Asp.Net Core

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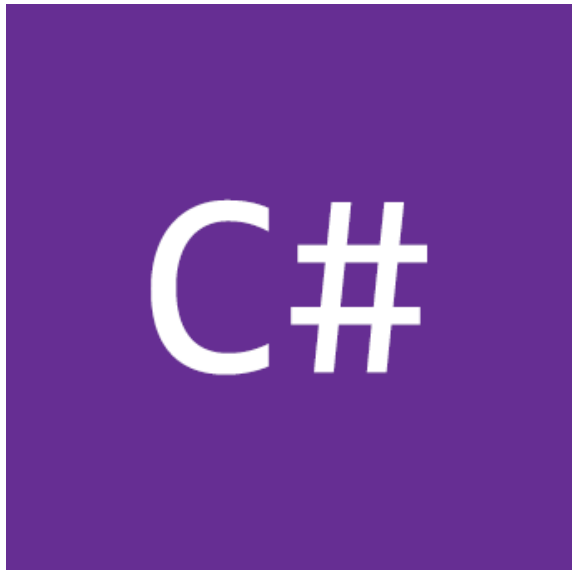
Pre requirements

Basic knowledge Of :

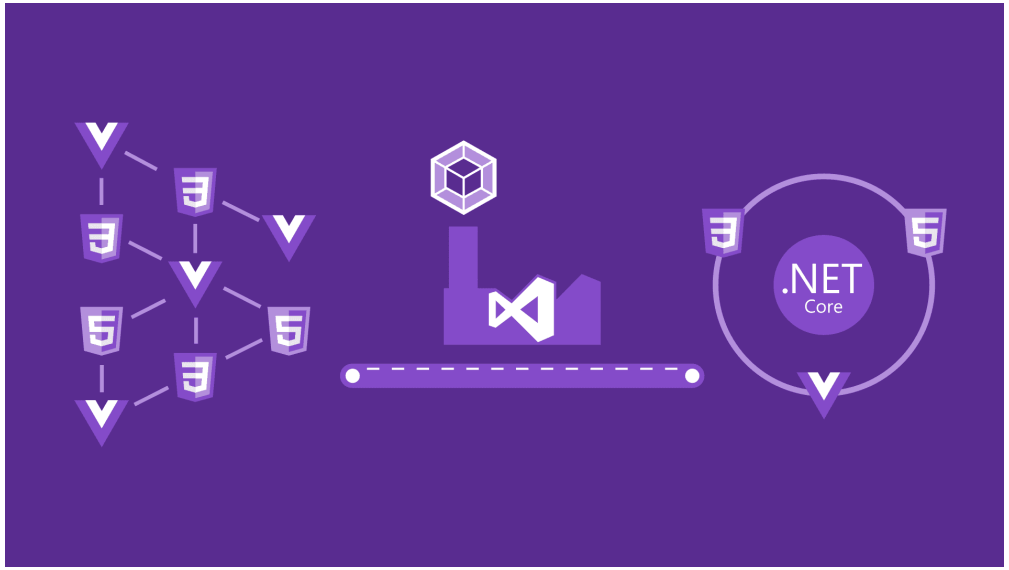
1. Html
2. CSS
3. Java Scripts
4. Basic bootstrap
5. Any Programming Language

Our Course

Language



Framework



Whate I Need To Start !!

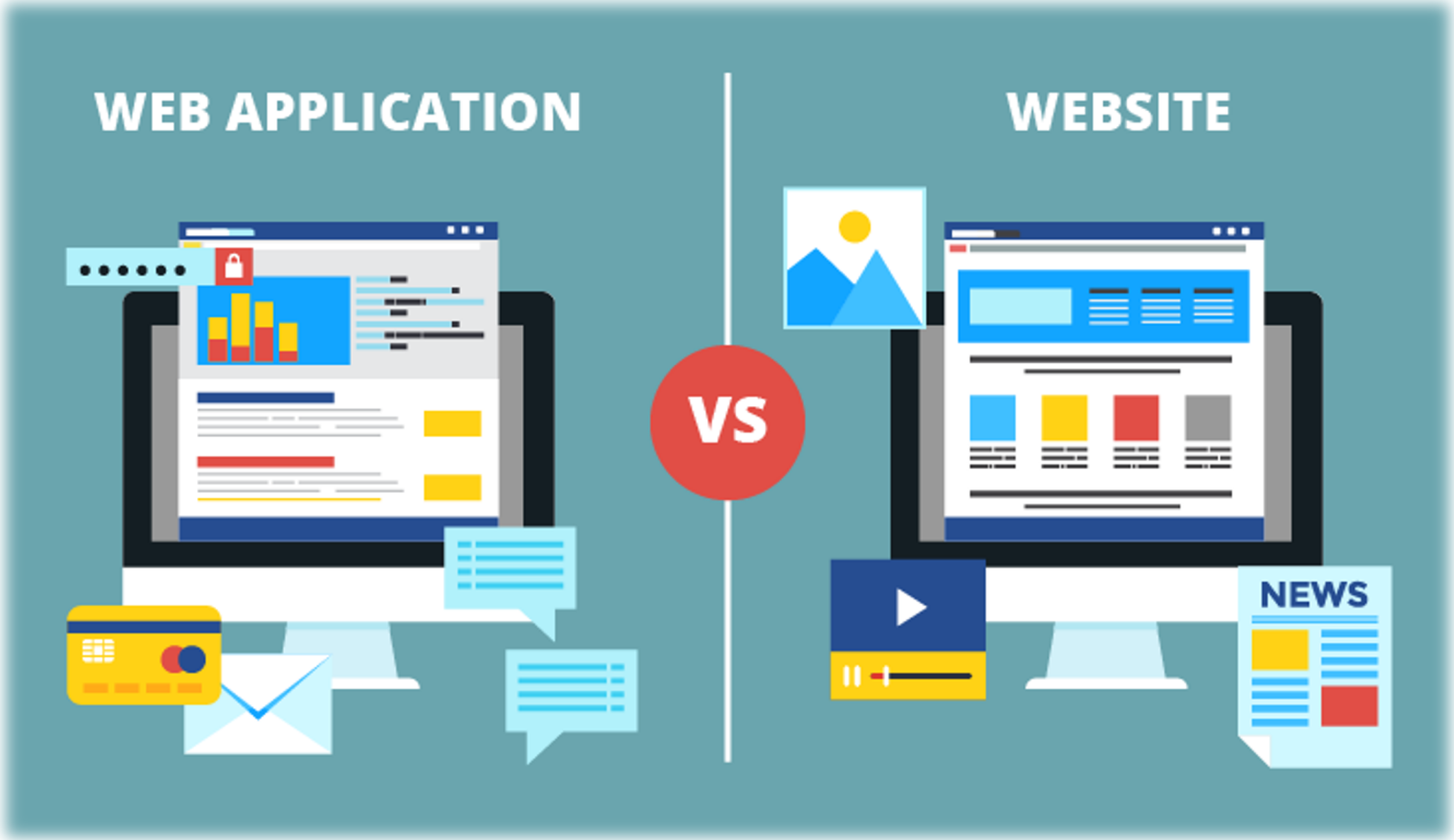
Needs Of:

