Learning Journal 2

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Course: Software Project Management
Journal URL: https://github.com/tanzinariki/SOEN6841

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Key Concepts Learned

Building upon the previous week's understanding of project initiation, this week introduced the fundamental concepts of effort estimation, cost estimation, scheduling, risk management, configuration management, and project planning. The key learnings included:

1. **Effort Estimation and Techniques**
    - Effort estimation is crucial for predicting project duration and required resources.
    - Techniques like COCOMO (Constructive Cost Model), Wideband Delphi, and Function Point Analysis (FPA) help estimate effort based on code size, expert judgment, or function points.
    - Estimation by analogy compares new projects with past projects to make size and effort predictions.
2. **Cost Estimation**
    - Cost estimation is based on effort estimates and factors like salaries, hardware, and overhead costs.
    - Techniques such as Activity-Based Costing (ABC) and Cost Factor Analysis help in budget planning.
3. **Scheduling and Resource Estimation**
    - Scheduling involves task allocation, dependencies, and time constraints.
    - Resource estimation determines the required workforce and skill sets needed for a project.
    - Work Breakdown Structure (WBS) and Critical Path Method (CPM) help optimize project scheduling.
4. **Risk Management and Mitigation Strategies**
    - Risk categories include budget, time, quality, resource unavailability, and scope creep.
    - Risk analysis involves assessing likelihood and impact, using qualitative and quantitative measures.
    - Mitigation strategies include risk avoidance, transference, and contingency planning.

5. **Configuration Management**
    - Helps track and control software changes, preventing versioning issues and ensuring project stability.
    - Key components include change control, configuration identification, version control, and audits.
6. **Project Planning**
    - A project plan consists of scheduling, budgeting, quality assurance, and communication planning.
    - Top-down planning assigns time estimates to large tasks first, while bottom-up planning focuses on estimating smaller tasks individually.

Application in Real Projects: "Chatbot for Mental Health Support"

As a project manager for the **"Chatbot for Mental Health Support"** project, I intend to apply these learnings in the following ways:

- **Effort and Cost Estimation**:
    - Use Function Point Analysis (FPA) to estimate chatbot complexity, considering UI interactions, NLP model training, and API integrations.
- **Scheduling & Resource Allocation**:
    - Apply Work Breakdown Structure (WBS) to divide the chatbot development into tasks: data collection, model training, UI development, and testing.
    - Use Critical Path Method (CPM) to determine task dependencies and optimize the timeline.
- **Risk Management Strategies**:
    - Identify major risks, such as bias in the chatbot's responses, data privacy concerns, and unexpected API limitations.
    - Implement risk mitigation by conducting frequent testing, consulting with psychologists, and integrating strong data encryption protocols.
- **Configuration Management**:
    - Establish version control for chatbot scripts and training data using Git.
    - Set up a change request process to track modifications and ensure seamless integration of feedback.

Peer Interactions/Collaborations

I had discussions with my fellow team members, where we worked on Project Initiation and Market Analysis for the "Chatbot for Mental Health Support" project. We explored different approaches to defining our project scope, objectives, and target audience, ensuring alignment

with market needs. We also collaborated on refining our project pitch, which we will deliver next week, focusing on key value propositions and potential challenges.

Challenges Faced

- Applying Function Point Analysis (FPA) was initially difficult due to its detailed calculations. I overcame this by reviewing case studies and using a simple chatbot prototype as an example.
- Risk prioritization was challenging, as multiple risks had overlapping impacts. Addressed this by using a Risk Exposure formula (Probability × Impact) to rank risks accordingly.

Personal Development Activities

- Gained hands-on experience with COCOMO and Wideband Delphi estimation techniques by applying them to a hypothetical chatbot expansion plan.
- Started learning React.js for my HCI project, focusing on building interactive and user-friendly interfaces.

Goals for Next Week

My goal for next week is to read Chapters 7 and 8 to gain deeper insights into project monitoring and control. I also plan to review case studies to enhance my understanding.