CSL7090
Software & Data Engineering

Lecture #2 Layered, Broker Patterns, MVC, Pipe-n-Filter, Client-Server
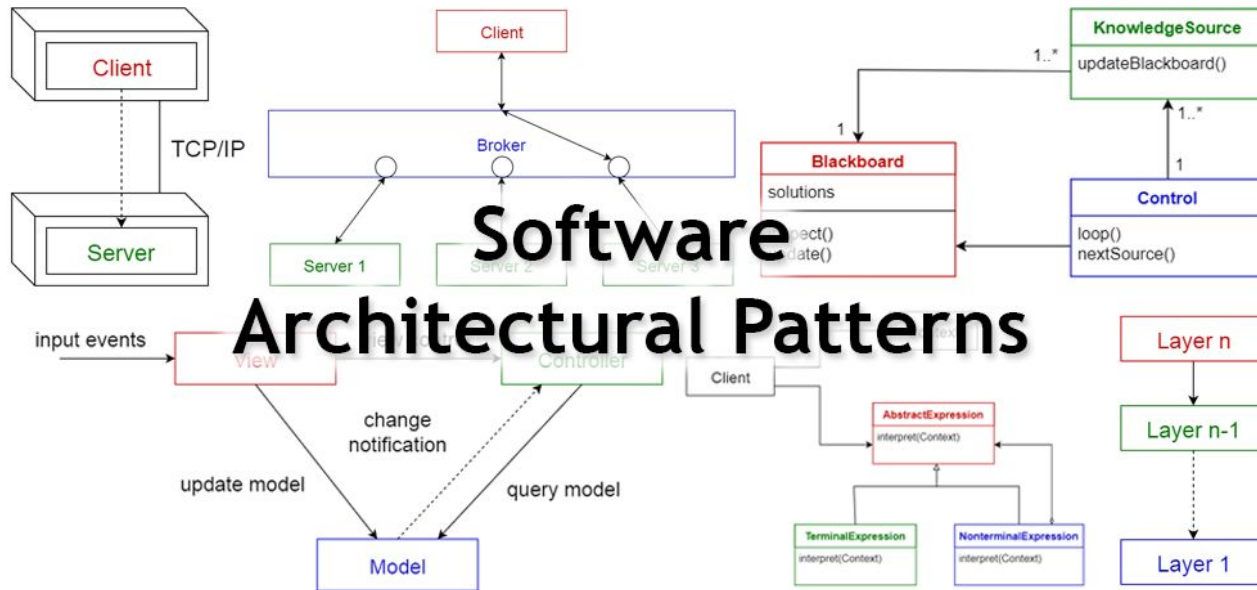
Course Instructors:

Sumit Kalra, Assistant Professor, IIT Jodhpur
Ram Subramaniam, Co-founder - My Money Karma

Google Classroom Code: cezptvv

Architectural Pattern

A general, reusable solution to a commonly occurring problem in software architecture within a given context.

Some popular examples of architectural patterns

Layered pattern

Client-server pattern

Master-slave pattern

Pipe-filter pattern

Broker pattern

Peer-to-peer pattern

Event-bus pattern

Model-view-controller pattern
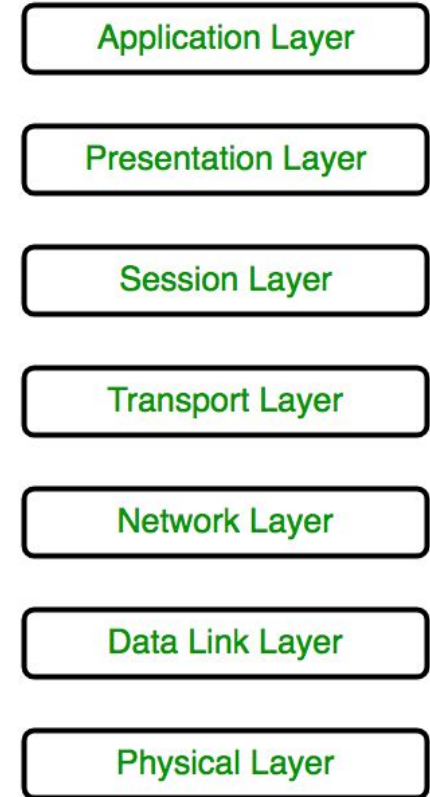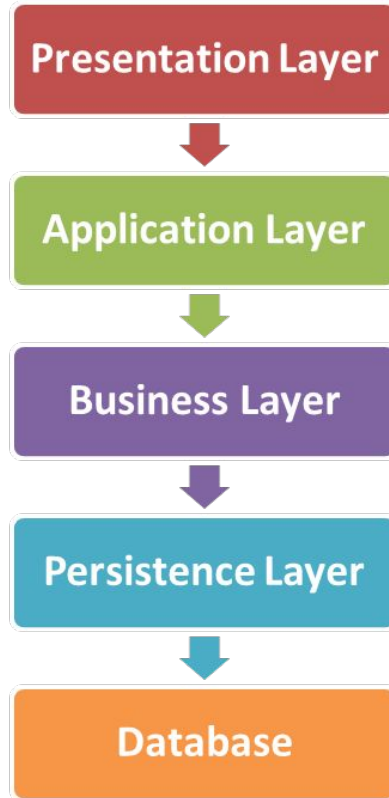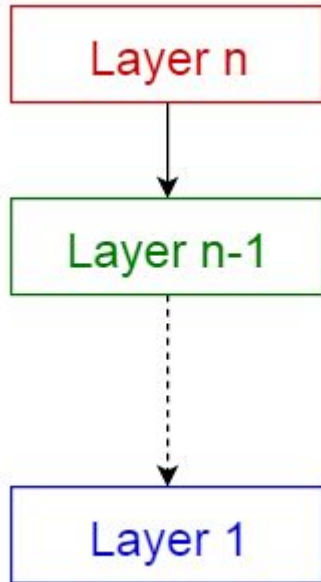
Blackboard pattern