1. Visual Studio 2017
2. Sql Server 2017

Programme vs. application

- Computer Program
- is a set of instructions that can be executed on a computer.
- Application
- is software that directly helps a user perform tasks.

Web application vs. website



Web Application & Software Architecture

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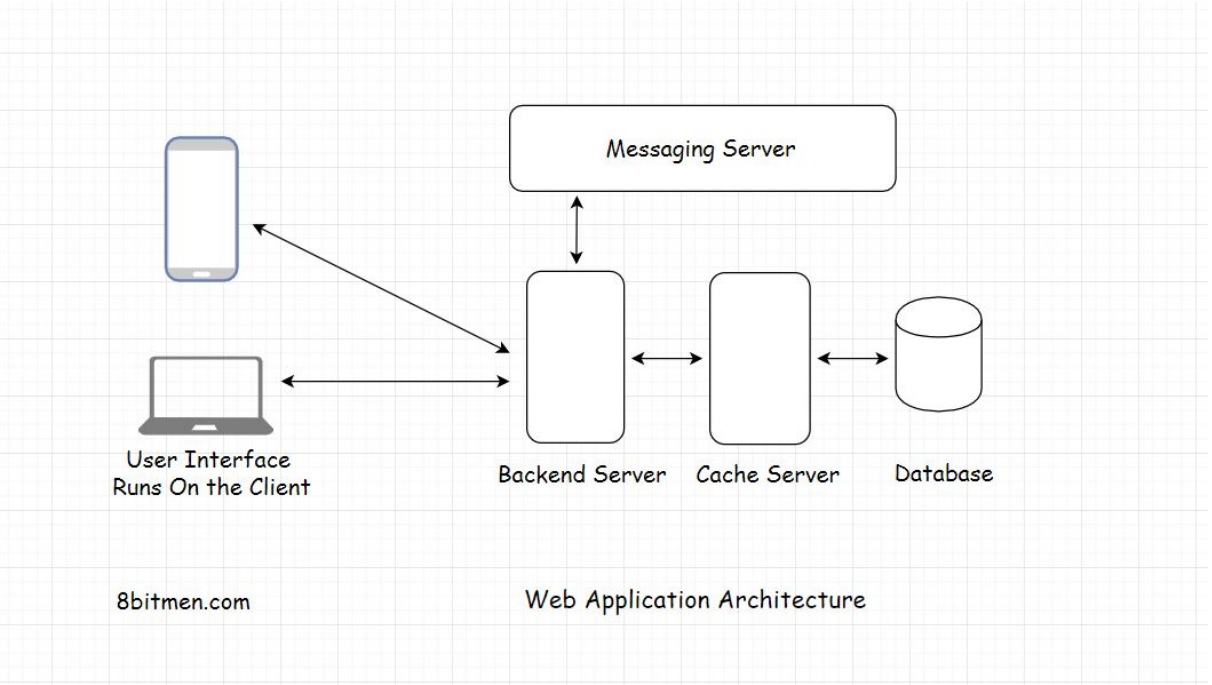
What Is Web Architecture?

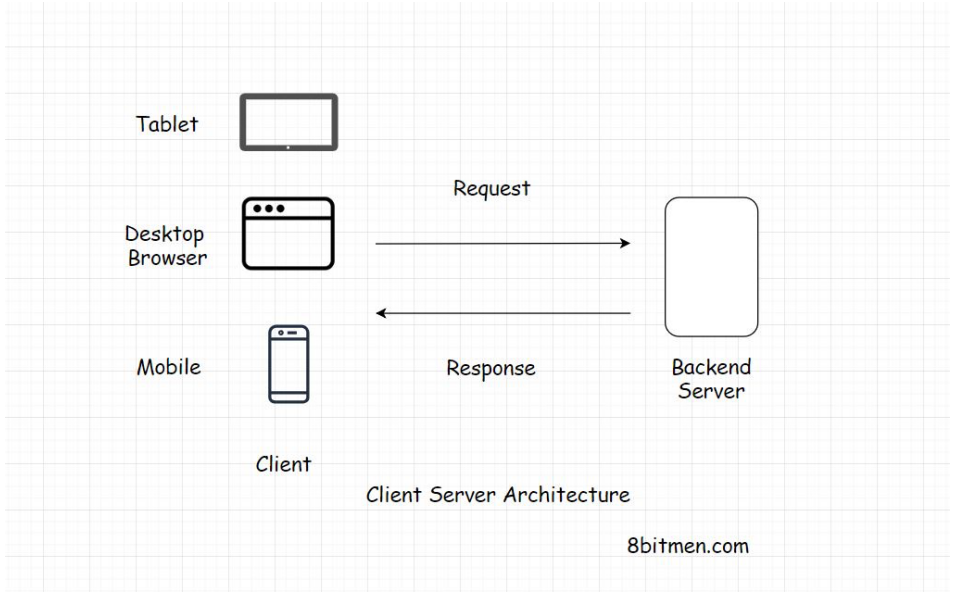
Web architecture involves multiple components like *database*, *message queue*, *cache*, *user interface* & all running in conjunction with each other to form an online service.



