Designed by:
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API In Micro services Architecture

Monolithic Application System & Micro services Architecture

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About Myself

- Self-Motivated QA Professional with almost a decade of experience in software testing .
- Currently, working with a product based company in London
- Scrum fundamentals certified & ISTQB foundation level certified testing professional
- Believe in knowledge sharing through LinkedIn, Twitter and community
- Community supporter. Part of multiple communities online.
- Speaker – recently delivered few QA Tech talks.
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Agenda

- What is API & Why do we use it?
- What is 3- tier architecture in APIs?
- Meaning of Monolithic application system
- Example
- Meaning of Micro services & Architecture
- Example
- Advantages of micro services

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What is API and Why do we use it?

- API stands for Application Programming Interface. In simple language, API is a way by which two systems can interact with each other.
- Or
- A set of functions or some logic written by developers that allows applications to interact with each other.

- Purpose of API:
- One purpose of APIs is to hide the internal details of how a system works, exposing only those parts a programmer will find useful and keeping them consistent even if the internal details later change.

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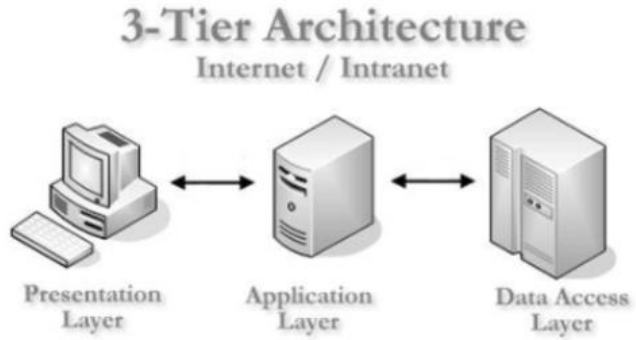
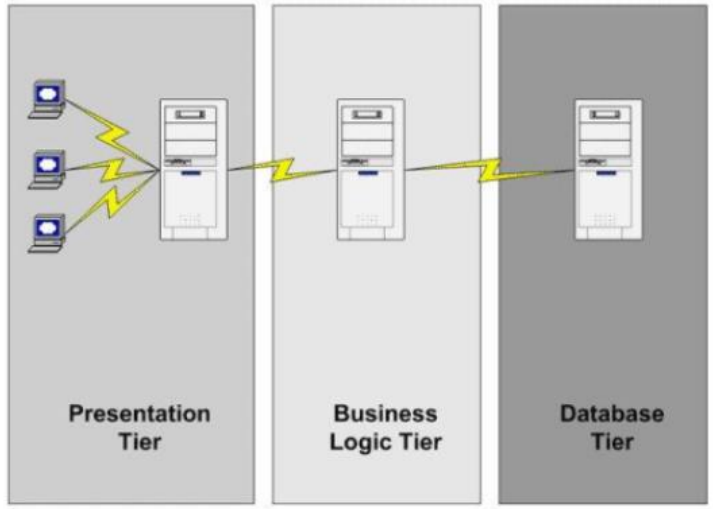
APIs - Examples

- To book a cab (Ola,Uber)
- To make a payment online/ Online Shopping (via Paypal, via bank account etc.)
- To register on some sites like gmail,Twitter,LinkedIn

3- tier architecture of API

- In 3-tier architecture, an application is virtually split into three separate logical layers





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Client, Request & Server

Client – is a computer/machine/device which sends request to a server. Now, the question will be coming to your mind what is a request? What type of request it is? What is a server?

Request – is in the form of HTTP request. HTTP is a type of protocol which is used to communicate between a client and a server. HTTP stands for Hypertext transfer protocol.

Server – is a computer/device/machine which accepts the HTTP request sent by client and send response back to client in the form of HTTP.

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Client –Server Architecture

Client server architecture: It has 3 types.

- 1 tier architecture –>where Data and Application resides in one machine. Presentation, Business, Data Access layers within a single software package. The data is usually stored in the local system or a shared drive. Application such as MS Office come under one-tier application.

- 2 tier architecture –>where Client resides at one system and database server is at another system. We can have multiple clients. For instance, online ticket reservations software use the two-tier architecture.

- 3 tier architecture--> In 3 tier architecture, we need Internet. This is applicable mainly for web applications. We have client (Browser), DB server (where we store our data). In between client and server, there is business logic layer (which is called as middle layer).

Internal Architecture

- First, Client send a request through browser, business logic happens at second layer, it executes the request. Based on your request, corresponding business logic is triggered. And, then it will pass the request to database server which processes the data. And again it will sent back to Business layer and passed on to Client layer. And henceforth, you see response on your browser.

- Example: Amazon online shopping . Customer registration. Customer purchased a product, add to cart, order processing.

