Assignment No 01

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Q.1) Explain the Software process framework in details.

- Software process framework is an abstraction of the software development process.
- It details the steps and chronological order of a process. Since it serves as foundation for them, it is define characteristic of the SDLC development process.

- Software process include
  - Tasks = focus on small, specific objective
  - Action = Set of tasks that produce a major work product
  - Activities = group related tasks and action for a major objective.

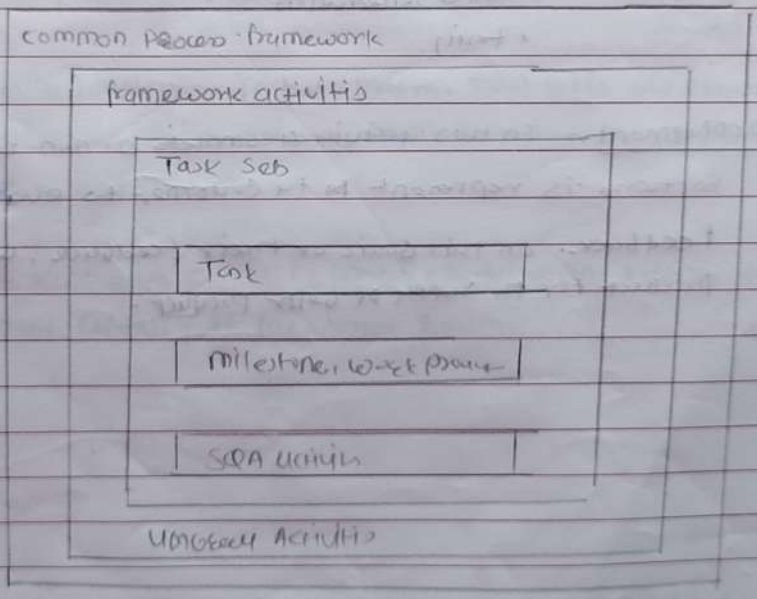


fig. A software process framework

• The process framework is required for representing common process activities. Five framework activities are described in a process framework for software engineering.

• **Communication** :- By the communication, customer requirement gathering is done. communication with consumers and stakeholder to determine the system objectives.

• **Planning** :- Establish work plan, describe technical risk, list resource requirement, work product & define work schedule,

• **Modeling** :- Architecture models can design to Gain understanding the problem and for work toward the best solution.

• **Construction** :- Creating code, testing the system, fixing bug, & confirming that all criteria are met. the software design is mapped into a code by
  - code generation
  - testing

• **Deployment** - In this activity a complete or non-complete product or software is represent to the customer to evaluate & to give feedback. on the basic of their feedback, we modify the product for the supply of better product.

Describe the Step of S/W process activity

- Software is set of instruction in form of program to govern computer system and procedure hardware component. So produce S/W produce hardware components. the set of activity is any

There are four basic key activities

1) Software specification - In these process, detailed description of S/W system to be developed with its functional & non-functional requirement

2) Software development - in these process, designing, programming, documenting, testing & bug fixing is done

3) Software validation - in this process, evaluating S/W product is done to ensure that software meets business requirement as well as end user need

4) Software evaluation - it is process of developing software initially then timely updating it for various reasons.

(Q3) Explain the different level CMM.

- Capability Maturity Model (CMM) specifies an increasing series of level of software development organization.

LEVEL

i) Initial :- The software process is characterized as inconsistent and occasionally even chaotic define process be standard practice that exist are abandoned during crisis.

ii) Managed :- This level of software development organization has basic control project management process to track cost, schedule & functionality

iii) Measured :- Management can efficiently control the SW development effort using process measurement

iv) Define - in this SW level SW process for both management & engineering activity are documented, standardized & integrated into standard SW process

v) Optimizing - The key characteristics of this level is focus on continuous improving process performing through both incremental & improvement technology improvements.

Q.4) Explain advance trends in software engineering

- Cloud-Native technology - The application trend in the software software development companies will move activity to cloud native solution for web development

- Blockchain :- The time when blockchain technology was associated with crypto currency only has gone

- ML : The ML technology personality, recommendation, image & voice recognition, chatbot, virtual assistant, trend detection S/W system.

- AI :- These smart algorithm replicate comprehensive through process of human brain

- Cybersecurity :- With the world becoming more digital than ever before every provider and every user of S/W solution

- IoT - All technology trends go to the internet of things (IoT) is one that could have far-reaching impact on our world. IoT physical object like gadget, device, vehicle, etc.