Client Server Architecture

Client-Server architecture is the fundamental building block of the web.

- The architecture works on a *request-response* model.
- The *client* sends the request to the *server* for information & the *server* responds with it.
- Every website you browse, be it a Wordpress blog or a web application like *Facebook*, *Twitter* or your banking app is built on the client-server architecture.



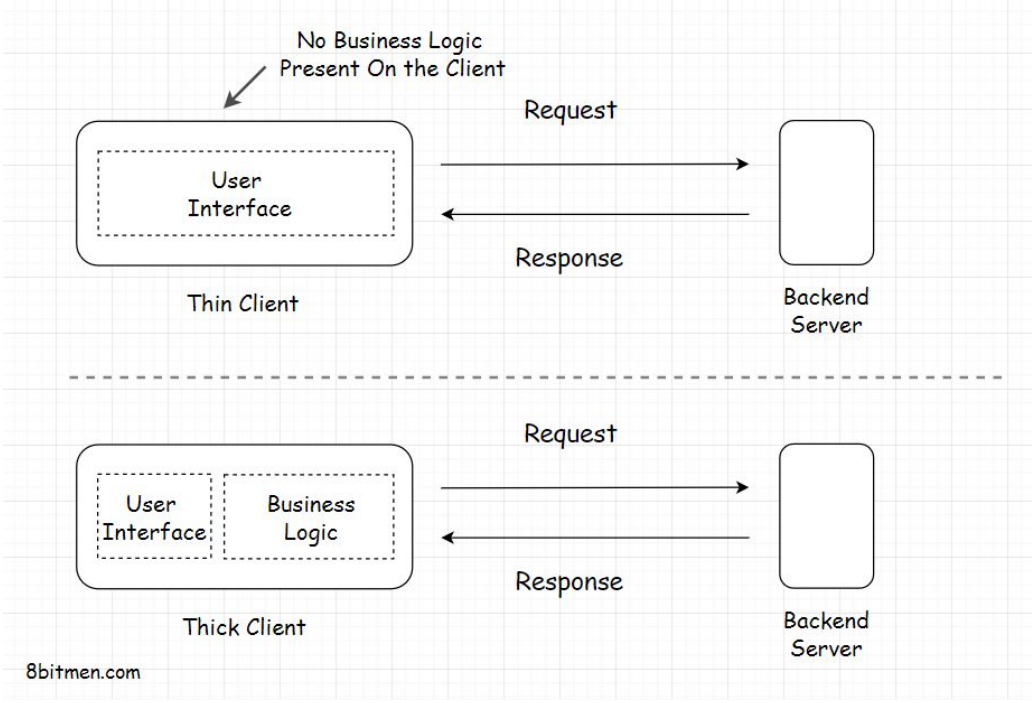
Client

- The *client* holds our *user interface*.
- The user interface is the presentation part of the application.
- It's written in *Html*, *JavaScript*, *CSS* and is responsible for the look & feel of the application.
- The user interface runs on the client.
- The client can be a mobile app, a desktop or a tablet like an *iPad*. It can also be a web-based console, running commands to interact with the backend server.

Types of Client

Thin Client :

- Thin Client is the client which holds just the user interface of the application.
- It has no business logic of any sort.
- For every action, the client sends a request to the backend server.



Thick Client (sometimes also called the Fat client):

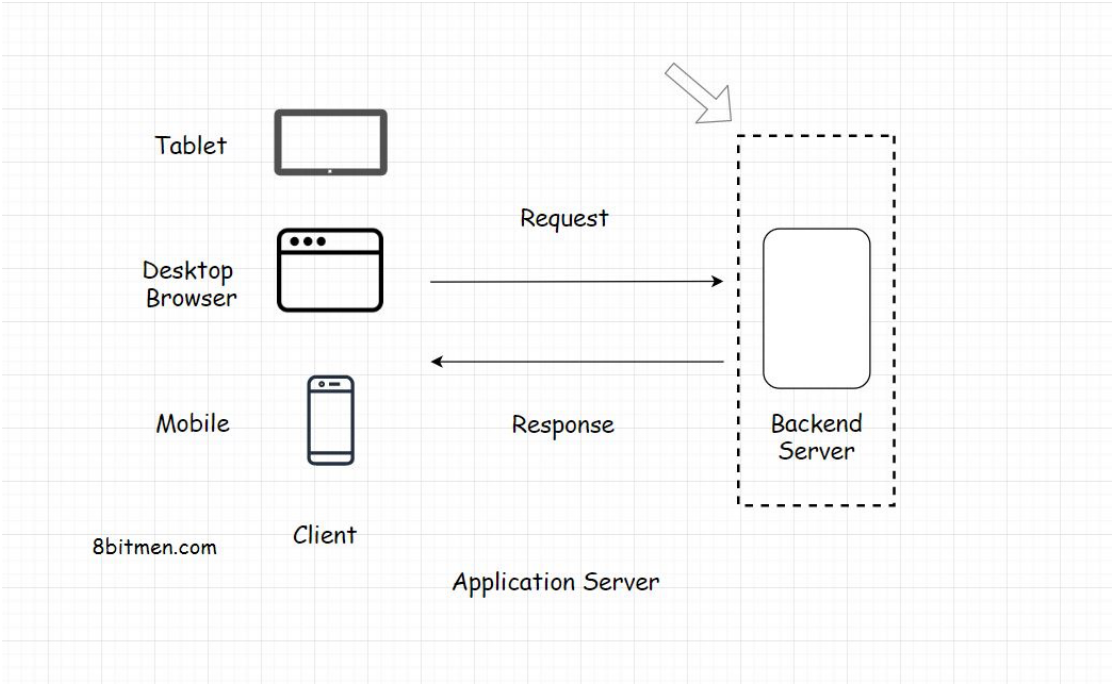
- The thick client holds all or some part of the business logic.

