Week 2 – Learning Journal

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Course: Software Project Management

Journal URL: https://github.com/KarthikCU1054/SOEN_6841

Week 1: 28th Jan 2024 – 3rd Feb 2024

Date: 3rd Feb 2024

Key Concepts Learned:

- **Importance of Effort Estimation:** Effort estimation is very important and crucial for a project to succeed. There are many factors that are highly expensive and are necessary for a project, like software license or software engineer/architect, due to which when effort is being estimated the cost estimation and budgeting will be easier and accurate.
- **Effort Estimation Techniques:** Different scenarios require different approach of effort estimation. Mainly the approaches are based on project data, which can be from current project and previous projects. This data helps us in choosing the right technique.
    - **Estimation by Analogy:** This technique involves 4 steps:
        - Step 1: Gathering the results of a similar previous project.
        - Step 2: Finding the multiplication factor:
            - MF = No. of Elements in new project / No. of Elements in old project
        - Step 3: Calculate the size of the project:
            - Size of new sub system = sub system * MF
            - Size of the new project = sum of the above sizes of sub systems
        - Step 4:
            - Size ratio: size of the new project / Size of the old project.
            - **Estimated Effort =** Effort of old project * size ratio.
    - **Estimation by Expert judgement:**
        - **Function Point Analysis:** The main idea is to quantify the functionality that the software provides. This measurement is done as following:
            - **Establishing boundary:** This is done by identifying the scope of the project and required external integrations.
            - **Calculation of UFP:** The unadjusted Function Points are calculated based on evaluating the 6 Function Count types, Internal Logic Files, External Interface Files, External Input, External Output and External Queries.
            - **Calculating VAF:** The value adjustment factor is calculated by choosing the 14 most important characteristics of the project and assessing the degree of influence of them by giving the rating from 0-5, 5 being the highest.
            - **FP:** The final FP is the product of UFP and VAF.
            - The only draw back for this technique is that it is applicable to all types of software's.
        - **Wide Band Delphi:** This is another method of Effort Estimation where each team member's opinion is mattered. Here all the team members estimate the

project using any of the methods and then it is averaged(E) and based on the budget and other factors, its considered E +/- 25%. As the project advances the estimate will be considered as E +/- 15%.

- **Cost Estimation:** Cost estimation is done using a mathematical function which relies on the product, project and process attributes:
    - **Algorithmic Cost Modelling:**
        - **Effort = A * Size^{B} * M.**
        - Here A is dependent on the organization, B effort for large projects and M is a multiplier reflecting the product project and process attributes.
    - **COCOMO Cost Modelling:**
        - COCOMO 2 is now being used as it is an advanced and imporved version of the COCOMO.

Application in Real Projects:

- The company that I worked for did use a technique to estimate the effort which is similar to the FPA.

Peer Interactions:

- Connected with the teammates and had a good intro session. We discussed the project project that was given to us. We were able to fully understand the projects description. Our next meet is to finalize the first part of the project.

Challenges Faced:

- Everything was straight forward and as I could relate the topics to my work experience, the concepts were very well understood.

Personal development activities:

- Gained confidence by writing the journal regarding the topic. This helps in remembering things for longer time and the idea is practical.

Goals for the Next Week:

- Implementing journaling for personal development and complete the 2 objectives of the project.