KHULNA UNIVERSITY

Computer Science and Engineering Discipline

Course No. : CSE-3106
Course Name : Software Development Laboratory

Architecture Pattern

File Sharing Desktop Application

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Name of the Project:

File Sharing Desktop Application.

Architecture Pattern:

Client-Server Software Architecture Pattern.

Description:

The Client-Server Software Architecture Pattern is a fundamental model for designing and implementing networked applications. In this architecture, computing tasks are divided between the client and server components, each with specific roles and responsibilities. Overall, the client-server architecture pattern provides a flexible and scalable foundation for building networked applications, enabling efficient communication, resource sharing, and centralized control in distributed computing environments.

Components:

● **Client:** The client is a user-facing interface or application that interacts with the user and sends requests to the server. Clients can be desktop applications, mobile apps, web browsers, or any other software that initiates communication with the server.

● **Server:** The server is a centralized system that provides resources, services, or data to multiple clients. It listens for incoming requests from clients,

processes them, and sends back responses. Servers can be physical machines or virtualized instances that run software to handle client requests.

Characteristics:

1. **Scalability:** Client-server architectures can scale horizontally by adding more servers to handle increasing client loads. Load balancers can distribute client requests across multiple servers to ensure optimal performance and availability.

2. **Centralized Control:** Servers maintain centralized control over resources and data, enabling consistent management and enforcement of security policies, access controls, and business rules.

3. **Resource Sharing:** Servers can provide shared resources or services to multiple clients, enabling efficient resource utilization and collaboration across distributed environments.

4. **Reliability:** Centralized servers can implement redundancy, failover mechanisms, and data backup strategies to enhance reliability and fault tolerance.
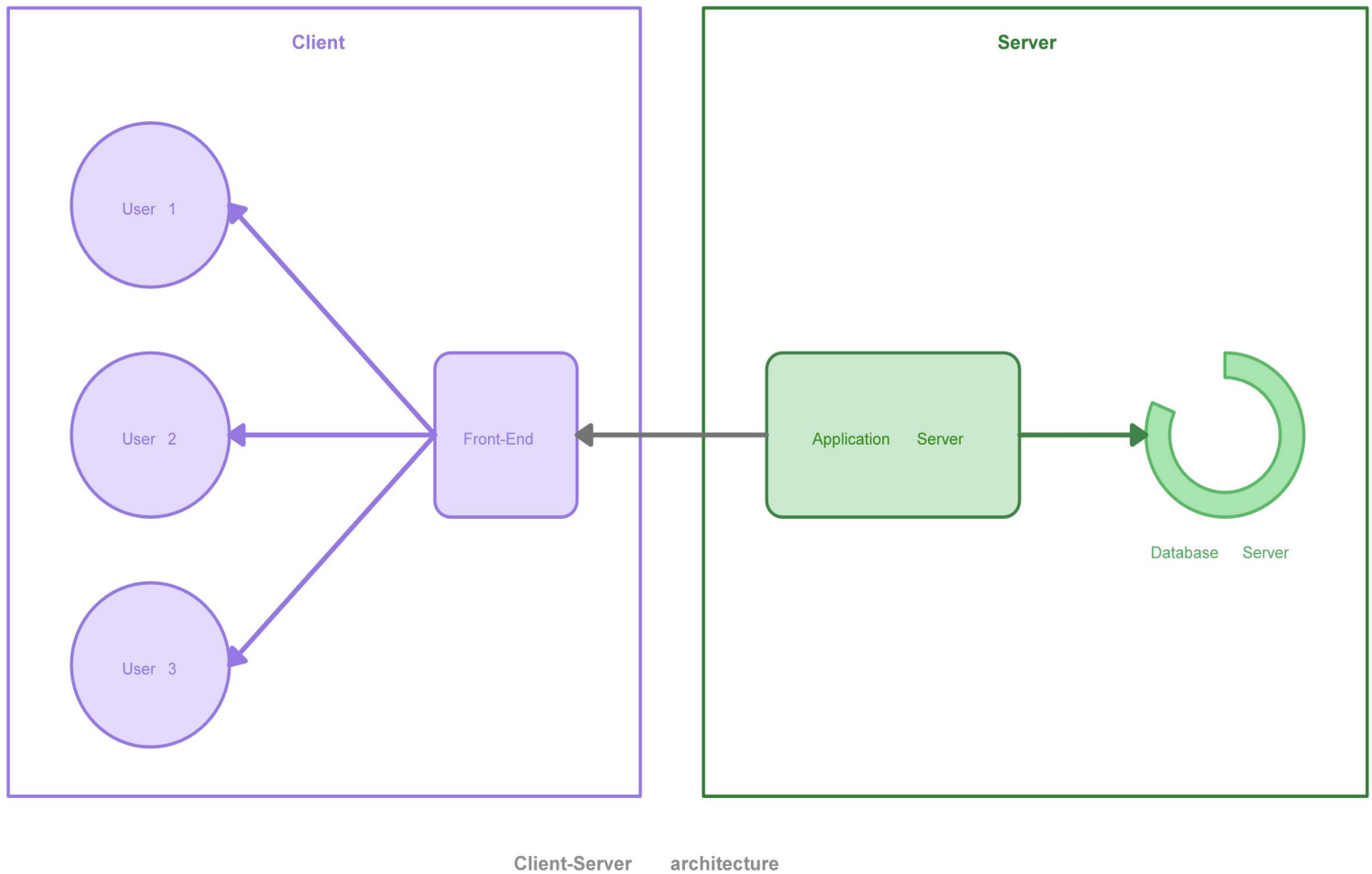
Diagram:

Client-Server architecture

Figure: Client-Server Architecture Pattern Diagram