

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

*In the name of Allah, the Beneficent, the Merciful*

# Web Application Development

CS3193

Muhammad Zeeshan Sabir

Lecture # 01: Course Policies

# Online Course Resources

- All the lecture related material will be uploaded on **Github**
- Follow to get updated lectures.
- <https://github.com/mzsabir/WAD-2--FALL-2024>

# Attendance Policy

- Attendance can be held any time during the class.
- Students present in the class, will only be marked as **PRESENT**
- Make good use of the allowed absentes

# Cell Phone Policy

- It is strictly prohibited to use phone in the class.
- Keep it in your bag/pocket
- keep it in SILENT mode.
- A penalty could be imposed if any violation found during.



# Grading Policy

Assessment	Marks	Total Weight
<b>Quizzes</b>	<b>20</b>	<b>20%</b>
<b>Assignment *</b>	<b>20</b>	<b>20%</b>
<b>1 Midterm</b>	<b>20</b>	<b>20%</b>
<b>1 Final</b>	<b>40</b>	<b>40%</b>
* Viva may be conducted for assignments		

# Makeup Policy

- No makeup for Assignment, Quizzes, Presentations or Exam – **No exceptions**
- **Late Submissions** of Assignments will be accepted with penalty.

# Contact

- Feel free to contact me for any issues that you may face regarding this course:
  - **Muhammad Zeeshan Sabir**
  - **Email: zeeshan.sabir@cust.edu.pk**
  - **Office: C Block 2<sup>nd</sup> floor**

# Course Overview

- This course gives you the overview about:
  - What is Web Application Programming?
  - What are front end technologies for Web?
  - What are the fundamental architectural elements of web programming to produce dynamic content?
  - How to develop web services & Consume APIs?



# Topics to be Covered

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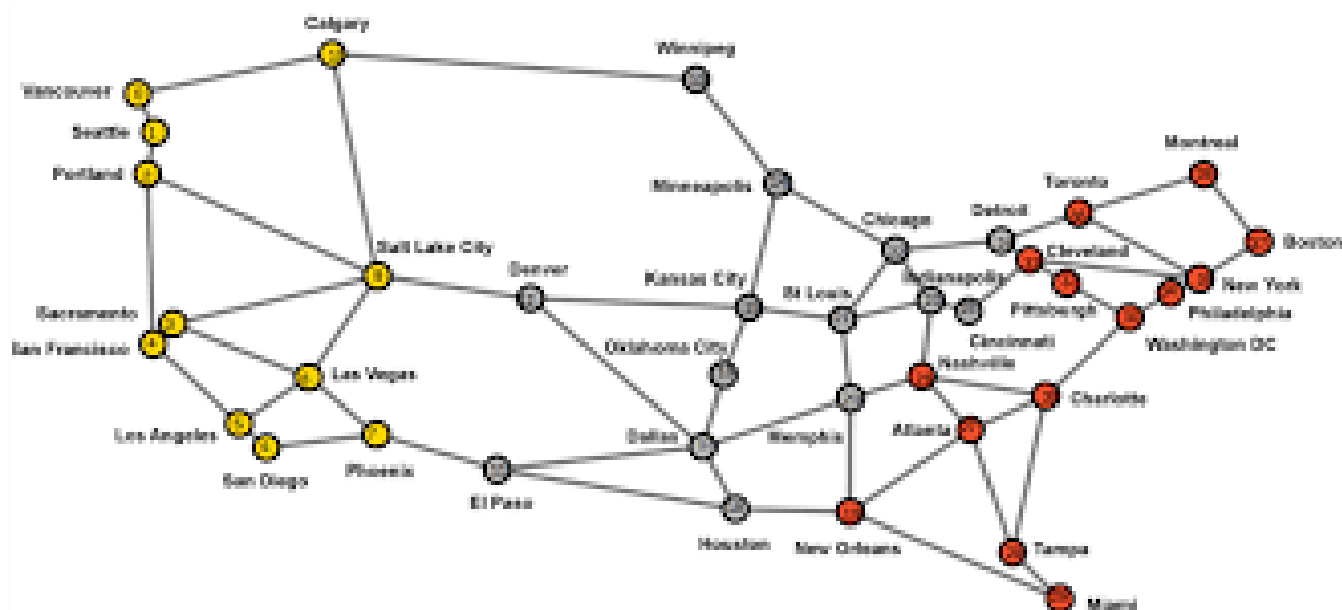
- HTML
- CSS
- Bootstrap
- Javascript, jQuery
- AJAX and JSON
- PHP/C#
- MySQL
- Laravel

