

BCA Optimized Notes by Yash

Semester IV - Software Engineering

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Unit 1 - Chapter 1

Problems in Software Development

Common Issues

- The final software does not fulfill the needs of the customer.
- Hard to extend and improve. If you want to add functionality later, it's mission impossible.
- Bad documentation.
- Bad quality; frequent errors and hard to use.
- More time spent and bigger cost than expected.

Software Engineering

Definitions

- The study and application of methodologies to develop quality software that fulfill user needs is known as software engineering.
- Software engineering is a systematic, disciplined and cost-effective technique for software developers.
- IEEE defines software engineering as "The application of a systematic, disciplined and quantifiable approach to the development, operation and maintenance of software."

Why Is It Required?

- To manage large software.
- For more scalability.
- Cost management.
- To manage the dynamic nature of software.
- For better quality management.

Objectives

- **On Time**
 - The software should be delivered at the exact date and time.
- **Reliable**
 - The software shouldn't crash.
- **Complete**
 - The software should have good documentation and fulfill customer needs.

SDLC (Software Development Life Cycle)

Requirement Analysis

The client requirements are analyzed first, to ensure proper product development.

Define the Details of the Products

Defining exactly what the product needs to have and the expectations of the client is crucial for a complete product.

Design (UI/UX)

The design of the program is done first, with the user experience being put at the foremost.

Development (Front-End, Back-End, DBMS)

The actual development of the product starts in this stage.

Testing (Check If The Requirements are Met)

The product is tested and prototyped to check if the requirements are met, and allow fixing for any bugs that appear.

Deployment

The finished product is deployed to the client, assuring that the client's requirements are met.

Maintenance

The product receives more updates throughout its life, adding on features and fixing any more errors.

Reasons why Software Development can be discontinued/left incomplete