**LEARNING JOURNAL**

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**Course:** SOEN 6841 – Software Project Management

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**Week 1:** 18/01/2024 – 24/01/2024

**Date:** 24/01/2024

**Summary of This Week's Sessions:**

In this week's sessions, we delved into the realm of software project management, exploring its definition and the essential characteristics of projects. The fundamental aspects of projects, namely budget, time, and resources, were highlighted. Various project phases such as initiation, planning, monitoring, control, and closure were discussed, each comprising multiple sub-processes, including industry-specific ones. We also examined flow diagrams illustrating software life cycle processes, project processes, and software configuration management. The significance of quality characteristics in software projects was emphasized.

**Key Concepts Learned:**

1. Definition and characteristics of software project management.

2. Fundamentals of projects: budget, time, and resources.

3. Project phases: initiation, planning, monitoring & control, and closure.

4. Sub-processes within each project phase, including industry-specific ones.

5. Flow diagram of software life cycle processes and software configuration management.

6. Importance of project charter, project scope, and project objectives.

7. SMART criteria for setting objectives and defining goals.

8. Application of project charter, project scope, project objectives, and goals in real projects.

**New Terms and Methodologies Introduced:**

1. Project Charter

2. Project Objectives

3. Project Scope

**Application in Real Projects:**

Understanding the significance of project objectives, goals, project scope, and project charter provides a structured approach to project initiation, division, and budget allocation. Applying these factors enables effective tracking and management of the entire project.

**Challenges Faced:**

The concepts introduced this week were relatively easy to grasp, and there were no significant challenges. Real-time project development could be more closely related for a comprehensive understanding.

**Personal Development Activities:**

Learning the main principles of software project management has influenced my approach to project initiation. This understanding has enhanced my thinking process regarding how to commence a project.

**Goals for the Next Week:**

Excitement surrounds the anticipation of learning about the next phases of software project management in the upcoming week.

**Week 2:** 18/01/2024 – 27/01/2024

**Date:** 27/01/2024

**Summary of This Week's Sessions:**

Effort estimation primarily relies on experimentation, with two main approaches being experiment-based techniques and algorithmic cost modeling. Additionally, various techniques such as function point analysis, wide band Delphi, and COCOMO are employed in this context. Experience-based estimation is further categorized into estimation by analogy and estimation by expert judgment. In the case of estimation by analogy, four steps are involved: obtaining detailed size results from a similar past project, comparing the size of the new project to a comparable one, building an estimate for the new project's size, and creating an effort estimate based on the new project's size.

Functional point analysis involves analyzing the current project's lines of code based on previous project work to provide an estimation, with function points being a numerical representation. The calculations and challenges associated with function points were also discussed.

The Delphi method's steps were explained, and experience-based approaches and their associated challenges were detailed. Algorithmic cost modeling, expressed as Effort = A \* Size^B \* M, was introduced, where A is an organization-dependent constant, B reflects disproportionate effort for large projects, and M is a multiplier encompassing product, process, and people attributes.

COCOMO, with its two versions tailored for different requirements, was explored. The effort needed varies based on whether the project predominantly reuses code or requires development from scratch. COCOMO employs various suitable formulas for estimation. After estimating the effort, the subsequent step involves estimating the project's cost.

**New Terms and Methodologies Introduced:**

1. Project Effort Estimation
2. Experience based techniques
3. Algorithmic cost modeling
4. Estimation by analogy
5. Estimation by expert judgement
6. Function points analysis
7. Delphi
8. COCOMO

**Application in Real Projects:**

Understanding how to estimate project costs based on various efforts provides valuable insights into the decision-making process for project budgets. Here's how these methodologies are applied in real-world scenarios:

1. Experiment-Based Techniques in Action:

Real-Time Experimentation: Implementing Experiment-Based Techniques for Immediate Project Insights.

Function Point Analysis in Project Development: Applying Function Point Analysis to Current Project Lines of Code.

2. Algorithmic Cost Modeling Strategies:

COCOMO in Project Planning: Tailoring COCOMO for Different Project Requirements.

Effort Estimation Formula in Action: Practical Application of Effort = A \* Size^B \* M.

3. Experience-Based Techniques in Real-Time:

Estimation by Analogy: Steps Involved and Real Project Examples.

Expert Judgment in Decision-Making: Utilizing Expertise for Precise Effort Estimation.

**Challenges Faced:**

The concepts introduced during the week were relatively straightforward, and no significant challenges were encountered. However, a desire for more real-time project development examples was expressed for a more comprehensive understanding. To address this, it is crucial to consider:

* Integrating Real Project Scenarios: Bringing Theory into Practical Application.
* Providing Concrete Project Development Instances: Enhancing Understanding through Case Studies.
* Incorporating Simulation or Practical Exercises: Creating a Dynamic Learning Environment.
* Leveraging Virtual Labs or Collaborative Tools: Enhancing Engagement with Real Project Challenges.

By incorporating these elements, the learning experience can be enriched, ensuring a more holistic and applied understanding of effort estimation in real projects.

**Peer Interactions:**

Conversations among peers predominantly revolved around the challenges associated with pinpointing precise project costs, underlining the necessity for clarity in this particular aspect. The discussions emphasized the intricacies of navigating uncertainties and the collective recognition of the pivotal role clarity plays in successful project cost determination.

**Goals for the Next Week:**

The forthcoming week holds a sense of anticipation as the focus shifts towards delving into the subsequent phases of software project management. The eagerness among participants is palpable, with a keen interest in unraveling the complexities of risk management within the project context. The excitement surrounding this upcoming learning phase adds a dynamic element to the educational journey, reflecting a collective enthusiasm to delve into the intricacies of risk assessment and mitigation strategies.