

Soham Nitin Mare
9622
TE-comps B

se assignment.

Q1) What is significance of recognizing software requirements in the software engineering process?

- As the technology changes, the user requirements and environment on which software is working also changes. So every organisation is ranked based on the software engineering principle used by the organisation.
- Implementing and managing large size of software programmer requires a specific method and mature the tasks so that size of software don't harm the software quality.

Software engineering provides methodology for implementing for implementing ~~so~~ complex integration complex software system with high quality.

- Extending the previous software to add new functionality requires more cost in terms of time to develop and efforts taken by the people.
- Software engineering provides a way in

which software system can be able to scale as needed to future.

- Q2> 1) Software processes are the activities for designing, implementing and testing for a software system.
2) A software process model is an abstract representation of the development process.

① Perspective Process models.

① The name 'perspective' is given since the model perceivable set of activities, action, task and change control mechanism for every project.

② whatever process model is chosen by the organisation but it should encompass the following framework.

- ① communication
- ② Planning
- ③ modelling
- ④ construction
- ⑤ Deployment.

(iii) Ex:- waterfall model, Incremental process models, Evolutionary process model.

⑤ Agile Process Models

① It includes the concept of development along with a set of guidelines necessary for the development process.

② The development ~~guidelines~~ guidelines emphasizes on analysis and design activities and continuous communication between developers and customers.

③ An agile team quickly responds to change as a result agile development process must be adaptable.

④ →

⑥ Iterative model:- Similar to agile, but with more structured and defined process.

Each iteration, may include a subset of the software functionality.

allows for iterations, redefined features and easily feedback, suitable for projects with evolving requirements.

CMM model.

- developed by software Engineering Institute
- It defines a process or methodology.
used to establish / develop and refine an organization's software development process.

present 5 2 types of meta models

- ~~As~~ continuous model
- ~~As~~ a staged model.

CMM provides the different levels based on the standards a company acquires.

new company - Level 1

CMM provides total 5 levels

- 1) Initial
- 2) Repeatable
- 3) Defined
- 4) managed
- 5) optimizing.

Level 1:- characterized as a ad hoc few process are define, success an individual efforts.

Level 2:- Basic projects management process are established to track cost, schedule and functionality.

Level 3:- At this level, processes for both management and development activities are defined and document.

Level 4:- At this level, focus is on one metric

At this stage processes and product metric are collected.

Level 5:- Continuous process improvement is enable

Perspective process

① to binary codes and structure

② Define a distinct set of activities, actions, tasks, milestones.

Evolutionary process

① do not establish the maximizes speed of the evolution.

Evolutionary process model lacks flexibility, extensibility, and high quality.

③ more popular

less popular.

④ provides complete and full developed system

Time does not allow a full and complete system to be developed.

⑤ For eg. waterfall model, Incremental model

Eg:- Prototyping, spiral.

① Waterfall model -

- ① requirements are well defined
- ② projects with a clear and stable scope.
- ③ Developing a microwave oven with fixed set of features and requirements.

② Agile model:

- ① requirements likely to evolve and change during process.
- ② require flexibility and rapid iterations
- ③ mobile app based on feedback.

③ Spiral model:-

- ① high level of risk assessment and management
- ② continuous refinement, early prototypes
- ③ ex. complex medical device, extensive testing and validate.

④ Incremental model:

- ① divided into smaller, manageable parts
- ② delivered separately
- ③ ex e-commerce website.

⑤ CMM - ① improving and optimizing the development and management process with an integration.

Ex:- large financial institution that handles sensitive customer data, high level of security.

⑥ RAD - videogame prototype to demonstrate game-play mechanism.

07) 1. waterfall

Development speed.

Waterfall is linear and sequential methodology where each phase must be completed before moving on the next. This can lead to longer development cycles, metrics adaptability to change:

Waterfall is less adaptable to change in requirement due to its rigid structure. metrics. Customer feedback at the end of this project

2. Agile : Development speed:

Agile methodologies emphasize incremental development allowing for quicker delivery of working features metrics.

Q8) Features	waterfall model	Incremental model	Prototyping model	speed model.
Requirement specification	well understood.	Not well understood	Not well understood	well understood
Understanding of requirements	well understood	Not well understood	Not well understood	well understood.
Availability of reusable components	No	Yes.	Yes	Yes
Risk analysis	Only at the beginning	No risk analysis	No risk analysis	Yes
User involvement	Long	Yes Less	Less	Yes Depends on project
Flexibility	Rigid	Less	High	Flexible
Expertise required	high	high	medium	high
Cost control	Yes	No	No	Yes
Resource control	Yes	Yes	No	Yes.