Server & Server-Side Rendering

Server

The primary task of a web server is to receive the requests from the client & provide the response after executing the business logic based on the request parameters received from the client.

Every service, running online, needs a server to run. Servers running web applications are commonly known as the *application servers*.



Server-Side Rendering

Often the developers use a server to render the user interface on the backend & then send the rendered data to the client.

Communication Between the Client & the Server

Request-Response Model

- The client & the server have a request-response model.
- The client sends the request & the server responds with the data.
- If there is no request, there is no response

HTTP Protocol

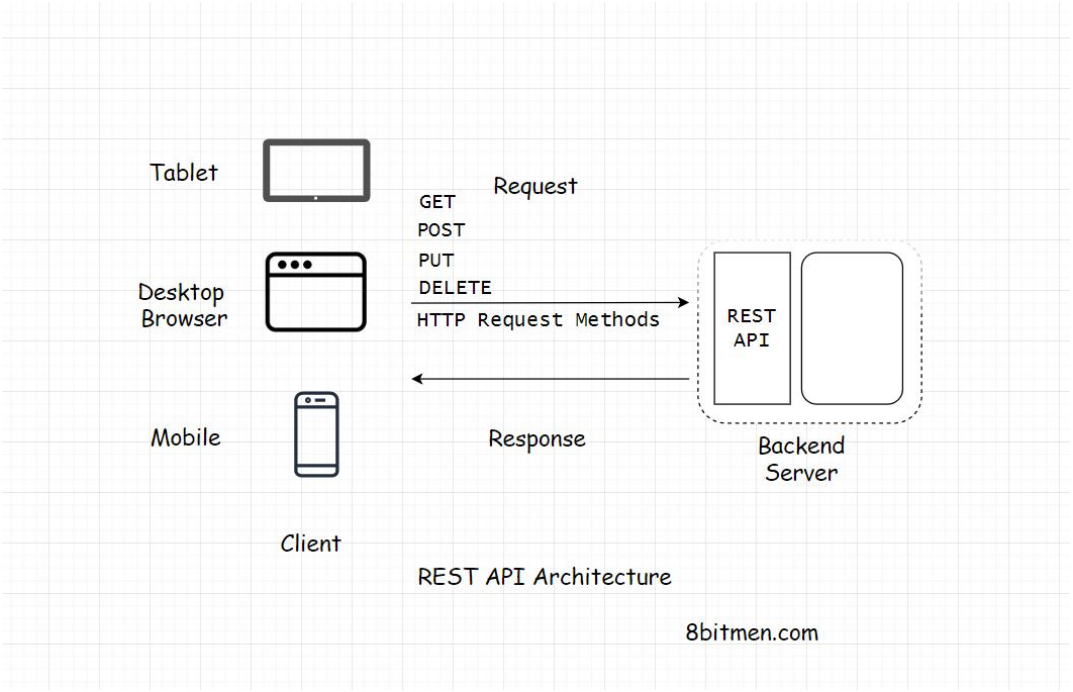
- The entire communication happens over the HTTP protocol.
- It is the protocol for data exchange over the World Wide Web.
- HTTP protocol is a request-response protocol that defines how information is transmitted across the web.

REST API & API Endpoints

Every client has to hit a *REST end-point* to fetch the data from the backend.

The backend application code has a *REST-API* implemented which acts as an interface to the outside world requests.

Every request be it from the client written by the business or the third-party developers which consume our data have to hit the REST-endpoints to fetch the data.



WHAT IS REST?

REST stands for Representational State Transfer.

It’s a software architectural style for implementing web services.

Web services implemented using the REST architectural style are known as the RESTful Web services.

REST API

A REST API is an API implementation that adheres to the REST architectural constraints.

It acts as an interface.

The communication between the client & the server happens over HTTP.

A REST API takes advantage of the HTTP methodologies to establish communication between the client and the server.

REST also enables servers to cache the response that improves the performance of the application.

REST End Point

An API/REST/Backend endpoint means the URL of a service.

For example, **https://myservice.com/users/{username}** is a backend endpoint for fetching the user details of a particular user from the service.

Real World Example Of Using A REST API

For instance, let’s say we want to write an application which would keep track of the birthdays of all our Facebook friends & send us a reminder a couple of days before the event date.

To implement this, the first step would be to get the data on the birthdays of all our Facebook friends.

We would write a client which would hit the Facebook Social Graph API which is a REST-API to get the data & then run our business logic on the data.

HTTP Pull 01

As I stated earlier, for every response, there has to be a request first.

The client sends the request & the server responds with the data.

This is the default mode of HTTP communication, called the HTTP PULL mechanism.

The client pulls the data from the server whenever it requires.

Clint keeps doing it over and over to fetch the updated data.