# Reference Material

- **Recommended Books**
  - PHP and MySQL for Dynamic Web Sites
    - LARRY ULLMAN
  - PHP: The Complete Guide for Beginners to Advanced Detailed Approach
    - By MG Martin
- **Various Web Resources**
  - [w3schools.com](http://w3schools.com)

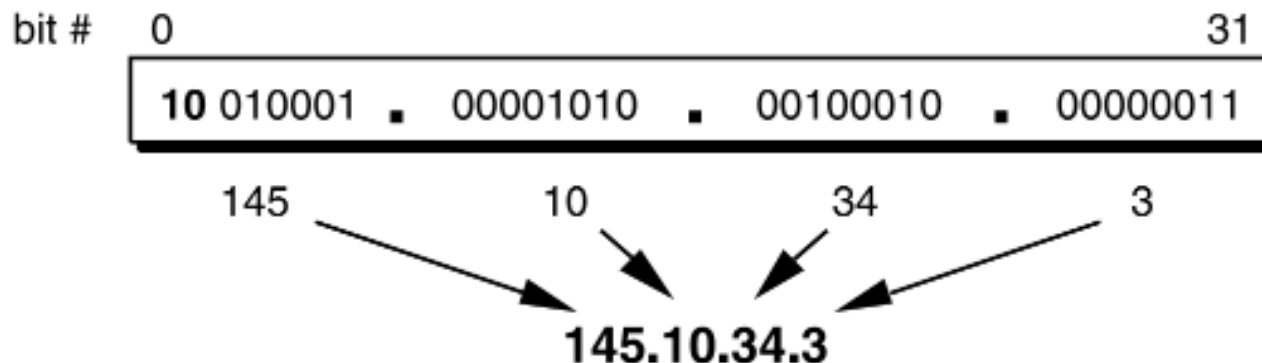
# The Internet

The Internet is a **network of networks** that uses the standard **Internet Protocol Suite (TCP/IP)** to serve billions of users worldwide.



# TCP/IP

- The Transmission Control Protocol (**TCP**) is one of the core protocols of the Internet Protocol Suite.
- IP protocol used to locate devices/computers on internet
- Each device has an IP address



# Domain Name System (DNS)

- Set of servers that translate names to IP addresses
  - Example: **www.facebook.com** → **174.123.78.18**

**Wikipedia:** [http://en.wikipedia.org/wiki/Domain\\_Name\\_System](http://en.wikipedia.org/wiki/Domain_Name_System)

# World Wide Web

## World Wide Web $\neq$ The Internet

- The Internet is a **hardware and software infrastructure** that provides connectivity between computers.
- In contrast, **World Wide Web** is one of the services that run **on the Internet**.

**Wikipedia:** [http://en.wikipedia.org/wiki/World\\_Wide\\_Web](http://en.wikipedia.org/wiki/World_Wide_Web)

# Web Server

- Computer running web server software that listens for web page requests on TCP port 80
- Popular web server software:
  - Apache
  - Microsoft Internet Information Server (IIS)

