SWE 6633 SOFTWARE PROJECT PLANNING & MANAGEMENT
Group 7 - Spring 2023

Quick Plan

"PROJECT MANAGEMENT SYSTEM"

To Professor Dr. Hassan Pournaghshband (Ph.D.) Dept. Of Software Engineering College of Computing and SWE, Kennesaw State University

By Ryan O'Connor, Samuel Owoade, Cameron Page, Milly Namukasa and Harini Pammi

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Table of Contents

Description (Part 1) *3*

A. Project Description and Introduction **3**

B. Project Goals **3**

C. Requirements **3**

Functional Requirements 3

Non-Functional Requirements 3

D. Major Components **4**

E. Major Entities **4**

F. Project Management **4**

Cost Assessment (Part 2) *5*

A. Assessment **5**

B. Rationale **5**

Schedule: (Part 3) *6*

A. Schedule **6**

B. Rationale **6**

Risks and Assumptions (Part 4) *8*

A. Potential Risks **8**

B. Assumptions **8**

Conclusion (Part 5) *9*

A. Summary **9**

B. References **9**

Description (Part 1)

A. Project Description and Introduction

This project aims to develop a web-based project management system that allows users to plan, track, and collaborate on projects. The system will support multiple users, teams, and projects, and will integrate with third-party tools such as calendars and document management systems. The project team will consist of five members, Ryan O'Connor, Samuel Owoade, Cameron Page, Milly Namukasa and Harini Pammi. The project duration will be within a 16-week semester.

B. Project Goals

The project's main goal is to deliver a prototype of a functional and user-friendly project management system that meets the stakeholder/professor's requirements. The *secondary goal* is to gain practical experience in software engineering methodologies and tools.

Other goals include designing a software product that can operate on multiple device platforms.

C. Requirements

Functional Requirements

- User registration and login
- Project creation and management
- Organization creation and management
- Team creation and management
- Task creation and management
- Time tracking and reporting
- Document management and sharing
- Calendar integration
- Collaboration tools (e.g., comments, notifications)

Non-Functional Requirements

- Performance: the system should handle many concurrent users without significant delay.
- Security: the system should protect user data and prevent unauthorized access.
- Usability: the system should have a user-friendly interface and be easy to navigate.
- Reliability: the user must be able to reliably access the application and their app data. The app must work in both online and offline modes.
- Availability: the app should be widely available on the internet or app stores.
- Efficiency: the app must not consume many resources while operating.

D. Major Components

- User Interface: the web-based interface that users will interact with.
- Application Server: the backend server that will process user requests and interact with the database.
- Database: the database that will store user data, project data, task data, and document data.
- Third-Party Integrations: external tools and services that will integrate with the system.

E. Major Entities

1. User
a. Has Username
b. Has Password
c. Has Organizations assigned to
d. Has Projects assigned to
e. Can start organization as a new admin

2. Organization Admin
a. Is a User
b. Has an organization
c. Can add other Users to Organization
d. Can assign projects to Users within organization
e. Can assign tasks to Users within a project.

3. Organization
a. Has an admin
b. Has projects

4. Project
a. Has a task list
b. Has a schedule with milestones
c. Has a Team of Users
d. Has a work-log for each task?

5. Team
a. Is a collection of users assigned to project

F. Project Management

The project will be managed using the Agile software development methodology. The team will use a Kanban board to manage the project backlog and track progress. The team will communicate and collaborate within Microsoft Teams. The team may use tools such as Lucidchart, GitHub, Visual Studio, Bootstrap Studio, and others, to design and develop our application and documentation.

Cost Assessment (Part 2)

A. Assessment

For the cost estimate, the COCOMO model was used. The organic mode was chosen to calculate the total effort needed for project completion due to this project's relatively nominal complexity and its overall flexibility. The basic form to calculate COCOMO is the following: Effort (E) = [3.2 x (size)^1.05 x PROD(f's)], where PROD(f's) is the summation of the cost drivers for the project. Therefore, the calculated effort for this project is from the following function:

$$\text{Effort} = [3.2x(10)^{1.05}x\ (1)]$$

$$\text{Effort} = [3.2x(11.22)\ x\ (1)]$$

$$\text{Effort} = [35.90x1]$$

$$\text{Effort} = 35.9$$

Cost Estimate Information	Value
COCOMO Model	Organic
Size	10
PROD(f's)	1
Effort	35.9 person-months