HTTP Pull 02

An important thing to note here is that every request to the server and the response to it consumes bandwidth.

Every hit on the server costs the business money & adds more load on the server.

What if there is no updated data available on the server, every time the client sends a request?

The client doesn’t know that, so naturally, it would keep sending the requests to the server over and over. This is not ideal & a waste of resources.

Excessive pulls by the clients have the potential to bring down the server.

HTTP PUSH 01

The HTTP PUSH based mechanism.

In this mechanism, the client sends the request for particular information to the server, just for the first time, & after that the server keeps pushing the new updates to the client whenever they are available.

The client doesn’t have to worry about sending requests to the server, for data, every now & then.

This saves a lot of network bandwidth & cuts down the load on the server by notches.

This is also known as a *Callback*. Client phones the server for information The server responds, Hey!! I don’t have the information right now but I’ll call you back whenever it is available.

HTTP PUSH 02

There are multiple technologies involved in the HTTP Push based mechanism such as:

- Ajax Long polling
- Web Sockets
- HTML5 Event Source
- Message Queues
- Streaming over HTTP

HTTP Pull - Polling with Ajax

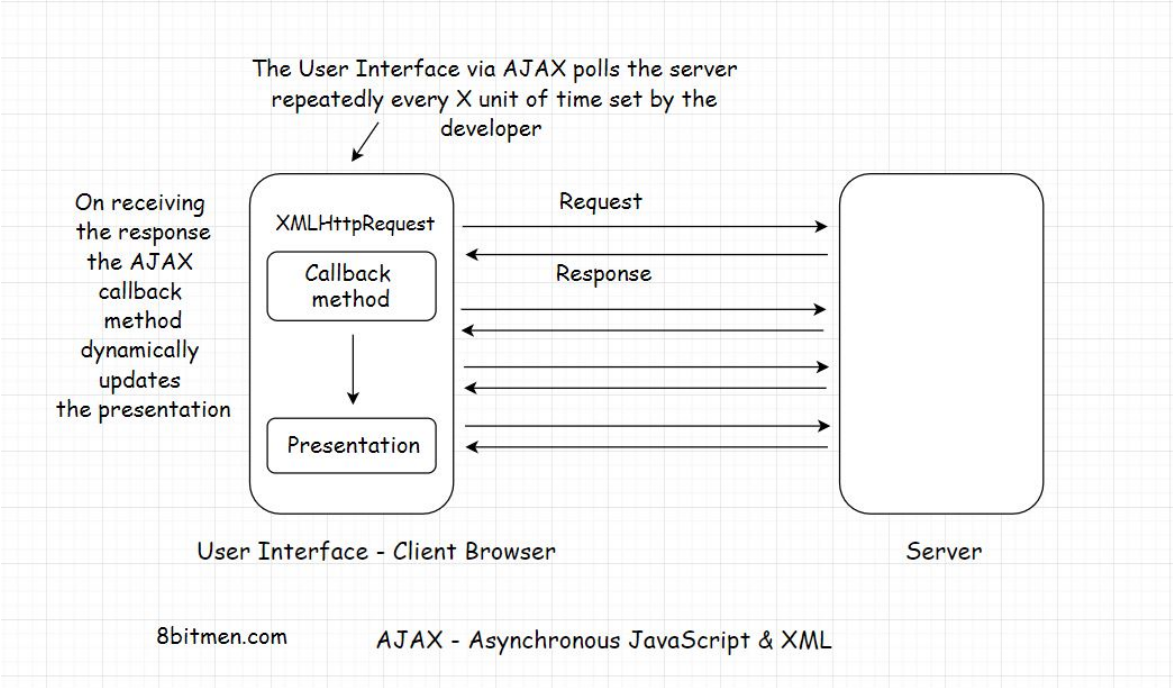
There are two ways of pulling/fetching data from the server.

- The first is sending an HTTP GET request to the server manually by triggering an event, like by clicking a button or any other element on the web page.