**Wikipedia:** [http://en.wikipedia.org/wiki/Web\\_server](http://en.wikipedia.org/wiki/Web_server)

# Web Browser

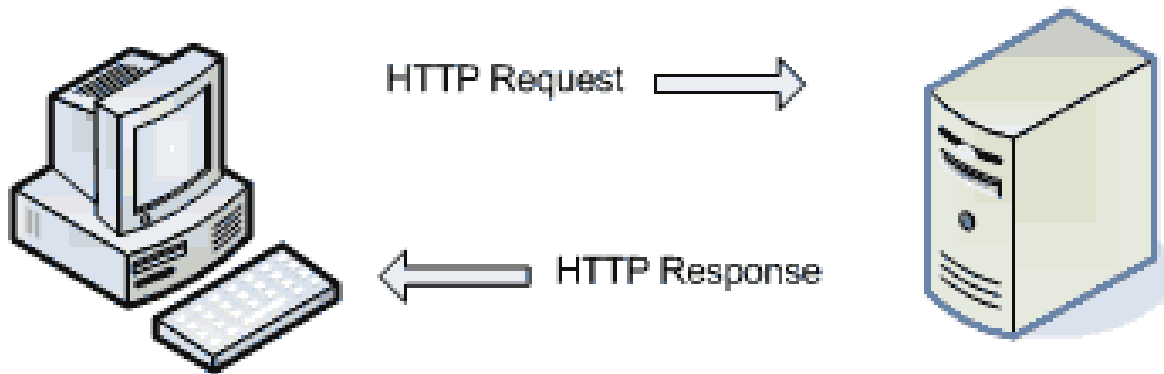
- Software application that displays web pages
- Popular Web Browsers:
  - Mozilla Firefox
  - Microsoft Internet Explorer (IE): part of Windows
  - Apple Safari: part of Mac OS
  - Opera
  - Google Chrome

**Wikipedia:** [http://en.wikipedia.org/wiki/Web\\_browser](http://en.wikipedia.org/wiki/Web_browser)



# Hypertext Transport Protocol (HTTP)

- HTTP is the foundation of data communication for the World Wide Web.
- HTTP functions as a **request-response protocol** in the **client-server** computing model.



**Wikipedia:** [http://en.wikipedia.org/wiki/Http\\_protocol](http://en.wikipedia.org/wiki/Http_protocol)

# HTTP Error Codes

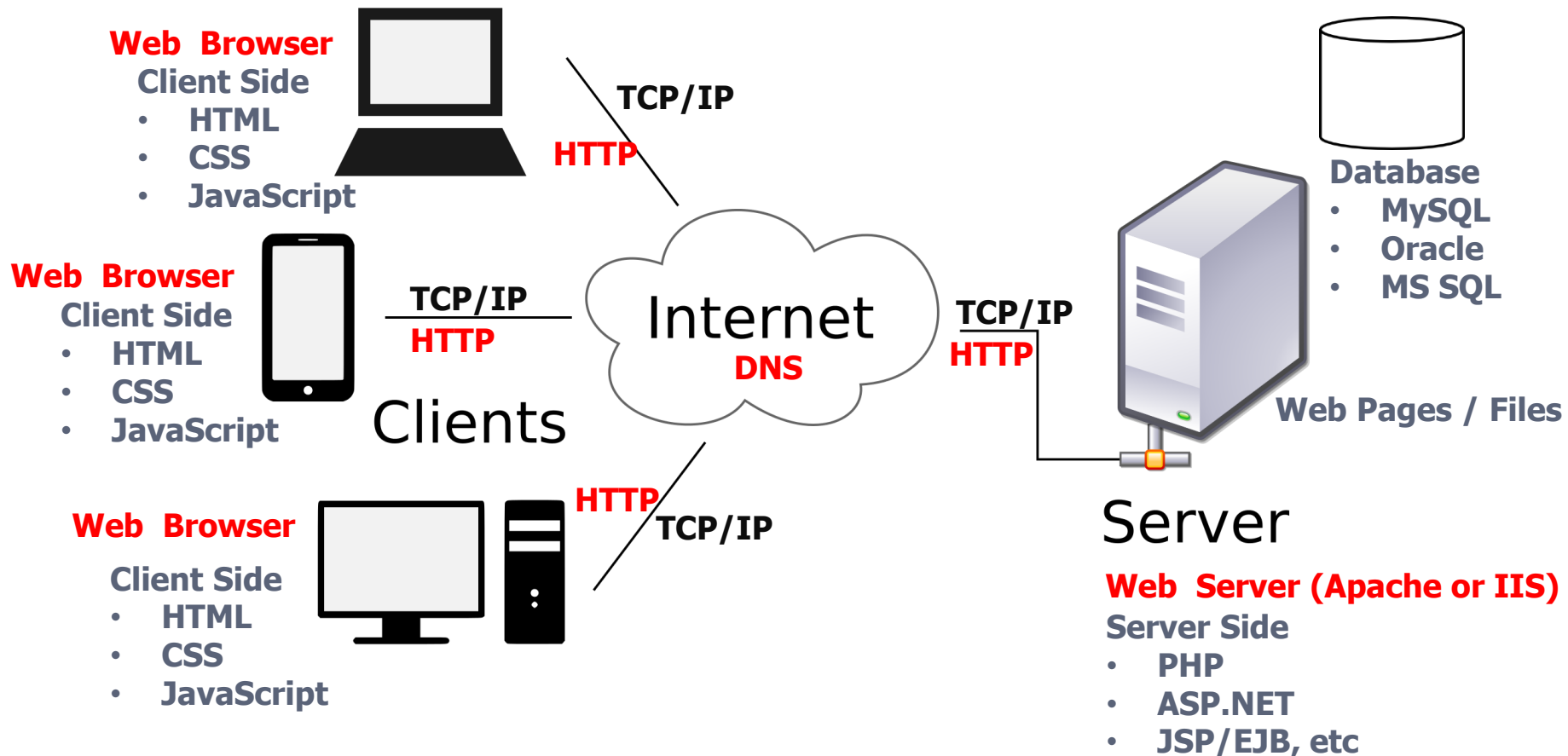
- The web server returns a special "**error code**" number to the browser, possibly followed by an HTML document
- Common Status Codes:
  - 200 OK
  - 301 Page has moved
  - 403 You are forbidden to access this page
  - 404 Page not found
  - 500 Internal server error

