**Learning Journal 1**

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

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

**Dates Rage of activities:** 16/01/2025 to 23/01/2025

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1. **Key Concepts Learned:**

**Chapter-1:**

* **Project:** A project is a collection of actions with a specific beginning and ending time that are intended to accomplish a set of predetermined objectives.
* A project consists of tasks that have a start and end time and need time, money, and resources to achieve specific objectives. After completion, any unused monies and resources are released.
* Software engineering processes include requirement definition, design, construction, testing, and maintenance, whereas project management procedures include initiation, planning, monitoring, control, and closing.
* To produce high-quality software quickly and affordably, software project management blends project management and software engineering methodologies.
* Activities involved in software projects include design, coding, testing, deployment, requirements management, and maintenance.
* The first step is project initiation, which differs depending on the application, product, and product implementation. Whereas market possibilities drive product initiation, user requirements drive application initiation.
* Since project requirements establish the project's scope, effort, cost, and baseline quality, project planning happens once all requirements are known.
* Project closure, control, and monitoring guarantee ongoing supervision, risk reduction, and appropriate documentation transfer for later use.

**Chapter-2:**

* The project's aims, objectives, and main duties are described in Chapter 2, "Project Charter" It outlines the overall objective and anticipated results of the project.
* The project scope establishes the features and standards of quality that must be met by the software product. In order to avoid scope creep and guarantee precise work estimation and scheduling, clear specifications are essential.
* Stakeholders must decide on the project's SMART (Specific, Measurable, Achievable, Relevant, Time-constrained) goals. Success is defined as achieving these goals.
* Initial Project Size Estimate: Offers a ballpark figure for the project's size, occasionally using function pointers or lines of code to assist in creating an early project plan.
* Effort and Cost Estimation: Software development companies are asked to bid on project execution based on estimations provided by an expert.

**Chapter 3:**

Methods of estimation: can be divided into two categories: algorithm-based methods and experience-based methods.

Experience-Based Methods:

Analogy-Based Estimation: In this approach, new projects are estimated by contrasting them with earlier, comparable initiatives.

Estimation by Judgement: Makes use of professional judgement, as demonstrated by Delphi and FPA.

The formula for FPA (Function Point Analysis) is FPA = UFP \* VAF, where VAF (Value Adjustment Factor) is calculated using 14 system attributes and UFP (Unadjusted Function Points) are derived from function types.

Using the Delphi Method, team members estimate effort independently before having a group discussion to decide on a range of effort estimates.

Techniques Based on Algorithms:

Software cost estimation is done using the COCOMO model.The fundamental COCOMO formula is as follows:

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

Duration = 3.67 \* (Effort)^SE.

1. **Application in Real Projects:**

* How to estimate costs at the outset and how to begin the project once we have our objectives and goals in mind.
* By breaking down projects into distinct stages—start, planning, execution, and closing—software development may be maintained, organised and under control.
* Early on, the Estimation Project Study is useful since it gives a rough estimate of the resources required for the project.

1. **Peer Interactions:**

* As a project team, we talked about how to effectively estimate the project budget and produce deliverables that satisfy the most people in a time-constrained setting.
* Learned how to draft a project charter and reviewed existing charters to identify ideas and gain insight into their methods.

1. **Challenges Faced:**

* COCOMO Calculations: Estimating the number of lines of code (KLOC) at the beginning of a project was difficult, especially for complex systems with many unknowns.

1. **Personal development activities:**

* Read a few articles to learn about FPA and Delphi methods.
* Improving my project management abilities by prioritising lifelong learning and staying current 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 thoroughly 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:** **3 hours/week** going through lecture slides and participating in group project activities