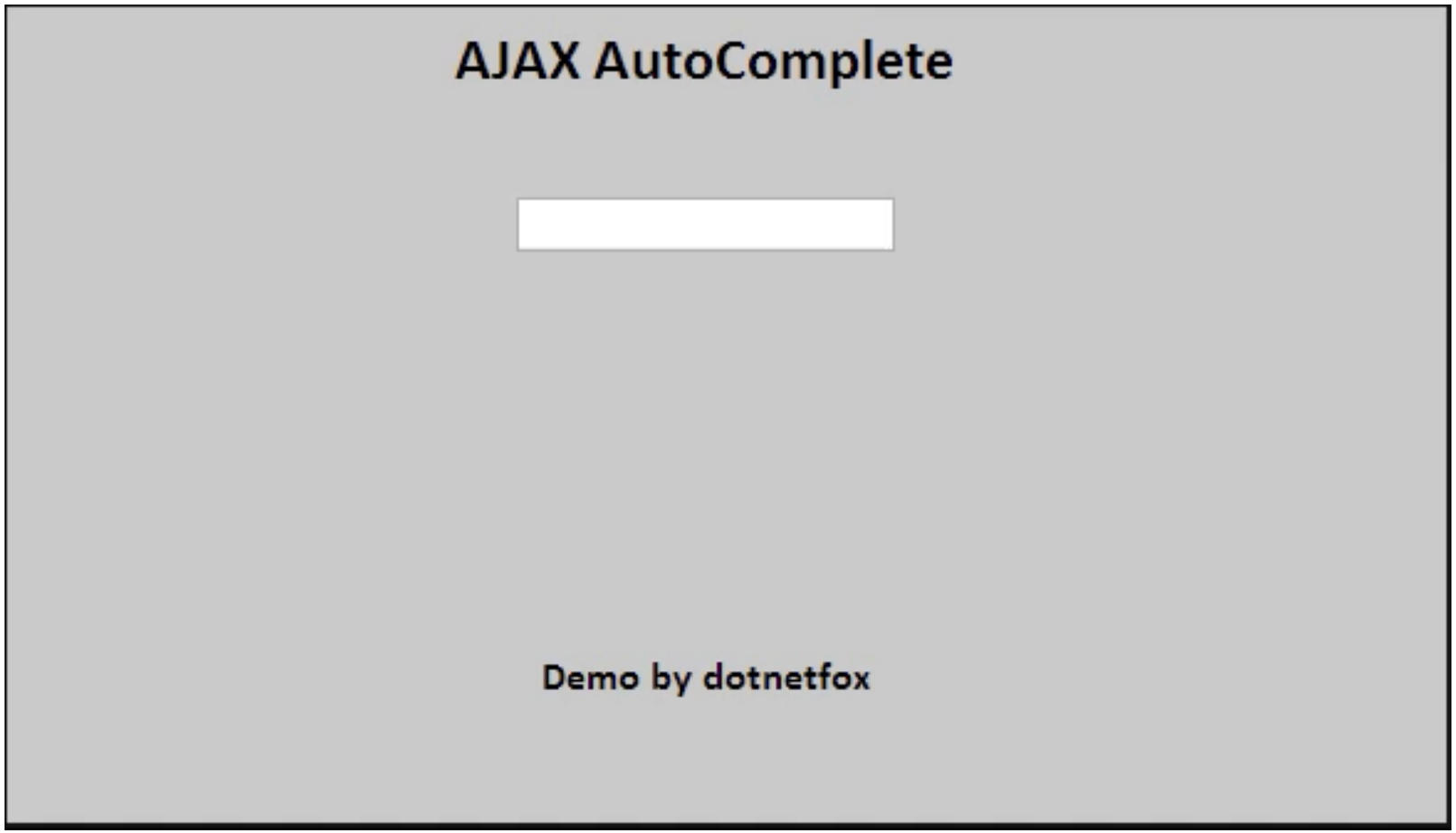
- The other is fetching data dynamically at regular intervals by using AJAX without any human intervention

AJAX – Asynchronous JavaScript & XML

AJAX stands for asynchronous JavaScript & XML. The name says it all, it is used for adding asynchronous behaviour to the web page.



Ajax Example

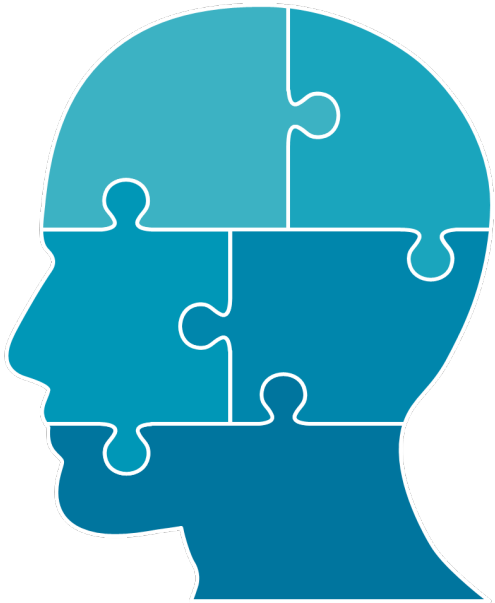


mODEL

- Models : Classes that represent the data of the app .

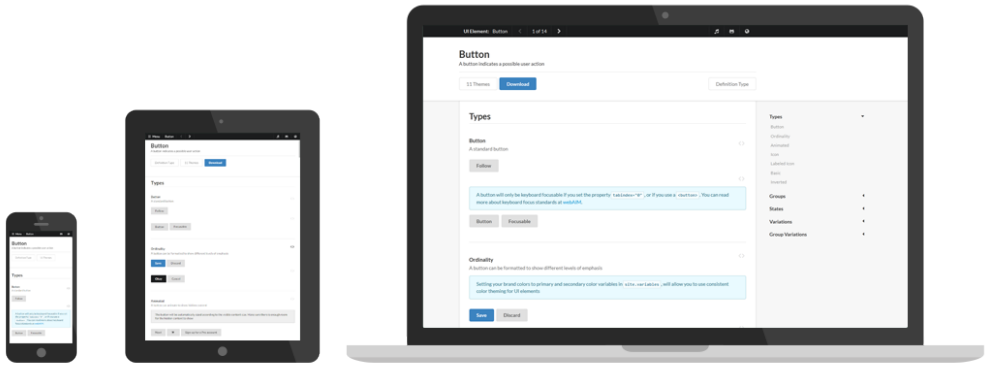
Controller

- Controllers: Classes that handle browser requests.

