Student Name: Mohammed Huzaifa
Student ID: 40242080
Course: SOEN 6841 - Software Project Management
Journal URL: https://github.com/MHUZAIFA/SOEN-6841-Software-Project-Management
Week 1: Jan 16 – Jan 24
Date: 25/01/2025
Learning journal: 1

Key Concepts Learned:
Learned about Project Management, Software Project Management, the difference between general project Management and Software Project management, Project Initiation, time effort and cost estimation and Risk management.

New Concepts learned:

- Projects are somewhere between a job and an exploration.
- If a project is going well but processes are not good (over time), people leave.
- From a managerial perspective, project management does not involve direct implementation but focuses on the phases of initiation, planning, monitoring and control, and closure.
- The metrics must be relevant, meaningful, practical and have calibration ability.
- The project charter is a document that defines the purpose for starting the project.
- The project scope defines the boundaries of the project.
- Objectives should be SMART: Specific, measurable, achievable, relevant and time-constrained.
- Difference between a manager and a project manager.
- There is a baseline for budget, schedule, and task, in most tools, we can change the baseline at max 3 times - if we change the baseline, we have the risk of missing the deadline.
- Experience-based techniques and Algorithmic cost modelling estimation methods
    - Delphie, FPA, COCOMO I and II
- Parkinson's Law: Estimation based on the idea that work expands to fill the available time.
- The difference between COCOMO I and II is that the CoCoMo model estimates effort based on lines of code and system type whereas, CoCoMo II improves accuracy by providing models (Application composition, early design, reuse and post-architecture model) for different stages of the software life cycle, allowing better estimation throughout development.
- Risk may not always have a negative consequence
- Some of the methods to decide which risks to prioritize are:
    - Impact - Likelihood of Occurrence matrix
    - Risk–Benefits Matrix
- Risk control involves planning, resolution and monitoring.
- RRL (Risk reduction leverage) > 1 indicates cost-effective risk reduction and vice versa.
- We can use several frameworks for real-time project simulations for better estimations, planning and forecasting - Monte Carlo Simulation, PERT (Program Evaluation and Review Technique), Critical Path Method, Work Breakdown Structure (WBS) and more.

Application in Real Projects:

- By following the ideal initiation and planning processes and clearly defining the project charter, we can minimize risks and set more achievable, realistic goals.
- By using SMART criteria, it will help ensure that team goals are clear and measurable, improving focus and accountability.
- For new projects, choosing between experienced-based (Function Points) and algorithmic (COCOMO2) methods can improve prediction accuracy.
- Risk Management:
  - Creating detailed risk impact tables and matrices can facilitate better decision-making.
  - Risk exposure calculations and the use of buffers ensure projects remain resilient to unforeseen challenges.

Peer Interactions:

- Brainstorming sessions to discuss innovative ways to apply likelihood vs. impact matrices to team projects.
- Team formation, team meeting timing and communication channel discussion.
- Selected topic for analysis

Challenges Faced:

- The exercises were somewhat challenging to complete, as both exercises required extensive research, and there was limited available data. This was particularly true for the analysis of government tech investments and the open-source charter.
- Understanding the differences between COCOMO and COCOMO2 required additional effort.
- Applying quantitative analysis tools (like risk exposure formulas) to hypothetical scenarios was challenging to understand.

Personal development activities:

- Read the previous week's chapters.
- Watched YouTube videos focused on using simulation tools for project estimation.
- Explored real-world project charters and budget estimations to better understand planning phases.

Goals for the Next Week:

- Prepare for the upcoming quiz.
- Research and create a presentation for topic analysis presentation.
- Finalize team project topics, tools, technologies and roles.
- Compile a list of good-to-have components in the team project documentation.
- Start working on the market research.