Interpreter pattern

Layered Pattern
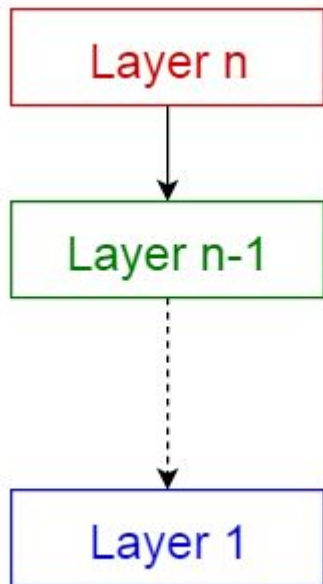
1. Organize the components of an application into horizontal logical layers and physical tiers.

2. A higher layer can use services in a lower layer, but not the other way around.
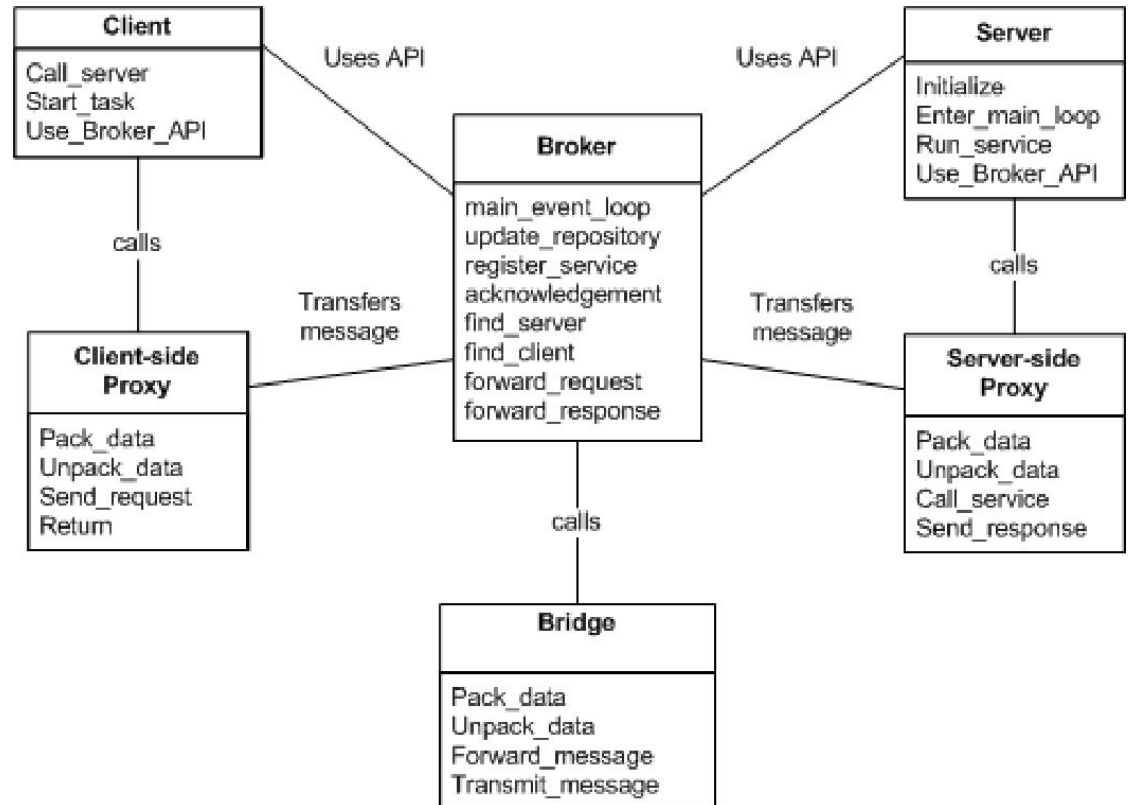
Layered Pattern