Q.5) Explain the process model of software engineering

- A software process model is an abstraction of the software development process. The model specify the stage and other of a process. The model specify the stage and order of activities of the process & sequence in which are they performy

- There are many kind of process model for meeting different requirement we refer to them SDLC model.

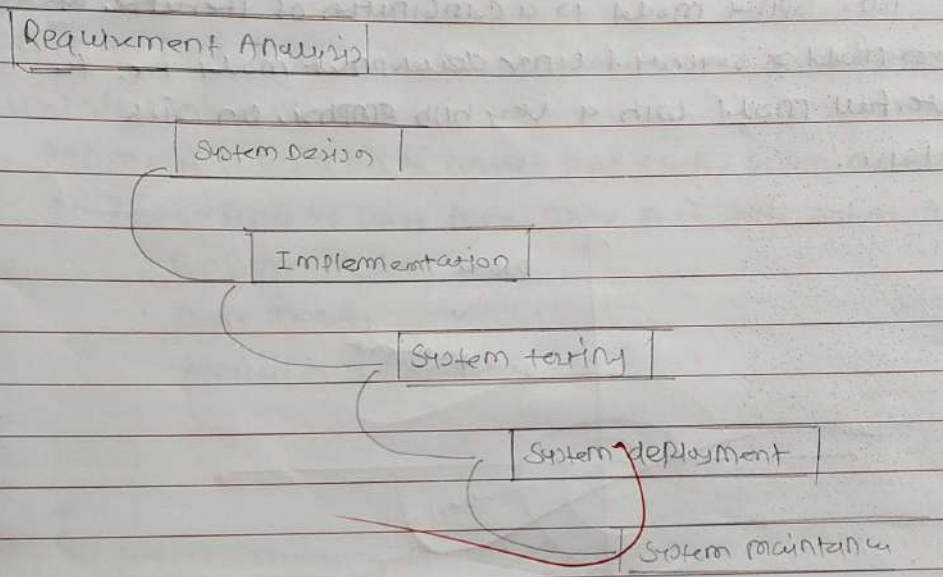
i) Waterfall model

- The waterfall model is the first approach used in sw development process it is also called as classical life cycle model or linear sequential model

- In waterfall model any phase of development process begin only if previous phase is complete. The method, in which process of software development is divided into various phases

- Advantage

1. Before the next phase of development, each phase must be complete
2. Suited for smaller project
3. They should perform quality assurance test before complete each stage



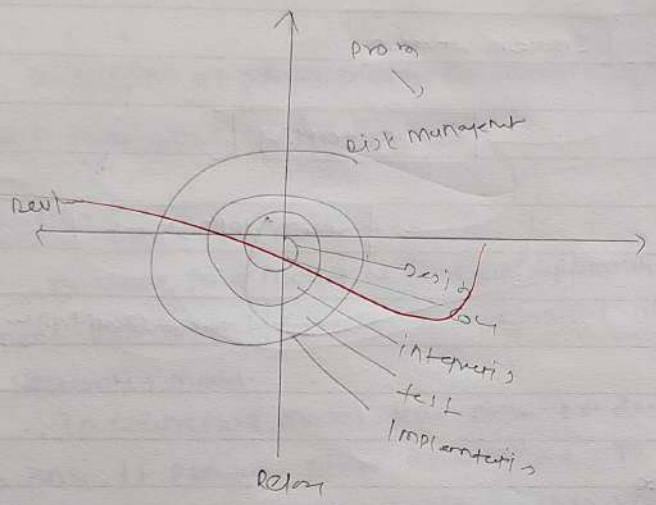
- Disadvantage

① Error can do flow only during the phase
② It is not very complex project.
③ Testing period comes quite late in the development process.

2) Spiral Model :-

- The spiral model combination the iterative development with the systematic, controller aspect of the waterfall model.

- This spiral model is a combination of iterative development process model & sequential linear development model i.e. the waterfall model with a very high emphasis on risk analysis.



Advantage

① Allow extensive use of prototype
② Requirement can be capture more accurately

Disadvantage :-

i) Management is more complex
ii) Not suitable for small or low risk project
iv Process is complex

RAD

- RAD or Rapid Application development process is an adoption of the waterfall model.
- RAD model is based on the concept that a better system can be developed in less time by using focus group to gather system requirements.
  - Business modeling
  - Data modeling
  - Application generation