

# 2 Lecture - CS504

## Important Subjective

**What is the difference between front-end and back-end development?** **Answer:** Front-end development focuses on creating the user interface and client-side functionality, while back-end development deals with server-side programming and database management. **Explain the concept of version control and its importance in software development.** **Answer:** Version control is a system that tracks and manages changes to software code. It allows multiple developers to collaborate, revert changes, and maintain a history of modifications, ensuring code integrity and facilitating teamwork. **What is an algorithm in the context of software development?** **Answer:** An algorithm is a step-by-step procedure or a set of instructions used to solve a specific problem. It is a crucial component of software development as it defines the logic and flow of operations. **What is the purpose of software testing in the development process?** **Answer:** Software testing is performed to identify defects, bugs, or errors in the software. It ensures that the software meets the desired functionality, quality, and performance standards before deployment. **Describe the waterfall model in software development.** **Answer:** The waterfall model is a linear sequential approach where each phase of the software development life cycle (SDLC) is completed before moving to the next one. It follows a top-down flow, starting from requirements gathering, design, implementation, testing, and finally deployment. **What is the role of a software architect?** **Answer:** A software architect is responsible for designing the overall structure and system architecture of a software application. They make high-level decisions regarding technology stack, scalability, and maintainability to ensure the success of the software project. **What is the difference between object-oriented programming (OOP) and procedural programming?** **Answer:** OOP focuses on creating objects that encapsulate data and behavior, promoting modularity and reusability. Procedural programming, on the other hand, follows a linear flow and focuses on procedures or functions that operate on data. **Explain the concept of Agile methodology in software development.** **Answer:** Agile methodology is an iterative and incremental approach to software development that emphasizes flexibility, collaboration, and adaptive planning. It involves breaking down the project into small, manageable iterations and encourages continuous feedback and improvement. **What are the key phases of the software development life cycle (SDLC)?** **Answer:** The key phases of the SDLC include requirements gathering, design, implementation, testing, deployment, and maintenance. These phases provide a structured framework for developing software applications. **Describe the concept of refactoring in software development.** **Answer:** Refactoring is the process of restructuring existing code to improve its readability, maintainability, and performance without changing its external behavior. It helps in eliminating code smells, enhancing code quality, and making future modifications easier.