**Learning Journal 1**

**Student Name:** Harsh Tank

**Course:** Software Project Management (SOEN 6841)

**Journal URL:** <https://github.com/harsh-tank/SOEN-6481-SPM>

**Dates Rage of activities:** 09/09/2024 to 20/09/2024

**Date of the journal:** 21/09/2024

1. **Key Concepts Learned:**

**Chapter-1:**

* **Project:** Project is a set of activities with definite start and end time aimed to achieve some

predefined goals.

* A project is made up of actions that have a set start and finish time and require resources, budget, and time to fulfill certain goals. Unused resources and funds are released upon completion.
* Project management procedures comprise initiation, planning, monitoring, control, and closure, whereas software engineering processes involve requirement definition, design, construction, testing, and maintenance.
* Software project management combines project management and software engineering techniques to create high-quality software at a low cost and in a short period of time.
* Software project activities include requirements management, design, coding, testing, deployment, and maintenance.
* **Project initiation** is the first step and varies for applications, products, and product implementation. Application initiation is driven by user requirements, while product initiation is driven by market opportunities.
* **Project planning** occurs after complete project requirements are known, as they determine the project's scope, effort, cost, and quality baseline.
* **Project monitoring, control, and closure** ensure continuous oversight, risk mitigation, and proper documentation transfer for future use.

**Chapter-2:**

* **Project Charter**: Describes the overall picture, including project goals, objectives, and primary tasks. It describes the project's overarching goal and expected outcomes.
* **Project Scope:** Determines the functionalities and quality levels required in the software product. Clear specifications are critical for preventing scope creep and ensuring accurate effort estimation and scheduling.
* Project objectives must be **SMART (Specific, Measurable, Achievable, Relevant, Time-constrained)** and determined by stakeholders. Meeting these objectives is what defines success.
* **Initial Project Size Estimate:** Provides a rough estimate of the project's size, sometimes utilizing lines of code or function pointers to help design an early project plan.
* **Effort and Cost Estimation**: An expert gives estimates, and software development businesses are invited to bid on project execution using these figures.

**Chapter 3:**

* Estimation approaches: Can be classified into two types: experience-based approaches and algorithm-based techniques.
* Experience-Based Techniques:
* Analogy-Based Estimation: This method estimates new projects by comparing them to previous similar projects.
* Estimation by Judgment: Uses expert judgment, such as FPA and Delphi.
* **FPA (Function Point Analysis)** use the formula FPA = UFP \* VAF, in which UFP (Unadjusted Function Points) are generated from function types and VAF (Value Adjustment Factor) is determined using 14 system attributes.
* **The Delphi Method** involves team members separately estimating effort, followed by a group discussion to reach a consensus and agree on a range of effort estimates.
* Algorithm Based Techniques:
* **COCOMO Model:** Used to estimate software costs.

The basic COCOMO formula is:

Effort = 2.94 \* EAF \* (KLOC)^E and

Duration = 3.67 \* (Effort)^SE.

1. **Application in Real Projects:**

* How to start the project after we have goals and objectives in mind, as well as how to estimate costs initially.
* Software development can be kept structured and under control by dividing projects into discrete phases: start, planning, execution, and closing.
* An approximate estimate of the resources needed for the project is provided by the Estimation Project Study, which is helpful in the early stages.

1. **Peer Interactions:**

* As a project team we discussed how to efficiently estimate project budget and achieve deliverable with maximum satisfaction in time-constrained environment.
* Learned how to create project charter and went through others charters to learn about their approach and pointed out suggestions.

1. **Challenges Faced:**

* COCOMO Calculations : It was challenging to estimate the amount of lines of code (KLOC) early in a project, particularly for complicated systems with a large number of unknowns.

1. **Personal development activities:**

* Read few articles to learn about FPA and Delphi method.
* Enhancing my skills in project management by putting an emphasis on lifetime learning and keeping up with industry best practices.

1. **Goals for the Next Week:**

* Will start working on deliverables of group project and conduct a market analysis on the impact of our problem statement.
* Read chapter 1, 2 and 3 throughly and be more active in class activities
* I aim to enhance my project estimation skills and apply them to solving complex estimation challenges in real-world case studies, aligning this expertise with my career growth.
* **References:** <https://www.ijsrd.com/articles/IJSRDV2I5314.pdf>
* **Time management:** **4 hours/week** going through lecture slides and participating in group project activities