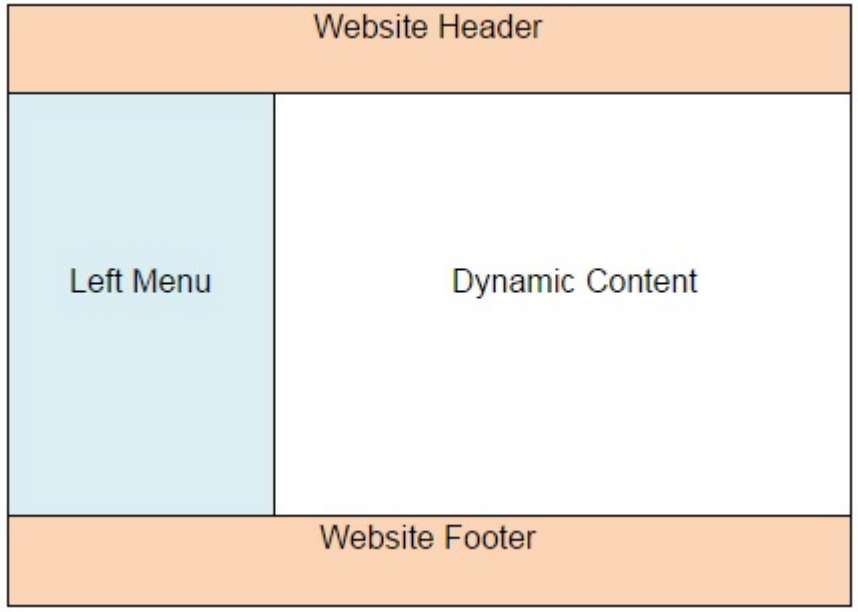


View

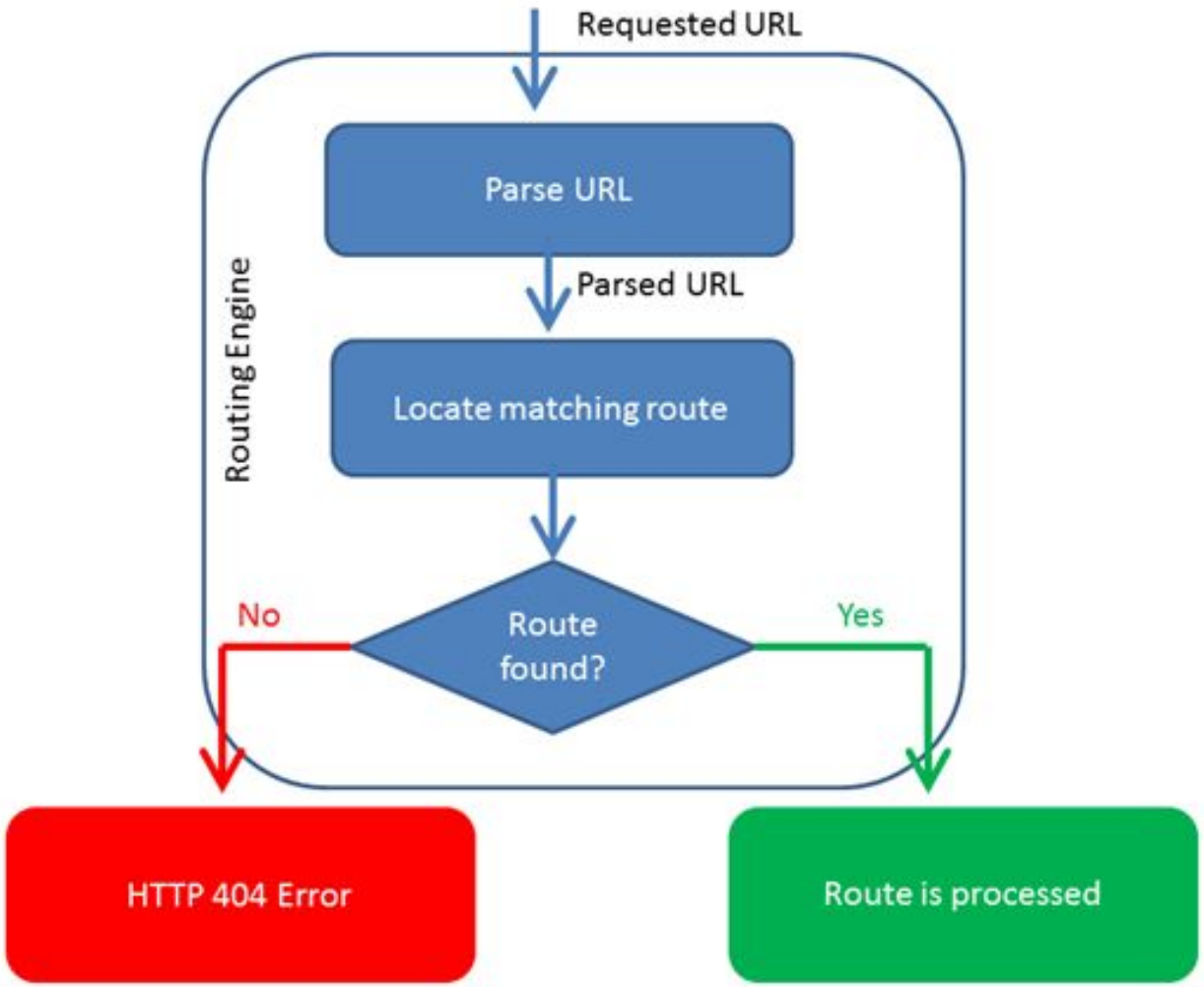
- Views: Views are the components that display the app's user interface (UI).



