Unit SIT764 Project Analysis and Design

Project Proposal
Messaging Platform for Promoting Healthy Lifestyle Behaviors

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INTRODUCTION

Purpose of Plan

The **Messaging Platform for Promoting Healthy Lifestyle Behaviors** will provide a definition of the project, including the project's goals and objectives. Additionally, the Plan will serve as an agreement between the following parties: Project Sponsor, Steering Committee, Project Manager, Project Team, and other personnel associated with and/or affected by the project.

> **The Project Plan defines the following:**
>
> – Project purpose
> – Problem/Aim
> – Different Solutions
> – Recommendations
> – Scope and expectations
> – Roles and responsibilities
> – Assumptions and constraints
> – Project management approach
> – Ground rules for the project
> – Project budget
> – Project timeline
> – The conceptual design of new technology

Problem/ Aim: Peoples with wrong lifestyle can impact major health condition and significantly increase diseases like diabetes, cancer, kidney disease etc. In previous project that has come up idea to send simple text message to the patients as reminder and give notification to change their habits. The solution is not effective due to lack in communication with the patients, not able to send multimedia message, not able have chat conversation. In this project will be focusing on developing platform for message bank and website to send message to the mobile app.

Different solution:

In this project proposal will be focusing three aspects of the technology.
One Databased, second Website and third mobile app.

Databased to store the patient's information, health bank, user credential and chat conversation specific to patient profile.

Website – like a dashboard which has all the information about the patient, can send to receive message to the patients and can create profile.

Mobile is android app for the patient who can download for free, register and start receiving the message based on the category they choose in the health sector.

Different solution will be given in all the three technologies, and a suggestion or recommendation to what best to developing in given time and resource that we have.

Database Development

Introduction
The database management system is the heart of modern applications, and choosing the best DBMS software is imperative to the success of the IT projects and system. Although the database landscape can be complex and confusing, our aim is to find different types of database management system (DBMS) software to determine which technology or technologies will best fit our project.

Problem Definition
Creating and storing data in a server can be tricky in terms of security, performance and price. It will be difficult for any online app to store a huge amount of data for millions of its customers without a database. Apart from storing data, a database makes it quite easy to update any specific data with newer data. The data stored in a database of an app will be more secure than if it's stored in any other form. And, there is the possibility of users entering incomplete sets of data, which can add to the problems of any applications. All such cases can be easily identified by any database.

Challenges of Database Management
1. Growing complexity in landscape:
   There are relational databases, columnar database, object-oriented databases, and NoSQL databases. No to mention the plethora of vendors offering their own spin on each.
2. Limits on scalability:
   The fact is, all software has scalability and resources usage limitations, including database servers.
3. Increasing data volumes:
   Research shows that we've created more data in the past two years than in the entirely of the human race.
4. Data security
   Database are the hidden workhorse, storing critical public and private data. A data breach typically costs a company $4 million, not to mention loss of reputation and goodwill.
5. Decentralized data management
   Although there are benefits to decentralized data management, it presents challenges as well like how to distribute the data and the best decentralization method and on.

Choosing the Right Database Management Solution for the Project
1. Establishing decision criteria:
   Important considerations include cost of ownership, ease of use, functionality, ease of database administration, and scalability.

2. Matching the solution to our project:
   Our choice of database technology should consider our project goals. How much data are we collecting and how fast is it happening. Depending on how we access and analyze it.
3. Size of data to be stored: With regards with the project, we are looking into moderation data storage.

Although there are many other aspects to be considered while choosing a DBMS, regarding with our project which will be basically holding message bank and storage of pictures, videos and pdf, which is considered as moderate data quantity, here are some of the best solutions available:

MySQL
MySQL has been around since 1995 and is now owned by Oracle. Apart from its open source version, there are also different paid edition available that offer some additional features, like automatic scaling and cluster geo-replication. Written in both C and C++ it is compatible with just about every operating system.
Pros
- It can be used even when there is no network available.
- It has a flexible privilege and password system.
- It uses host-based verification.
- It has security encryption for all password traffic.
- It consists of libraries that can be embedded into different standalone applications.
- It provides the sever as a separate program for a client/server networked environment.