Monolithic Application

- In monolithic application system, all the components are interconnected and inter dependent. Or they are tightly coupled in nature.

- Example: Consider it as a big container where all the different software functionalities are combined together and tightly packed.

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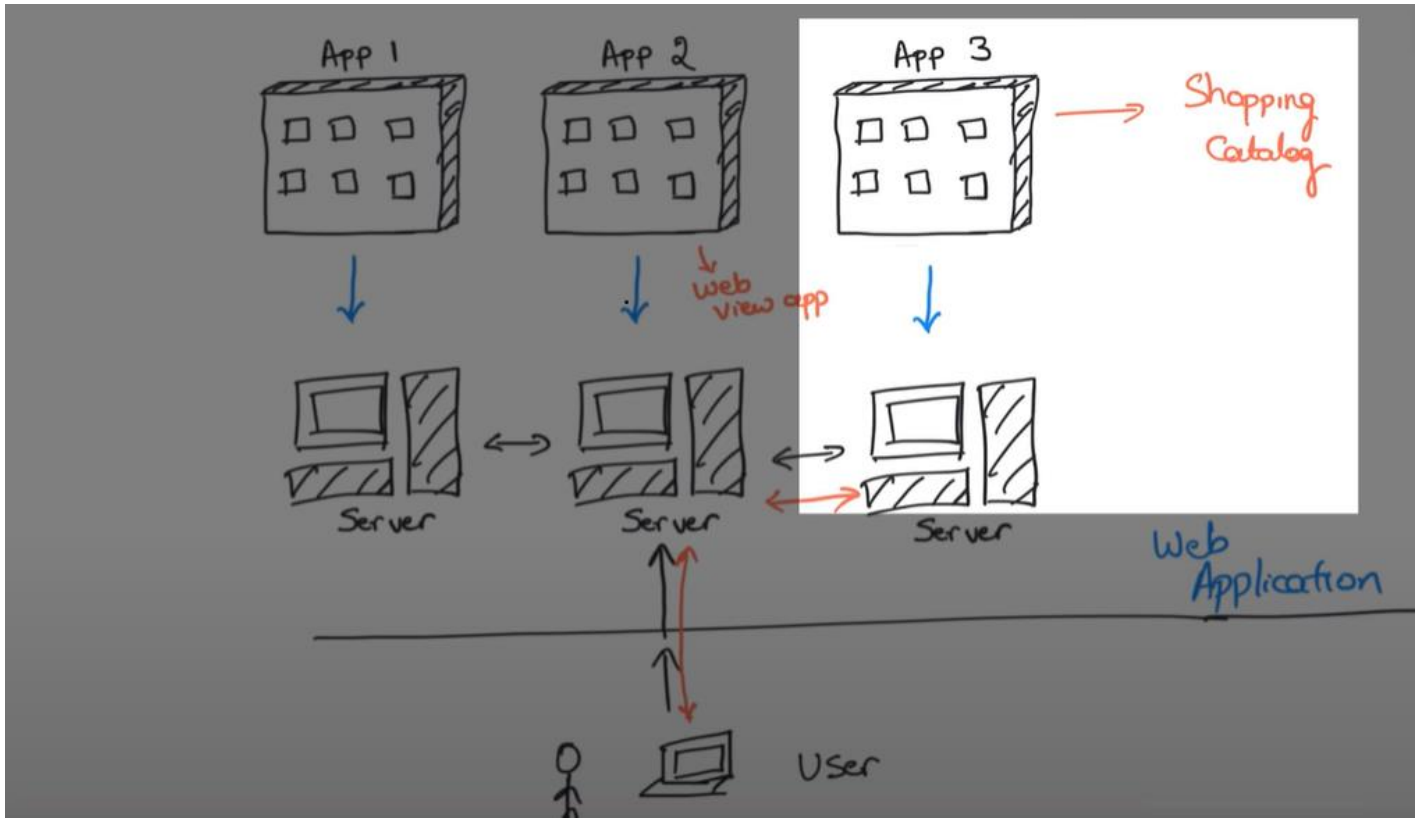
What are Micro services

- When you breakdown your application into small mini applications or to say standalone independent applications which runs on different hardware or server instances. Different micro services talk to each other via API's only.
- Each one of them is a separate application and deployed separately.
- Example: E-commerce application. Different features or different micro services will be : User Registration, Search for a product, Filter, Add to cart, Make Payment transaction.

Example



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Advantages of Micro services Architecture

1. Independent development
2. Isolated in nature
3. Loosely couple
4. Scaling separately
5. Flexibility to deploy separate applications by different teams.
6. Technology flexibility/ Mixed tech stack – For each service, you can create your own technology stack.

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References taken

- JavaBrains
- Naveenautomationlabs
- JavaTpoint
- Edureka
- Google images
- Wiki

Q & A

- Thank you for joining me today!
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