacement for the Eclipse Android Development Tools (ADT) as primary IDE for native Android application development. Android Studio was announced on May 16, 2013 at the Google I/O conference. It was in the early access preview stage starting from version 0.1 in May 2013, then entered the beta stage starting from version 0.8 which was released in June 2014. The first stable build was released in December 2014, starting from version 1.0. The current stable version is 3.1.3 released in June2018

2.4.2 SDK Manager:

The sdk manager is a command line tool that allows you to view, install, update, and uninstall packages for the Android SDK. If you're using Android Studio, then you do not need to use this tool and you can instead manage your SDK packages from the IDE.

2.4.3 JDK:

The Java Development Kit (JDK) is an implementation of either one of the Java Platform, Standard Edition, Java Platform, Enterprise Edition, or Java Platform, Micro Edition platforms released by Oracle Corporation in the form of a binary product aimed at java developers on Solaris, Linux, macOS or Windows. The JDK includes a private JVM and a few other resources to finish the development of a Java Application. Since the introduction of the Java platform, it has been by far the most widely used Software Development Kit (SDK). On 17 November 2006, Sun announced that they would release it under the GNU General Public License (GPL), thus making it free software. This happened in large part on 8 May 2007, when Sun contributed the source code to the Open JDK.

2.4.4 XML in Android:

XML stands for Extensible Markup Language. XML is a markup language much like HTML used to describe data. XML tags are not predefined in XML. We must define our own Tags. Xml as itself is well readable both by human and machine. Also, it is scalable and simple to develop. In Android we use xml for designing our layouts because xml is lightweight language so it doesn't make our layout heavy.

The whole concept of Android User Interface is defined using the hierarchy of View and ViewGroup objects. A ViewGroup is an invisible container that organizes child views. These child views are other widgets which are used to make the different parts of UI.

2.4.5 MongoDB (NoSql)

MongoDB is a free and open-source cross-platform document-oriented database program. Classified as a NoSQLdatabase program, MongoDB uses JSON-like documents with schemas. MongoDB is developed by MongoDB Inc., and is published under a combination of the GNU Affero General Public License and the Apache License.

- Rich and expressive query language that allows you to filter and sort by any field, no matter how nested it may be within a document.
- Support for aggregations and other modern use-cases such as geo-based search, graph search, and text search.

- Queries are themselves JSON, and thus easily composable. No more concatenating strings to dynamically generate SQL queries.

2.5 User Documentation

- User documentation refers to the document for an application or service delivered to the end users. The user documentation is designed in such a way that it assists end users to use the app or service. This is usually referred to as user assistance. The user documentation is a part of the overall product given to the customer.
- Traditionally the user documentation was provided as a user guide, instruction manual or online help. However, user documentation is abundantly being delivered on internet today. This has enabled tech. writers to be more imaginative in how they help users.

3 EXTERNAL INTERFACE REQUIREMENTS

3.1 User Interfaces

The user interface for this application is done by using CSS, HTML and JavaScript which contains a form and form elements like input, textbook, label, button etc. The first page is the registration page which asks for basic information retrieves the provided information and makes new account for the user. The second page is the login page and if the user already has an account she can directly log in providing the details in the input field and can use the login button to proceed to use his account. Once the login is valid, they can use the provided features of the application. The screenshots below will provide us with better knowledge of the user interfaces.

3.2 Hardware Interfaces

Section	**Requirements**
Processor	Pentium -lV 2GHz and above
RAM	2GB
Monitor	Minimum resolution 640x1136 pixel(mobile phone

	Minimum resolution 840x635 pixel(PC)
CPU	1.5GHz processor speed
Hard disk	20 GB
Keyboard	Normal or Multimedia(PC) Touch Screen(Mobile Phones)

Table 3.2.1 - Hardware Requirements: Which indicates the Requirements Used in our Project.

3.3 Software Interfaces

Section	**Requirements**
Front End Software	XML,Java
Back End Software	MongoDB
Operating System	Windows 7,8 or 10.(PC) Android 3.2.1 and above(Mobile Phones)

Table 3.3.1 - Software Requirements: Which indicates the Requirements Used in our Project.

4. SYSTEM FEATURES

Good UI/UX Design that impresses users.

User Registration : User should register providing basic information in order to use the application.

User Login : User must login by providing valid credentials to use the application features.

For the Admin

- The system should enable the admin to login.
- The system should enable the admin to view, and delete any pregnant woman,doctor or driver from the registered women list.
- The system should enable the admin to view, edit information in the week's section.
- The admin can upload reports, to be viewed by both, the doctor and the patient.
- Can check for any inappropriate posts by any user and authenticate it before it is published on the feed. (Report functionality).

For the doctor:

- Enable the doctor to login
- Can see all the patients that he is attending
- Can upload reports of their corresponding patients
- Can see their booked appointments
- Can edit his profile or appointments

For the user :

- The user will be able to register in the App.
- The user will be able to add personal information.
- The user will be able to add name/s for the baby.
- The user will be able to track the development of the baby week by week, and by picture.
- The user will be able to get weekly updates and tips.
- The user will be able to get weekly pregnancy guide videos.
- The user will be able to use the kick tracker: Easily keep track of your baby's movements. • The user will be able to fix an appointment with her doctor
- The user will also be able to upload reports, in case they have been done from another diagnostic centre, to make sure they're all assembled together.
- The user is provided with an emergency button, which will immediately alert her gynaecologist, her most immediate contact person and an ambulance driver about the

situation. Also, her current location will be shared with all three, so that they can reach the destination immediately.

- The user can fix reminders in order to make sure that the tablets are taken on time
- Smart notifications
- Photo gallery
- Discussion forum – Where people can discuss their issues, and others who have also faced similar issues, can share their experiences with them.
- Suggestion of practices to ensure a normal pregnancy rather than a caesarean one, right from the first week of pregnancy.
- Active tracking of the live location of the ambulance arrival.

For the ambulance driver :

- Enable him to login with valid credentials
- An interface to confirm the request, so as to send an acknowledgement to the user about the arrival of the ambulance.
- An option to transfer it to the subsequent available driver, in case one is unavailable.

5. OTHER NONFUNCTIONAL REQUIREMENTS

5.1 Reliability

The application provides storage of all databases. The reliability of the program depends on the reliability of the separate components. The main pillar of reliability of the application is the backup of the database which is continuously maintained and updated to reflect the most recent changes. Thus the overall stability of the application depends on its underlying operating system.

5.2 Security

The application secures confidential user information. The application should not leave any cookies on the users device containing the user's password, system's back-end servers shall only be accessible to authenticated administrators. Sensitive data will be encrypted before being sent over insecure connections like the internet.

5.3 Availability

The application should be available at all times, meaning the user can access it using PC or mobile phones. In case of a hardware failure or a database corruption, backups of the database should be retrieved from the server and saved by the administrator. Then the service will be restarted. It means 24x7 availability.

5.4Maintainability

MongoDB takes care of storing the database and images. Also the software design is being done with modularity in mind so that its maintainability can be done efficiently.

5.5Portability

The user's part is fully portable and any system meeting the software/ hardware configuration as mentioned should be able to use the features of the application, including any hardware platform that is available or will be available in the future. The application shall run on PC, Laptops and mobile phones.