Intro to software engineering...

05 January 2024 03:48 PM

- what is software engineering : it is a branch of computer science that involves the design , development , and testing and maintenance of the software application , the idea of software engineering is to avoid triple constaraints
- Software engineering is concerned with theories methods and tools for professional software development

  - What is software : a collection of instruction written in specific language that computer understand
    - Set of instructions + data structure and operational procedures + documentation(internal and external both)
    - There are two major kind of software's
      - Application software : this is a piece of software to which the user interact directly like games , MS office , etc.
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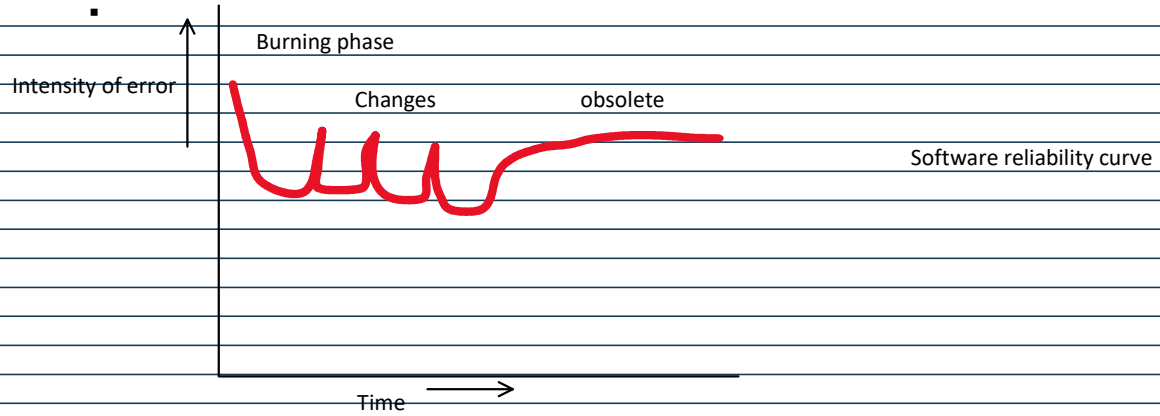


      - System software : they act like the backbone of the computer managing its hardware and providing platform for other applications to run
      - Example : operating system , drivers , utility program , compiler&interpreater

  - Types of application software :
    - Generic software : general software designed for everyone like - "Microsoft office"
    - Customed software : specially designed for specific users like - "Amizone.net "

~~On the basis of requirement we create a software~~
~~Requirement is obtained by user by :~~
- ~~Questionnaire~~
  - ~~MCQ~~
  - ~~Theoretical paper~~
- ~~Interviews~~
- ~~On-site observation~~
- ~~Prototype~~
  - ~~The previous projects I have worked on I will show it to the customer and if he likes any of the projects I will customise the project according to his needs~~

- ~~If we do not use any predefined framework to develop our software we might face difficulties like~~
  - ~~software getting delayed~~
  - ~~Software cost exceeded the estimated cost~~
  - ~~Software not able to meet the quality standard~~

~~"these 3 points are known as triple constraints"~~

- ~~Software :~~
  - ~~System software : operating system , compiler & interpreter , device driver , utilities~~
  - ~~Application software : games , Microsoft office , vs code~~
  - ~~Embedded software : software which are embedded in the system and are supposed to control the~~

entire system
- Web application : WhatsApp web , Instagram , twitter
- AI based software : bard , ChatGPT , Bing ai

1. What are the attribute of good software ?
2. What is the difference between software engineering and computer engineering ?
3. What is the diff between software engineering and system engineering ?

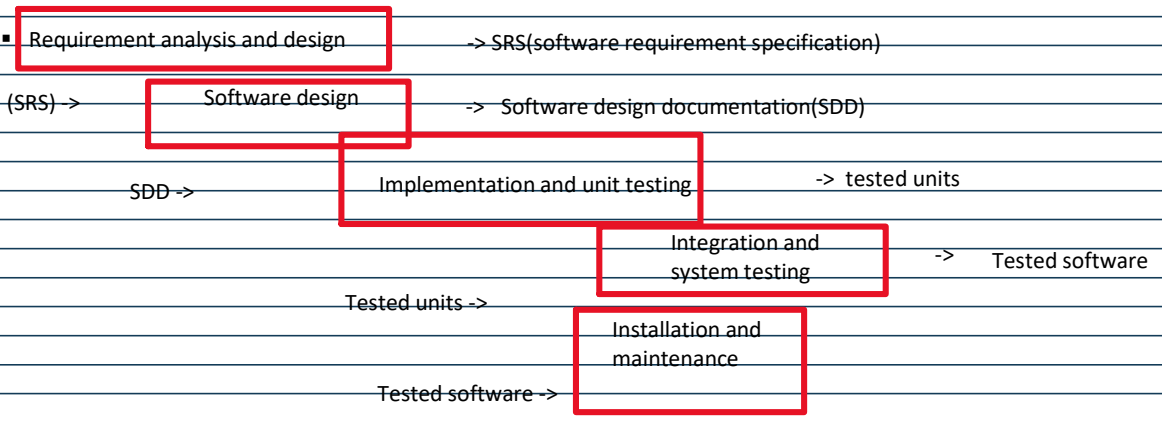
1. Good software possesses a constellation of desirable attributes that contribute to its overall quality and value to user . These attributes can be broadly categorized into two groups functional and non-functional
    i. Functional attributes :
        1) Correctness : the software perform its intended function accurately and reliably , fulfilling user experience and requirements
        2) Security : the software protects user data and system resources from unauthorized access , modification , or destruction
        3) Functionality : it provide all the necessary features and function to accomplish its intended purpose
    ii. Non-functional attributes :
        1) Usability : it is easy to learn , use and understand , with an intuitive interface and clear user documentation
        2) Maintainability : its designed in a way that simplifies repairs , updates and modifications , reducing development and maintenance cost
        3) Portability : it can be easily adapted and run on different hardware and operating system environment
2. Software : primarily concerned with the design , development , implementation , and maintenance of the software application

    Computer : focused on design , development , analysis ,and implementation of the computer hardware and system

3. Software : primarily concerned with the design , development , implementation , and maintenance of the software application

    System : focused on the broader picture , designing , integrating and managing complex system

- # software development process model :
    - Waterfall model : (linear sequential model)



It is a linear sequential live cycle it is very simple to understand and use in the waterfall model each phase must be completed before the next phase begins and there is no overlapping in the phases

Waterfall model is most appropriate for

- Their requirement are very well documented clear and fixed
- Product definition is stable
- Tech is understood and not very dynamic
- There are no ambiguous requirement
- Project is short and not very complex

Disadvantages :

- Not good for risky and dynamic project
- Cannot accommodate the change in environment