Cons
- Different members are unable to fix bugs and craft patches.
- Users feel that MySQL no longer falls under the category of a free OS.
- It's no longer community driven.
- It lags behind others due to its slow updates.

SQLite
SQLite is supposedly one of the most widely deployed databases in the world.
Pros
- It has no separate server process.
- The file format used in cross-platform.
- It has a compact library, which runs faster even with more memory.
- All its transactions are ACID compliant.
- Professional support is also available for this database.

Cons
- Not recommended for different client/server applications.
- High concurrency for all high-volume websites.

MongoDB
Free and open source solution's code and database being simple and natural.
Pros

- It has an encrypted storage engine.
- It enables validation of documents.
- Common use cases are mobile apps, catalogues, etc.
- It has real-time apps with an in-memory storage engine (beta).
- It reduces the time between primary failure and recovery.

Cons
- It doesn't fit applications which need complex transactions.
- It's not a drop-in replacement for different legacy applications.
- It's a young solution-its software changes and evolves quickly.

Our Recommendation

MySQL is one of the best to implement, easy to learn and being a free software, we recommend it being used for the development of the project. With various benefits like as follows:

➢ On-Demand Scalability:
MySQL comes with the advantage of unmatched flexibility that facilitates efficient management of deeply embedded applications, even in gigantic data centers that stack tremendous amounts of mission-critical information.

➢ High Availability:
Consistent availability is the stalwart feature of MySQL-enterprises that deploy it can enjoy round-the-clock uptime. MySQL comes with a wide variety of cluster servers and master-slave replication configurations that enable instant failover for uninterrupted access.

➢ Rock-Solid Reliability:
Protecting sensitive business information is the primary concern of every enterprise. MySQL ensures data security with exceptional data protection features with powerful data encryption prevents unauthorized viewing of data and SSH and SSL support ensures safer connections.

➢ Quick-Start Capability
We can go from software download to complete installation in just 15 minutes. MySQL is exceptionally quick, regardless of the underlying platform.

Despite from the above benefits which are meant for overall business and average individuals, MySQL meets our project requirement with the minimal cost. With people who are familiar in MySQL in the project, it will be best for us to implement and do our best in the project.

Web-Based User Interface

Problem Statement:

A secured web-based user interface or message management system for administrators is to be developed which will allow the site administrators to review and upload messages, enter participant's details, dates, and set up instructions. Administrators should be able to view and respond to queries from participants and view data analytics in the dashboard.

<u>**Possible Solutions:**</u>

To develop a web-based interface as mentioned in the problem statement we will need a Content Management System (CMS) and the Server or Hosting Platform. Possible solutions for CMS & Server among many are listed below.

A. Content Management Systems (CMS):

There are many CMS available in the market among which below mentioned three platforms can be considered as possible solution for the development.

1. **Website Builder:**

Although fast & easy to design with no coding skills it lacks features, no custom designs & not flexible to integrate with database & mobile app as per the project demand.

2. **Custom Built:**

It can be used to integrate unique functionality which might not be available while using pre-built platforms. We can also design the layout or theme from the scratch according to the project needs. Everything is built by the local developer, so needn't contact the other developers outside of team for plugins or other related issues.

But for the custom-built sites should custom built & regularly implement the latest security measures to avoid from getting hacked. Needs much longer time frame for development than pre-built platforms. More expensive as it is to be built from scratch.

3. **WordPress:**

WordPress is an open-source CMS which means editable code base for everyone. Doesn't have to be a professional developer to get familiar with, although knowledge of HTML, CSS, PHP & JavaScript's will be helpful for the project. We can use pre-built structures to cost less & save time. Lots of plug-ins are available to integrate the required functionality & can write the custom codes using editor section or updating files through FTP. Furthermore, we can use security plugins like Wordfence which provide web application firewalls and regular updates are available to breach security holes.

But could be slow if used a lot of plugins & if used poorly-designed plugins and themes. Hackers could easily find security holes as all system's code can be found online but 75% of risk can be avoided just by changing the admin URL e.g. example.com/wp-admin -> example.com/change_admin.

B. Hosting Server:

We can use either locally hosted server like WAMP or use the CPanel provided by hosting provider.

1. **WAMP Server**

WAMP is to be locally installed and the local server can be manually switched to online or offline while testing the platform which may as well lead to exploitation of local PC. Furthermore, to make WAMP server accessible across internet local firewall & router setup like port forwarding is to be done.