B. Rationale

The model value is Organic due to the project's nominal complexity and overall flexibility. The size of the project was 10, and the PROD(f's) cost driver was 1, resulting in an effort estimate of 35.9 person-months. It has been determined that the cost drivers are of nominal influence on the product's cost estimate. This determination was due to many factors, specifically the overall team size being five with an above average programming ability and time to delivery being over two months. Therefore, the value of PROD(f's) is 1. Because the product is being classified as average, the size variable within the COCOMO function has been set to 10, signifying 10KLOC or 10 thousand lines of code. However, this cost estimate does not include either the project planning or requirements phases in its calculation. A percentage of 8 has been added to the cost estimation, which has been calculated by taking the sum of effort 35.9 * 0.08 and adding the resulting value of 2.87 to the sum above 35.9. This results in a cost estimate of 38.77 person months for project completion.

Schedule: (Part 3)

A. Schedule

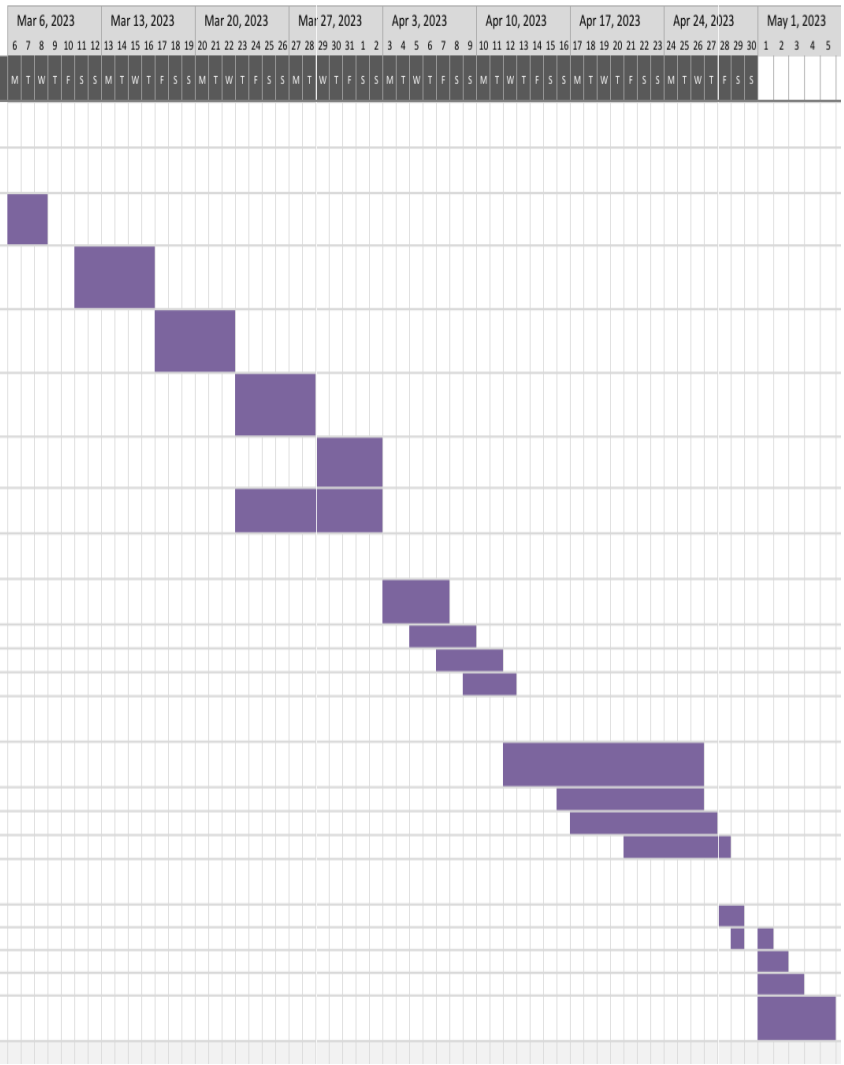
Software project management system

SWE 6633 Group 7

Project Start: Sun, 3/5/2023

Display Week: 1

TASK	ASSIGNED TO	PROGRESS	START	END
Project Plan: Quick Plan		80%	2/14/2023	2/26/2023
Phase 1: Planning and Analysis				
Task 1	Requirements gathering and analysis	0%	3/5/23	3/8/23
Task 2	User stories and use cases documentation	0%	3/11/23	3/16/23
Task 3	Technical feasibility analysis	0%	3/17/23	3/22/23
Task 4	Create functional requirements specification	0%	3/23/23	3/28/23
Task 5	Architecture and database design	0%	3/29/23	4/2/23
Design Document:		0%	3/23/23	4/2/23
Phase 2:Design and Prototyping				
Task 1	UI/UX design and wireframes	0%	4/3/23	4/7/23
Task 2	Low-fidelity prototype development	0%	4/5/23	4/9/23
	High-fidelity prototype development		4/7/23	4/11/23
Task 3	Feedback and revisions	0%	4/9/23	4/12/23
Phase 3:Development				
Task 1	Setup development environment and tools	0%	4/12/23	4/26/23
Task 2	Front-end development	0%	4/16/23	4/26/23
Task 3	Back-end development	0%	4/17/23	4/27/23
Task 4	Integration and testing	0%	4/21/23	4/28/23
Phase 4: Deployment and Testing				
Task 1	User acceptance testing	0%	4/28/23	4/30/23
Task 2	Bug fixes and improvements	0%	4/29/23	5/1/23
Task 3	Deployment and Testing	0%	4/30/23	5/2/23
Task 4	Documentation	0%	5/1/23	5/3/23
Test Document		0%	4/30/23	5/5/23



From the above diagram, 8 weeks (about 2 months) are available for the project's completion (From March 03rd to May 1st).

B. Rationale

Our aim is to complete the project within the given timetable. We used Gantt chart to plan our project timeline. As per the above Gantt chart we have 8 weeks (about 2 months) starting from Phase 1 to submission of the test document.

The project team has five members with distinct roles such as project manager, system analyst, database developer, front-end developer, and back-end developer. Each team member will be

allocated a certain number of hours per week to work on the project, based on their role and responsibilities.

SWOT Analysis for current project is as follows:

Strength	Weakness
The project team consists of five members, that bring diverse skill sets to the project.	As the project meetings are completely online sometimes there is a possibility of a few members missing because of emergencies. The project timeline is 8 weeks, which may put pressure on the team members.
Opportunity	Threat
