Software Engineering

Midterm Exam

Section: c

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Answer to the question No. 1

The agile method we covered in this course are

Extreme Programming (XP)
Scrum
Dynamic Systems Development Method (DSDM)
Feature-Driven Development (FDD)

The two most suitable current software development practice are XP and Scrum.

Extreme Programming (XP) is an agile software development framework that aims to produce higher quality software, and higher quality of life for the development team. Scrum is based on the test process control theory (Empirical Process, or so-called empiricism. Empiricism argues that knowledge derives from actual experience and observations in the current known circumstances. Scrum and XP are both Agile approaches that share the common concepts of iterative development, working software, release and iteration planning, daily meetings, retrospective, all elements of an Agile process. Both approach are aligned each other that sometimes is difficult to distinguish between a team who is adopting XP while another team who is doing Scrum. But XP is the most specific of the agile frameworks regarding appropriate engineering practices for software development. XP consists of five phases but Scrum includes three phases. Scrum is people based but XP is programming based.

Answer to the question No. 2

In the lab work my project topic is Online toll management system.

The steps important for software requirements analysis are

- Requirement Knowledge: It is very necessary to know about the requirements of the users before starting any project. Working on the present requirements of the users will be helpful in gaining popularity of your project.

- Identification of Stakeholders:
  Stakeholders includes customers, end-users, system administrators etc. identifying the correct stakeholder is second step and is one of the most important step in all. Identifying the correct stakeholders help to properly analyse and create a road map for gathering requirements.

- Collection of Requirements: After identifying stakeholders one has to collect requirements for them. Based on the nature and aim of the project there can be many kinds of stakeholders.

  - Analysis of Collected Requirements: Once the data is gathered structured analysis must be done of the data to make models. Data are analysed on the basis of various parameters depending on the goals of the software.
  - System requirement Specification (SYRS): Once the data is analysed they are put together in the form of system requirement specification document (SYRS).
  - Management of Software Requirements**:** The last step of this analysis process is correcting and validating all elements of requirement specifications document. Errors can be corrected at this stage. Minor changes can also be done according to the requirement of the software user.

Answer to the question no. 3

The project scheduling optimization curve of the software development process model:

software idealized curve is impossible to follow considering software failure rate and evolution of time because in idealized curve software is not susceptible to the same environmental problems that cause hardware to wear out. On the other hand

Software will undergo changes and it is likely that some new defects will be introduced as a result of this, causing the failure rate curve to spike in software failure curve. Before the curve can return to the original steady-state failure rate (i.e. before the new bugs have been removed), another change is requested, causing the curve to spike again. Slowly, the minimum failure rate level begins to rise the software is deteriorating due to change. Software development times cannot simply be scaled up and there is not a linear relationship between the number of lines of code and the time scale of the project.

Short Question Answer

1. Five phase
2. 6 model
3. Component Based Development Model
4.
5. 90 day
6. XP
7. 4 methods
8. Scrum
9. Initiate
10. Scrum