2. **Hosting Provider**

There are lots of hosting provider in the market among which very few offer free hosting service & x10hosting is one of them. X10hosting offers CPanel interface which allows us to update the directory using FTP, configure MySQL database, PHPMyAdmin to easily manage database, create emails based on domain name & so on. All we need to do is register with an email account and choose a domain name (has .x10host brand) and start development.

Best Solution:

Considering time frame, availability of resource & source code that will be used for the project, WordPress is the best CMS platform & x10hosting is the best hosting platform to proceed with the development. WordPress can also be integrated with MySQL database in hosting server CPanel creating custom plugin or using plugins like participant database.

Timeline or Workflow:

We will be progressing with the development of the web-based interface as below in the coming weeks.

Week 6 & Week 7:   We will be creating "Update Page" as shown in flowchart (fig. 1.1) below for the administrator to update the participant details & message to the database based on the health & fitness category.

Week 8 & Week 9: We will be creating "Dashboard Page" as shown in flowchart (fig. 1.1) below for the administrator to view the participant details & statistics.

Week 10 & Week 11: We will be creating a "Chat Page" as shown in the flowchart (fig. 1.1) below for the administrator to send & receive messages. We will also integrate the project during these weeks to come up with final working prototype.

Mobile app: Android

In the mobile app development, for designing the android app which communicate between admin and the customers. This app is mainly used for the receiving health related message, and client can chat with the admin.

The main functionality of the app is make communication with the main server using the simple https traffic. For new customer mobile should send the information the server and then it has to store to the database.

As the platform mention above for the database and server, we will discuss more about the mobile app.

Mobile app software can be develop for two platform android, and IOS. Currently we will be working on the android app and latter if time permits then IOS.

Android app development:

The android app software can be developed is various platform, android studio, Eclipse, rednode, phonegap etc. We will use first 2 platform to discuss the possible solution and recommendation.

Android Studio: Its advance app development toolkit which has high level feature in form of template which can easily imported to an existing project. Its take less processing time for compiling. Its consume less RAM memory, less bug and stable performance. Limitation it used for complex programing and need high level language skill to develop a program

Eclipse is an old version which most people are still using in the market to develop an app, its has less feature compare to android studio, Eclipse is a java based software and larger IDE its requires high CPU and take more space in RAM. Has more bug and less stable compare to the android studio.

Recommendation: Android studio can be used as a platform to develop the app, as its much faster, stable, and less memory RAM take while compiling the program.

Project Approach

This section should outline the way you will roll out the technology, including the highest-level milestones.

Phase I: Project Proposal

Phase II: POC

Phase III: Development

Phase IV: Testing

GOALS AND OBJECTIVES

Business Goals and Objectives

The business goals and objectives for this project will focus on implementing mobile technology that:

- Send Customized MMS specific to patient's health conditions
- Chat communication technology between admin and patients
- Admin should be able to see the dashboard, patients profile and conversation between patient and admin
- Admin should be able send manually messages to specific category of the patients and cam create new profile.
- Database health bank, patient profile.

Project Goals and Objectives

- Ensure that patient can receive messages based on health category he chooses.
- Ensure the mobile app is free to use and user friendly.
- Website is always up and running, ease of access
- Craft a favorable and secure agreement between the Department and the selected vendor.
- No login authentication required for the patient using mobile app as this stage.
- Authentication is required for the admin to manage the system.

Scope Definition

The Project will introduce new mobile technology; including the following:

– Android APP, IOS APP (Second phase)
– Website that can be publish online
– Database contains health message bank, patient's profile, chat conversation.

Risk Assessment

The initial **Risk Assessment** (following page) attempts to identify, characterize, prioritize and document a mitigation approach relative to those risks which can be identified prior to the start of the project.

The **Risk Assessment** will be continuously monitored and updated throughout the life of the project, with monthly assessments included in the status report (see **Communications Plan**) and open to amendment by the Project Manager.

Because mitigation approaches must be agreed upon by project leadership (based on the assessed impact of the risk, the project's ability to accept the risk, and the feasibility of mitigating the risk), it is necessary to allocate time into each Steering Committee meeting, dedicated to identifying new risks and discussing mitigation strategies.