The project could lead to opportunities for further research or development in the field of project management.	Any ad hoc circumstances such as technical issues, team member availability, or external factors may cause probable delay.

Risks and Assumptions (Part 4)

A. Potential Risks

1. *Complexity* – this comes in the form of various dependencies, constraints, and variations being considered. The system entails all the requirements to be accurately captured and the results to be accurately produced. As the dependencies, constraints and variations rise, so will the increase in the complexity, and the challenges of accurately capturing them.
2. *Technical Difficulties* – the technology used in the program's development may be too outdated or use platforms that lack adequate developer support. The platforms used may lack the necessary security updates to curb against the attempts of hacking and other security breaches. Technical issues that may be encountered during the development process may cause delays in the project schedule, increase the costs of development, and lead to poor performance by the system.
3. *User Adoption Risk* – introducing the system to end users may come with challenges such as the system being difficult to use, the failure to meet the user needs, and lack of adequate training for the end users.
4. *Changes in Requirements* – as the program is being developed, changes in the requirements will occur. Failure to implement and recognize these changes can be costly financially and in time and scheduling.

To mitigate these risks, the team will: Conduct research and testing to ensure the chosen technology stack is suitable for the project. Set up regular communication channels with stakeholders to obtain timely feedback. Use Agile methodologies to accommodate changes in project requirements.

B. Assumptions

1. *Communication and Collaboration:* It is assumed that effective communication channel that will be used is Teams and collaboration tools are established to ensure smooth and efficient collaboration among team members.
2. *Technical Knowledge and Skills:* It is expected that every team member will have the requisite technical expertise to contribute to the project.

3. *Project Scope and Requirements:* It is believed that all team members have a thorough understanding of the project's goals and specifications.
4. *Realistic Schedule and Budget:* It is assumed that the project schedule and budget are realistic and feasible, considering the available resources and the complexity of the project.
5. *Risk Management:* It is considered that potential risks and challenges are identified and addressed proactively, and that any issues or conflicts that arise are addressed and resolved collaboratively.

Conclusion (Part 5)

A. Summary

The project will be managed using the Agile software development methodology, and the team will use a Kanban board to manage the project backlog and track progress. The estimated cost of the project in terms of “effort” is 35.9 person-months, and the project will be completed within the 16-week semester. The project timeline consists of four phases, including project planning and requirement gathering, development and testing of core features, development and testing of additional features, and final testing and deployment. The team will monitor progress throughout the project and adjust the schedule as necessary.

B. References

1. Tsui, F.F. (2004) *Managing Software Projects*. 1st ed. Jones and Bartlett Publishers.