# Uniform Resource Locator (URL)

- Uniform Resource Locator (URL) is an identifier for the location of a resource on the Internet.
- Basic URL:  
<http://www.cust.edu.pk/Faculties/tabid/56/Default.aspx>
- Upon entering this URL into the browser, it would:
  - ask the **DNS** server for the **IP address** of [www.cust.edu.pk](http://www.cust.edu.pk)
  - connect to that IP address at **port 80**
  - ask the server to **GET** </Faculties/tabid/56/Default.aspx>
  - display the resulting page on the screen

**Wikipedia:** <http://en.wikipedia.org/wiki/Url>

# How Does Web Work?



# The Web Standards

- The rule-making body of the Web is the **W<sub>3</sub>C**.
- W<sub>3</sub>C stands for the **World Wide Web Consortium**.
- W<sub>3</sub>C puts together specifications for Web standards.
- The most essential Web standards are **HTML & CSS**.
- <http://www.w3.org/>

# Publishing & Communication Medium

## BENEFITS

- Global Access
- 24 Hour Access
- Cross Platform
- Easy to Use
- Easy to Publish & Update
- Distributed
- Multimedia Capable

## LIMITATIONS

- Easy to get Lost
- Reading on a Computer
- Limited Attention Span
- User altered Pages
- User Hardware & Software Limitation
- Security
- Bandwidth

# Other Dynamics

- **Multidisciplinary**

- Programming
- Domain Expertise
- Usability
- Graphic Design
- Multimedia / Animation
- Typography
- Translation & Languages
- Content Writing
- Search Engine Optimzation

- **Hosted Solution**

- Recurring Cost
- Software is upgraded on the server and all users get latest version

- **Integration**

- Integration with Existing/Legacy Systems
- Integration with other Web Based Systems

# Complexity of Web Based Systems

- **Document Centric**  
Static Websites
- **Interactive / Transactional**  
Online Banking, Shopping
- **Workflow Management**  
e-Government , B2B
- **Collaborative / Portal Oriented**  
Chatrooms, Forums, Community Portal, Business Portal
- **Ubiquitous**  
Location Aware, Multi-Platform Delivery
- **Social Web**  
User Contributed Content, Blogs, etc
- **Semantic Web**  
Syndication, Knowledge Management



# Static Web Page

- Static Content
- Content is added by Publisher
- Content is embedded with code
- User can consume all content in a single visit

# Dynamic Web Pages

- Dynamic Content
- Content is dynamically generated through Data Source/DB
- Content is added by Users
- User can use it numerous times
- Also called Web Applications

# Client Side / frontend

- **HTML:** Describe structure (contents) of a page
- **CSS:** Controls presentation (layout, typographic ,colors, etc.)
- **JavaScript:** Can add interactivity & functionality

## Frameworks/Libraries:

Bootstrap, Tailwind CSS, Angular, jQuery ,, React, Vue

# Server Side / backend

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- **PHP**

Create dynamic content, process forms, use other server resources

- **MySQL: Database**

**Any Questions?**