The Project Manager will convey amendments and recommended contingencies to the Steering Committee weekly, or more frequently, as conditions may warrant.

Initial Project Risk Assessment

Risk	Risk Level L/M/H	Likelihood of Event	Mitigation Strategy
Project Size			
Person Hours	**H:** Over 8 Hours	**Certainty**	Assigned Project Supervisor, Team member, comprehensive project management approach and communications plan
Estimated Project Schedule	**H:** Over 5 Weeks	**Certainty**	Created comprehensive project timeline with frequent baseline reviews
Team Size at Peak	**H:** 6 Member	**Certainty**	Comprehensive communications plan, frequent meetings, tight project management oversight
Number of Interfaces to Existing Systems Affected	**H:** Over 3	**Certainty**	Develop interface control document immediately
Project Definition			
Narrow Knowledge Level of Users	**M:** Knowledgeable of user area only	**Likely**	Assigned Project Manager(s) to assess global implications
Available documentation clouds establishment of baseline	**M:** More than 75% complete/current	**Likely**	Balance of information to be gathered by consultant
Project Scope Creep	**L:** Scope generally defined, subject to revision	**Unlikely**	Scope intially defined in project plan, reviewed weekly by Project Supervisor to prevent undetected scope creep
Timeline Estimates Unrealistic	**M:** Timeline assumes no derailment	**Somewhat likely**	Timeline reviewed weekly by Project supervisor to prevent undetected timeline departures
Project Leadership			
Project Supervisor and Client	**L:** Identified and enthusiastic	**Unlikely**	Frequently seek feedback to ensure continued support
Absence of Commitment Level/Attitude of Management	**L:** Understands value & supports project	**Unlikely**	Frequently seek feedback to ensure continued support

Risk	Risk Level L/M/H	Likelihood of Event	Mitigation Strategy
Absence of Commitment Level/Attitude of Users	**L:** Understands value & supports project	**Unlikely**	Frequently seek feedback to ensure continued support
Absence of Mid-Management Commitment	**L:** Most understand value & support project	**Unlikely**	Frequently seek feedback to ensure continued support
Project Staffing			
Project Team Availability	**M:** Distributed team makes availability questionable	**Somewhat likely**	Continuous review of project momentum by all levels. Consultant to identify any impacts caused by unavailability. If necessary, increase committmment by participants to full time status
Project Team's Shared Work Experience creates poor working relationship	**M:** Some have worked together before	**Somewhat likely**	Comprehensive Communications Plan
Weak User Participation on Project Team	**L:** Users are part-time team members	**Unlikely**	User Group Participants coordinated by full time employee

Milestones

The following represent key project milestones, with estimated completion dates:

Milestone   **Estimated Completion Date**

Phase I: Project Proposal…………………………25/04/2014

Phase II: POC/Solution……………………………16/05/2015

Phase III: Development………………………………Stage 2

Phase IV: Testing……………………………………….Stage 2

Project Assumptions

The following assumptions were made in preparing the Project Plan: .

- Management will ensure that project team members are available as needed to complete project tasks and objectives.

- The Project Supervisor and Client will participate in the timely execution of the Project Plan (i.e., timely approval cycles and meeting when required).

- Failure to identify changes to draft deliverables within the time specified in the project timeline will result in project delays.

- Project team members will adhere to the Communications Plan.

- The City will ensure the existence of a technological infrastructure that can support the new mobile technology.

- All project participants will abide by the guidelines identified within this plan.

- The Project Plan may change as new information and issues are revealed.

Project Roles and Responsibilities

Role	Responsibilities	Participant(s)
Project Sponsor	- Ultimate decision-maker and tie-breaker - Provide project oversight and guidance - Review/approve some project elements	Dr Shariful Islam
Project Supervisor	- Commits department resources - Approves major funding and resource allocation strategies, and significant changes to funding/resource allocation - Resolves conflicts and issues - Provides direction to the Project Manager - Review project deliverables	Dr Jemal Abawajy
Project Participants	- Understand the user needs and business processes of their area - Act as consumer advocate in representing their area - Communicate project goals, status and progress throughout the project to personnel in their area - Review and approve project deliverables - Creates or helps create work products - Coordinates participation of work groups, individuals and stakeholders - Provide knowledge and recommendations - Helps identify and remove project	Mushthaq Ahmed Palbasha Rasheed Ahmed Bilal Tariq Dhiraj Aryal Bhishan Shrestha Abdul Mohaiman Aafreen Shaikh

