

Software Project Management Plan

Topic: Hospital Management System

Prepared For: Metropolitan State University
ICS 499 Capstone Project

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INTRODUCTION

This document serves as a project plan for the Hospital Management System Project that will be implemented as part of Metropolitan State University at St. Paul, ICS 499: Capstone Projects course. The contents of this document are divided into three chapters: **Topic**, **Content**, and **Technical Evaluation**.

The **Topic** chapter describes the topic of the project and how the project will be implemented from the perspective of the developers. It covers how the developers will accomplish the goals set after discussions with the representatives of prospective client Mission Hills Hospital.

The **Content** chapter addresses answers to 6 key questions that be used as the foundation of the entire project. This chapter describes the final product, developers and project managers roles/responsibilities, the scope and limitation of the development project, configuration management, workload distribution, communication methods among individuals involved in the project, estimated timeline and deadline, risk assessments, project documentation process, and unit testing methodologies.

The **Technical Evaluation** chapter describes the technical evaluation of one of the technologies that will be adopted to accomplish the project. The developers have chosen to conduct a technical evaluation on the underlying programming language that will be used to complete the project. It also compares the chosen language with two other competing languages and developers' reasoning for choosing the particular language over others using a pugh matrix.

STANDARDS

The following standard is used a guide to develop this project. The content of the standard is modified according to specific needs of the project.

- ANSI/IEEE 1058: Standard for Software Project Plans
<https://ieeexplore.ieee.org/document/7439689/>
- HIPAA: Privacy Rule
<https://www.hhs.gov/hipaa/for-professionals/privacy/laws-regulations/index.html>

TOPIC

The topic of this project is called Hospital Management System. It will be used to facilitate communication among doctors and patients in Mission Hills Hospital. Upon discussions with the representative of the hospital, the developers have come into conclusion that the final product will be evaluated based on 3 critical components namely database selection, underlying programming language, and user interface. Accomplishment of all 3 components will be used as the basis for completion of the project.

CONTENT

Roles: All members will participate in every aspect of the project with each member being the lead for a certain part of the project. After input from all members, the lead sets the standards for implementation of their part.

- James King: Documentation and Roving Engineer
- Abrar Zawed: User Interface Engineer
- Andy Bridges: Database Engineer

Approvers (in-charge):

- Mission Hills CIO
- Mission Hills Chief of Medicine
- Software Development Team

Stakeholders (developer and user):

- This project was commissioned by the Mission Hills Hospital to replace their current I.T. infrastructure.
- The end users for the software are the staffs and patients of the Mission Hills Hospital.

Project description/product:

- A database portal for an emergency hospital that creates, stores, and shares medical records of patients in an intuitive orderly fashion. With optional expandability to multiple aspects of day-to-day hospital administration.

Scope (in):

- A doctor portal which allows them to create, access and modify patient records.
- A nurse portal to access & modify patient records.
- A patient portal to access their own records.

Scope(out):

- A billing system and billing portal.
- Patients' ability to modify certain information in their files.
- External ability to access files.
- Hospital shift scheduling and payroll tracking.
- Hospital expense tracking.
- Appointments and surgical scheduling/tracking.

Configuration Management:

- All files and codes will be stored on a local host computer with online backup using Github, which is a web-based hosting service.
- Documentations including user manual, scheduling, issue tracking, and testings will be located in a Google Drive folder on multiple google documents shared among Developers and Stakeholders.

Communication among developers:

- Our team uses a combination technologies to communicate daily including but not limited to: Email, Text, In-person meetings, and Online documentation of updates.

Schedule (Tentative):

1. 9/5/2018 - 9/18/2018 - Project Planning:
 - 9/5/2018 - 9/15/2018 - Individual research and distribution of the three aspects of the project plan.
 - 9/16/2018 - Online group meeting to go over the individual aspects of project plan.
 - 9/17/2018 - Finalization of Project Plan as both individually and group.
 - 9/18/2018 - Submission of Project Plan.
2. 9/19/2018 - 10/2/2018 - Elaboration:
 - TBD
3. 10/03/2018 - 10/16/2018 - Sprint #1:
 - TBD
4. 10/17/2018 - 10/30/2018 - Construction:
 - TBD

5. 10/31/2018 - 11/13/2018 - Sprint #2:
 - TBD
6. 11/14/2018 - 11/27/2018 - Sprint #3:
 - TBD
7. 11/28/2018 - 12/11/2018 - Sprint #4:
 - TBD

Timeline and Deadline:

- Software has an estimated delivery date of December 11th, 2018. From design to delivery, we will be working in two weeks blocks and submitting progress reports at the end of each block as sprints.

Activities:

- Two-week sprints coupled with daily evaluation of efforts, followed by end of sprint progress reports.
- Creation of an intuitive user interface using Java Programming language with a backend database created and maintained using MySQL.
- Outside team evaluation of project after each step is completed.
- Active bug hunting by team members upon completion of a part of the project.
- Bi-weekly JUnit tests on the UI to ensure correct database linkage and information handling.
- Manual UI tests to ensure correct button functionality and database query.
- Documentation of any bugs, improper code, or confusion with implementation which will be accomplished through a shared google document with notification of other developers when document is updated.

Reasons for development:

- Give doctors reliable 24-hour access to patient records.
- Give patients the ability to access their records and ability to share their medical history with a doctor that doesn't have access to it.
- Cost savings and increased reliability over paper file systems.

Users:

- Doctors (to create and interact with patient files)
- Nurses (to interact with patient files)
- Patients (to interact with their files)

TECHNICAL EVALUATION

The Hospital Management System will use a three-tier application approach, consisting of a locally hosted MySQL database server, a Java based application, and Java based GUIs for the end users to interact with. The end user will access the application via application setup installed on hospital workstation. Users will be able to navigate the applications features through GUIs that will allow him/her to process all necessary functions of the application as a whole.

The application itself will require a standard version of Windows OS of XP and newer or Apple OS X 10.8 and newer with bare minimum ram and hard drive requirements. Development of the application along with the GUIs will be done through NetBeans 9.0 with source codes being held on GitHub for our team to be able to openly share and review each other's work and progress.

Informal communications among developers will take place via phone calls, group text, Google Drive documents and email. As mentioned earlier our source codes along with database design will be stored and shared on GitHub.

Considering all of our technology requirements that we have chosen are open source, we will not have any cost for development. If moving through the project development process, we do decide to use a technology that would require money we would put it up for discussion with clients and decide on an even and fair plan of payment for each participant. Possible technology upgrades that the project may acquire would be a hosted server along with API integration functionality.

When deciding what programming language to use we decided that the biggest factor would be what we are familiar and comfortable with to ensure that we are able to fulfill the requirements that we have assessed for our application. Coming in second was the cost of the language to use considering we didn't want to have any expenses to push on the group. Group consensus was that everyone was most familiar with Java and one member had experience in Python. With this being so, the below Pugh Diagram outlines and enforces our decision of choosing Java as our programming language.

Pugh Selection Matrix					
Criteria	Score	Alternative Concepts			
		Group Fit - 60	Cost - 50	Requirements - 40	Integration Support - 30
Java	1760	10	10	8	8
C#	1230	4	10	6	9
Python	1240	5	10	6	9