LABORATORY 3

Submitted in partial fulfillment of the requirements

of the course

SOFE 3490U SOFTWARE PROJECT MANAGEMENT

by

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SOFE 3490U Software Project Management

CRN: 74015

MARCH 9, 2023

Introduction

The main objective of this laboratory is to outline the steps involved in estimating effort, creating an activity diagram, and identifying possible risks that are linked to software projects. The lab guidelines necessitate the use of formal methodologies such as function point and COCOMO model to ascertain the effort required for the project, design an activity diagram that showcases the project's administrative and developmental tasks, and detail the potential risks and their corresponding measures to counter them.

The estimation of effort is a crucial aspect of software development, which enables developers to comprehend the time and resources necessary to accomplish a project. For this lab, the COCOMO model will be employed to calculate the estimated effort for our project. Additionally, we will generate an activity diagram to determine and assess the duration of each task involved in the project, starting from Week 0. This diagram is essential to visualize the progress of events and ensure that every required step is carried out to complete the project successfully.

Lastly, we will record the potential risks connected to the project and identify possible countermeasures to mitigate them. Risk management is a critical element of project management, and it entails recognizing possible risks that may impede the success of the project and devising strategies to reduce or eliminate them. By documenting the risks associated with the project, we can proactively identify potential issues and create contingency plans to minimize their impact on the project's success.

Estimated Effort

This project will take a total of *15.75 person-months* and *7.13 months*. The calculations for these values can be found below along with the variable table for the cost estimation. Note that this project is organic and thus the corresponding constants will be used.

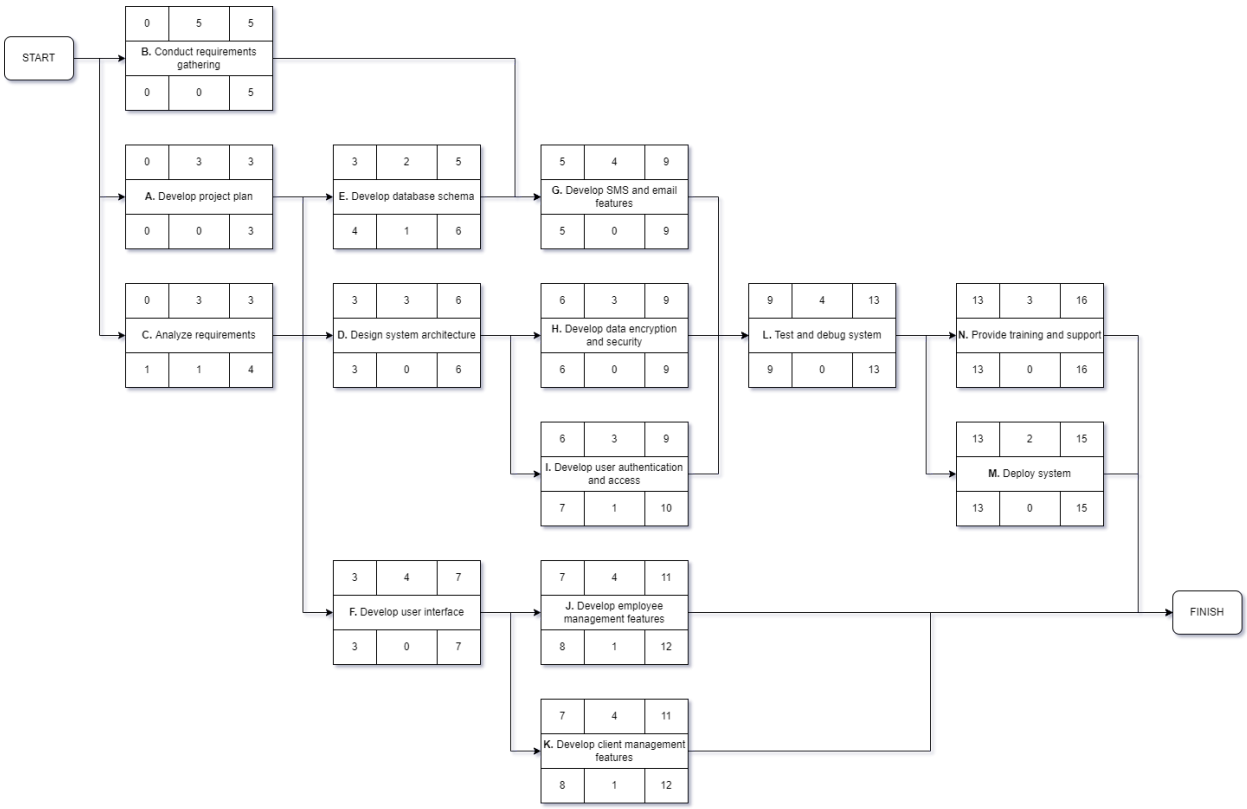
Software Projects	a	b	c	d
Organic	2.40	1.05	2.50	0.38
Semi-Detached	3.00	1.12	2.50	0.35
Embedded	3.60	1.20	2.50	0.32

$$E = a(KLOC)^{b} = 2.40(6)^{1.05} = 15.75\ person\text{–}months$$

$$D = c(E)^{d} = 2.50(15.75)^{0.38} = 7.13\ months$$

Activity Diagram

The activity diagram provides a visual representation of the steps involved in the development of the software project. By identifying and estimating the time required for each activity, we can ensure that the project is completed within the given timeframe. The activity diagram for this project can be found below.



Risks

There are several potential risks associated with the project. These risks are listed below.

1. *Data security breaches:* If client data is not securely stored and protected, it can be vulnerable to theft or hacking. The countermeasure for this risk is to implement robust security measures, including firewalls, encryption, and access controls.
2. *Technical difficulties:* If the application experiences technical difficulties, it can delay the project's completion and impact client satisfaction. The countermeasure for this risk is to conduct thorough testing and quality assurance measures to identify and resolve any technical issues before deployment.
3. *Employee resistance:* If employees are resistant to the new application or lack the necessary skills to use it effectively, it can impede the project's success. The countermeasure for this risk is to provide comprehensive training and support to employees and involve them in the development process to increase their buy-in.
4. *Changes in regulations:* Changes in healthcare regulations can impact the development and deployment of the application, potentially delaying the project's completion. The countermeasure for this risk is to stay up-to-date with relevant regulations and ensure that the application complies with all applicable laws.
5. *Data loss:* System crashes or data corruption and other technical issues could lead to data loss, which could compromise important and private client information. The countermeasure for this risk is to implement regular backups and develop a disaster recovery plan to ensure that data can be recovered in the event of a system failure.
6. *Maintenance and support issues:* The new system may require ongoing maintenance and support, which could lead to additional costs and potential

technical issues if not properly managed. The countermeasure for this risk is to implement a robust maintenance and support plan that includes regular updates, bug fixes, and user support.

7. *Scalability challenges:* The system may not be able to handle the future growth and scalability needs of the pharmacy, leading to issues with data management and communication. The countermeasure for this risk is to design the application with scalability in mind, ensuring that it can handle increasing amounts of data and traffic. The team should also consider using cloud-based technologies that can scale automatically to meet the application's needs. Additionally, load testing should be performed to identify potential performance bottlenecks and ensure that the application can handle the expected workload.