Role	Responsibilities	Participant(s)
	barriers ■ Assure quality of products that will meet the project goals and objectives ■ Identify risks and issues and help in resolutions	

Issue Management

The information contained within the Project Plan will likely change as the project progresses. While change is both certain and required, it is important to note that any changes to the Project Plan will impact at least one of three critical success factors: Available Time, Available Resources (Financial, Personnel), or Project Quality. The decision by which to make modifications to the Project Plan (including project scope and resources) should be coordinated using the following process:

Step 1:   As soon as a change which impacts project scope, schedule, staffing or spending is identified, the Project member will document the issue.

Step 2:   The Project member will review the change and determine the associated impact to the project and will forward the issue, along with a recommendation, to the Steering Committee for review and decision.

Step 3:   Upon receipt, the client should reach a consensus opinion on whether to approve, reject or modify the request based upon the information contained within the project website, the Project Member's recommendation and their own judgment. Should the Steering Committee be unable to reach consensus on the approval or denial of a change, the issue will be forwarded to the Project Sponsor, with a written summation of the issue, for ultimate resolution.

Step 4:   If required under the decision matrix or due to a lack of consensus, the Project Sponsor shall review the issue(s) and render a final decision on the approval or denial of a change.

Step 5:   Following an approval or denial (by the Steering Committee or Project Sponsor), the Project Manager will notify the original requestor of the action taken. There is no appeal process.

Communications Plan

Disseminating knowledge about the project is essential to the project's success. Project participants desire knowledge of what the status of the project is and how they are affected. Furthermore, they are anxious to participate. The more that people are educated about the progress of the project and how it will help them in the future, the more they are likely to participate and benefit.

This plan provides a framework for informing, involving, and obtaining buy-in from all participants throughout the duration of the project.

Audience This communication plan is for the following audiences:

– Project Sponsor/ Client
– Project Supervisor
– Project Member
– Unit Chair

Communications Methodology The communications methodology utilizes three directions for effective communication:

Top-Down It is absolutely crucial that all participants in this project sense the executive support and guidance for this effort. The executive leadership of the organization needs to speak with a unified, enthusiastic voice about the project and what it holds for everyone involved. This will be 'hands-on' change management, if it is to be successful. Not only will the executives need to speak directly to all levels of the organization, they will also need to listen directly to all levels of the organization, as well.

The transition from the project management practices of today to the practices envisioned for tomorrow will be driven by a sure and convinced leadership focused on a vision and guided by clearly defined, strategic, measurable goals.

Bottom-Up To ensure the buy-in and confidence of the personnel involved in bringing the proposed changes to reality, it will be important to communicate the way in which the solutions were created. If the perception in the organization is that only the Steering Committee created the proposed changes, resistance is likely to occur. However, if it is understood that all participants were consulted, acceptance seems more promising.

Middle-Out Full support at all levels, where the changes will have to be implemented, is important to sustainable improvement. At this level (as with all levels), there must be an effort to find and communicate the specific benefits of the changes. People need a personal stake in the success of the project management practices.

Communications Outreach The following is a list of communication events that are established for this project:

Weekly Status Reports The Project members shall provide weekly written status reports to the client and supervisor. The reports shall include the following information tracked against the Project Plan:

- Summary of tasks completed in previous month
- Summary of tasks scheduled for completion in the next week
- Summary of issue status and resolutions

Monthly Client Meeting These status meetings are held at least once per month and are coordinated by the Project member. Every member of the Steering Committee participates in the meeting. The Project member sends the status report to each member of the team prior to the meeting time so everyone can review it in advance.

Bi-Monthly Project Team Status Meeting These status meetings are held every other month. Every member of the Project Team will be invited to participate in the meeting. Project Manager sends the status report to each member of the team prior to the meeting so everyone can review it in advance.

APPROVALS

Sign-off Sheet

I have read the above Project Plan and will abide by its terms and conditions and pledge my full commitment and support for the Project Plan.

Project Sponsor/Client: _____

Date

Project Supervisor: _____

Date