Broker Pattern

The Broker architectural pattern can be used to structure distributed software systems with decoupled components that interact by remote service invocations.
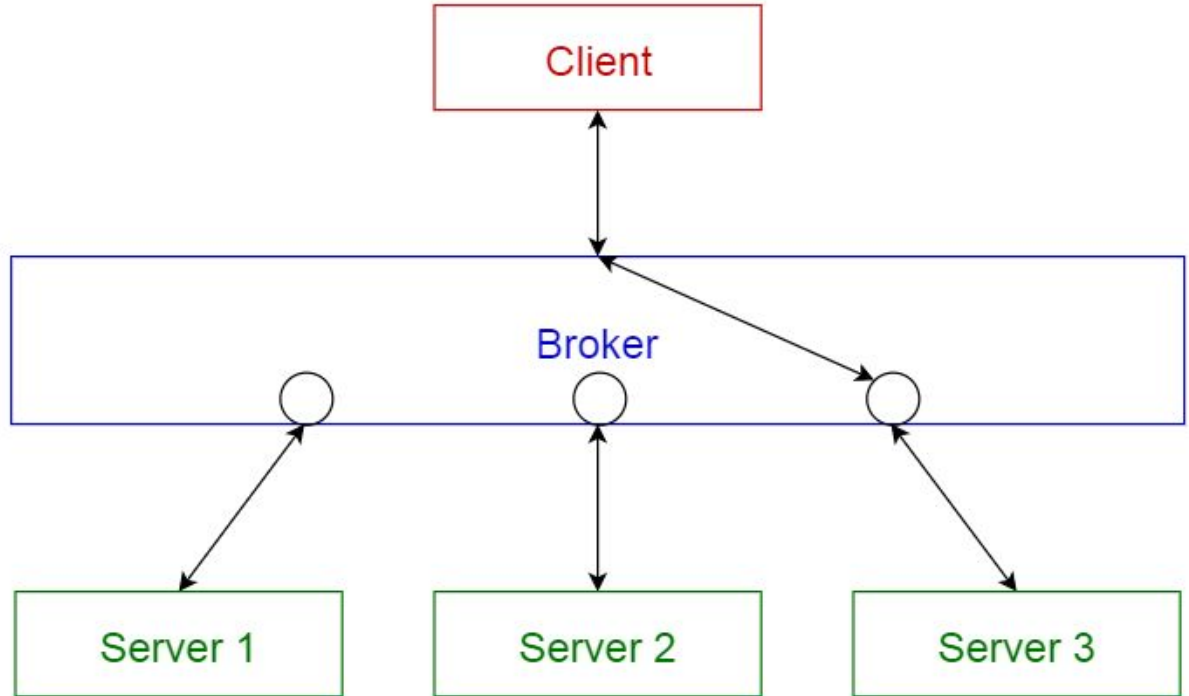
Broker Pattern

The Broker component is responsible for coordinating communication, such as forwarding requests, as well as transmitting results and exceptions

Client
- Call_server
- Start_task
- Use_Broker_API

Server
- Initialize
- Enter_main_loop
- Run_service
- Use_Broker_API

Uses API

Uses API

Broker
- main_event_loop
- update_repository
- register_service
- acknowledgement
- find_server
- find_client
- forward_request
- forward_response

calls

Transfers message

Transfers message

calls

Client-side Proxy
- Pack_data
- Unpack_data
- Send_request
- Return

Server-side Proxy
- Pack_data
- Unpack_data
- Call_service
- Send_response

calls

Bridge
- Pack_data
- Unpack_data
- Forward_message
- Transmit_message

Microservice Architecture

Modular v/s Monolithic Software Design

Homework:

Microservice Architecture

Modular v/s Monolithic Software Design

Next Class:

Revision, MVC, Pipe-Filter, Client-Server, Peer to Peer

Contact: sumitk@iitj.ac.in