Learning Journal 4

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Key Concepts Learned: Chapter 8 was discussed in the lecture on November 04, 2024. The topic of this chapter was project closure. Project closure is the final phase of project management which includes completing all tasks, making sure all goals have been reached, and formally closing the project. The project deliverables before closure of project include the tested software product, user/training manuals, user training, and installation/implementation of the software product at client site. It may also include product release information if the project is to develop a software product with many iterations and is built incrementally.

The lecture on November 04, 2024 also covered Chapter 9. This chapter was an introduction to software lifecycle management. Software lifecycle is a series of processes that are used to build software products. These are also called software lifecycle models. The different software lifecycle models are as follows:

- Waterfall model:
  - Waterfall model is the traditional approach to software development in which each development process follows the one before it and there is no opportunity for reversal.
  - After requirements are gathered, software building can start. A software design is created based on requirements. Software construction begins with software design.

- Iterative models:
  - Iterative models enable software development work to be reversed, allowing any portion of the product to be rebuilt through rework.
  - Iterations are used by iterative models such as Scrum and eXtreme Programming to try to reduce rework. In a single iteration, a limited number of the software product's features are taken and fully developed in a short amount of time, say a week. The following set of features are added after it has been examined and approved. This allows for the long-term development of the entire software product.

Application in Real Projects: Consider the development of Electronic Health Record (EHR) systems. EHR systems are essential to the healthcare industry, requiring high accuracy, regulatory compliance, and close coordination between regulatory agencies, IT specialists, and healthcare providers.

- Waterfall model: In the early stages of an EHR system, when fundamental elements like data security, regulatory compliance, and key functionalities must be clearly established, the waterfall model is used. As they depend on high-level decisions and compliance checks that are hard to alter later, requirements gathering, design, and documentation phases are completed in a sequential manner.

- Iterative development: The EHR system is then gradually improved and updated using iterative development. Developers create and test smaller modules or extra features (such as prescription history, lab integration, or payment) in response to user input and healthcare-specific requirements. In response to changes in regulations or improvements in technology, these iterations provide flexibility in adding functionalities that were not originally included in the scope.
- Project closure: The EHR system goes through a closure phase after it is completed, during which it is formally closed once all requirements have been satisfied, final testing has been successful, and documentation has been finished. Archiving project papers, carrying out last-minute evaluations, guaranteeing data protection procedures, and formally handing over the project to the healthcare institution's IT team are all components of project closure.

Some challenges of using software project closure, waterfall model and iterative models for software development in real projects are as follows:

- Projects frequently come to a closure despite some outstanding issues or uncompleted features.
- As the Waterfall model is sequential, it is costly and challenging to adjust to changes in later stages.
- Iterative models encourage continuous improvement, which can sometimes lead to uncontrolled additions to scope.

The solutions for these challenges are as follows:

- Make a thorough assessment of the technical debt or outstanding tasks, prioritize critical ones, and allocate resources to address them in a post-closure phase.
- Although the Waterfall model is traditionally rigid, it can be made more flexible by including checkpoints for inspections and small adjustments in between phases.
- Clearly outline the scope, objectives, and priorities of each iteration to avoid scope creep. Use backlog management to keep scope under control.

Peer Interactions: I discussed different concepts learned during the week with my friends. We discussed applications of waterfall model and iterative models in different scenarios. We also discussed about importance of project closure phase in project management. Moreover, we must submit phase 2 of our project deliverable by November 10, 2024. So, I had several meetings with my team members to discuss about preparing documents for the next submission of our project.

Challenges Faced: I was confused in understanding the difference between waterfall model and iterative models. To clearly understand these topics, I studied them thoroughly from textbook. Furthermore, we had trouble coordinating our meeting schedules for our project, which caused delays in completing our tasks. To address our time management issues, we assigned one team member to keep track of everyone's availability and reschedule when conflicts arise.

Personal development activities: The concepts I acquired helped me comprehend project closure and software lifecycle management better. Analyzing the case studies improved my comprehension of them. To gradually explore many topics and develop solutions for the project, a great deal of research was required. This led to a thorough comprehension of the project. I also revised chapter 8 and chapter 9 for upcoming quiz 3 in class.

Goals for the Next Week: I plan to thoroughly review the earlier chapters in preparation for the upcoming final exam. Additionally, I want to begin preparing for the upcoming project final submission and presentation. To improve my comprehension and get ready for the next chapter in class, I also plan to study notes for the next chapter.