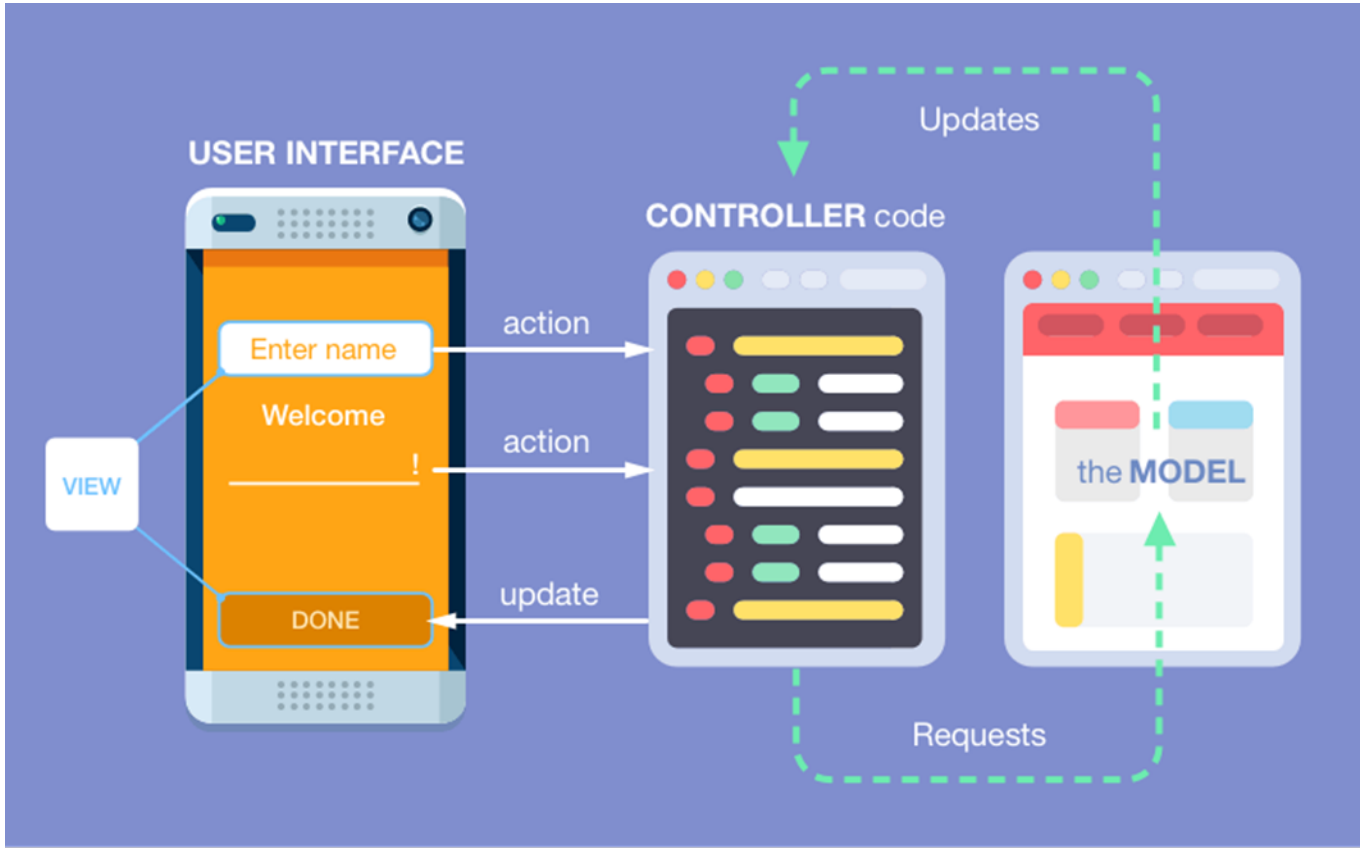
Layout



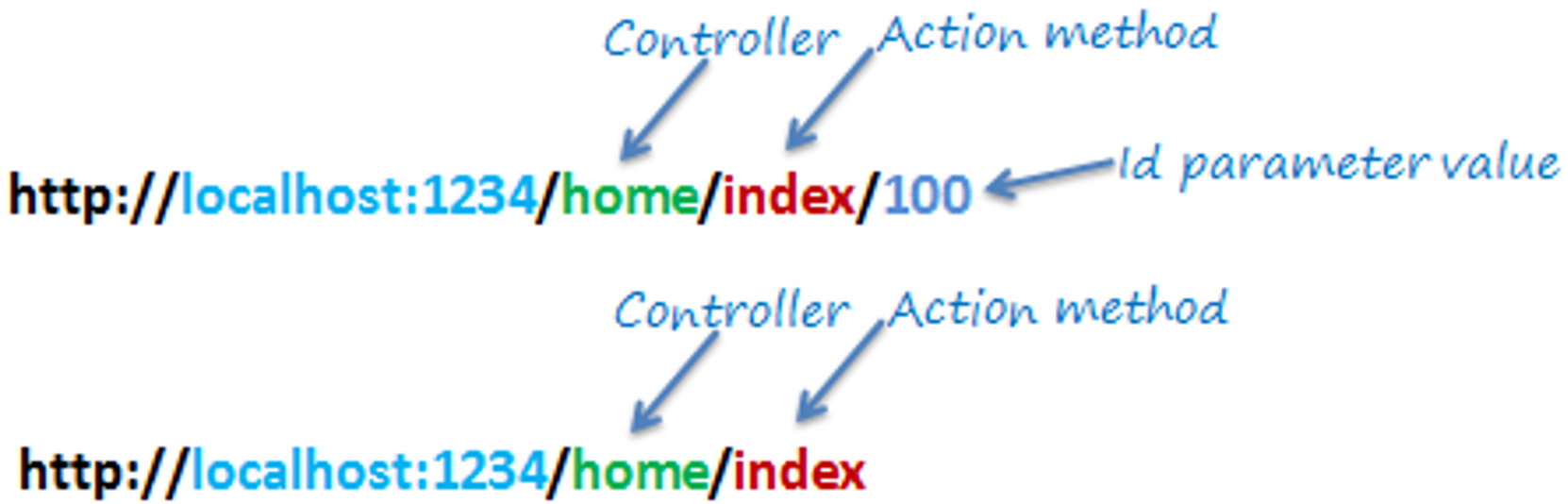
Route


Requested URL
Parse URL
Parsed URL
Routing Engine
Locate matching route
No
Route found?
Yes
HTTP 404 Error
Route is processed

Route


USER INTERFACE
Updates
CONTROLLER code
Enter name
Welcome
!
DONE
action
action
update
VIEW
the MODEL
Requests

Url in Mvc


Controller
Action method
http://localhost:1234/home/index/100
Id parameter value
Controller
Action method
http://localhost:1234/home/index


LET'S START A JOURNEY