what is Architectural patterns types and their use?

Layered Pattern:

Description: In this pattern, components are separated into layers, each with unique tasks. Layers are independent, allowing modification within a layer without affecting others.

Layers:

Presentation layer: Handles user interface interactions.

Business layer: Executes business logic.

Application layer: Facilitates communication between presentation and data layers.

Data layer: Manages the database.

Ideal for: E-commerce web applications like Amazon1.

Client-Server Pattern:

Description: Divides the application into clients (user interfaces) and servers (data processing). Clients request resources from servers, which process and respond accordingly.

Examples: Email, web browsing, file sharing apps, and banking systems1.

Event-Driven Pattern:

Description: Agile approach where services respond to events. Events trigger specific operations in the software.

Use Cases: Real-time systems, IoT applications, and event-driven architectures1.

Microkernel Pattern:

Description: Separates core functionality (microkernel) from extended services. Extensions run as separate modules.

Use Cases: Operating systems, extensible software platforms1.

Microservices Pattern:

Description: Decomposes the application into small, independent services. Each service performs a specific function.

Use Cases: Scalable and maintainable systems, cloud-based applications.