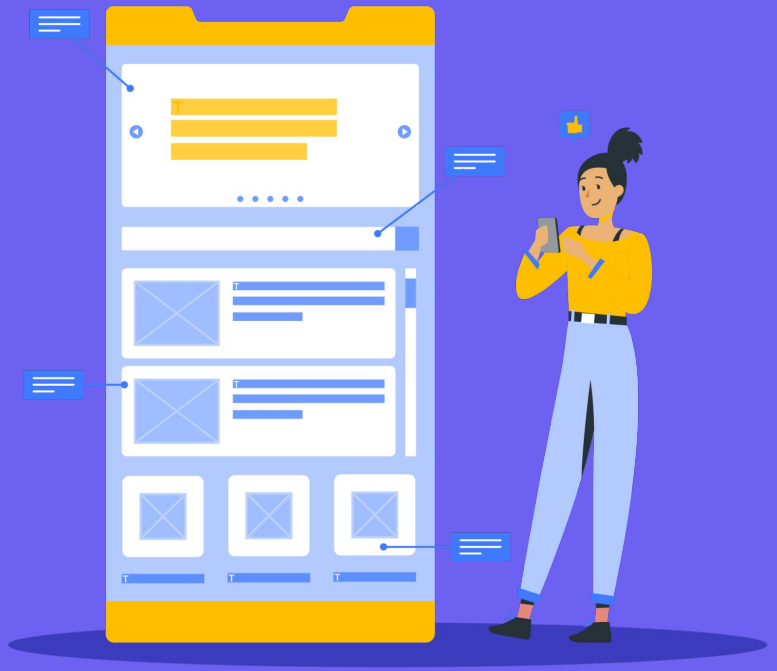
Day- 5
Getting ready for the course



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Content Outline

- Introduction of tools and technologies used in the course.
- Introduction to JavaScript
- Node.js Introduction
- Installation/usage of all the tools in different OS
- How different technologies will be used in the different parts of the course and why have they been chosen?

Introduction

Hello learners, in today’s session we are going to learn about the tools and technologies which we are going to use during the course.

Web can be broadly divided into two technologies frontend and backend, we are going to discuss them all today’s class.

1. Introduction of tools and technologies used in the course

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Technologies which we are going to use for the course

- HTML
- CSS
- JavaScript
- React JS
- Node JS
- Express JS
- MySQL
- Miscellaneous (based on use cases)

HTML

HTML (HyperText Markup Language) is a markup language used to create web pages, It is made up of a set of tags that give the web browser information on how to display the words and images.

CSS

Stands for Cascading Style Sheets, it is mainly used to control the look and layout of text and all elements on a web page.

Javascript

It is a lightweight programming language, based on ECMAScript standard. It used in making websites and apps more dynamic.

React JS

It is a JavaScript library for building reusable UI components It uses the concept of reusable components and virtual DOMs React can also render on the server using Node and power mobile apps using React Native.

Node JS

Node.js is an open-source, cross-platform JavaScript run-time environment built on Chrome's V8 JavaScript engine. Allows the creation of Web servers and networking tools using JavaScript.

Express JS

Express.js is a flexible and minimal node js web application framework that provides a set of features for web and mobile applications. It enhances the functionality and fulfills various needs of the web application by providing ready-to-use solutions for common application routines, including templating, database connectivity, HTTP utilities, middleware, and many more.

MySQL

MySQL is a Relational Database Management System (RDBMS) that uses Structured Query language (SQL) to interact with databases.

Tools which are going to be use for the course

- Browser
- VS code
- Git and Git bash (only for window users)
- NPM
- Postman
- MySQL Workbench

Browser

It is an application browser that let us look or browse through the internet. Mozilla developer edition or Google chrome browser will be used for the course.

VS Code

A code editor is basically a text editor but with some special features used by the developers to write and execute the code. VS code is most famous code editor

Git and Git Bash

Git is a free and open-source distributed version control system designed to handle everything from small to very large projects with speed and efficiency. Git Bash is an open-source, Unix shell, that enables an interactive shell experience on Windows.

NPM

NPM or “Node Package Manager” is the default package manager for the Node.js environment, makes it easier for a developer to publish and share the source code of Node.js packages

Postman

Postman is a powerful multi-platform tool for API development to help you build, test, document, and monitor APIs more quickly and easily.

MySQL Workbench

MySQL Workbench is a cross-platform database design, development, and administration tool for MySQL.

2. Introduction to JavaScript

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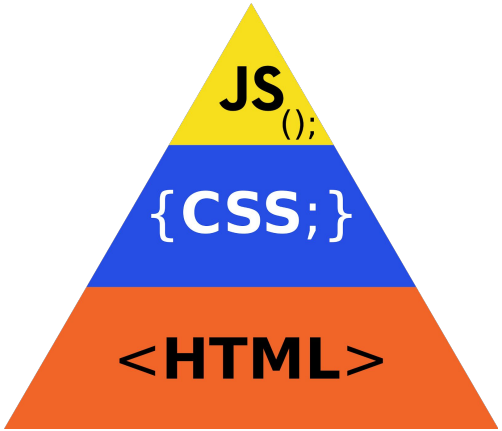
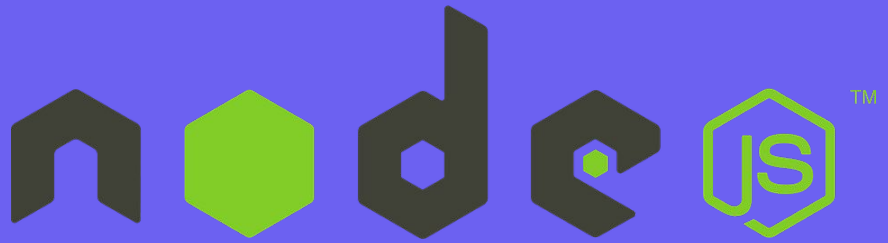
Javascript is used whenever you see a website that does more than merely display static data, such as an eCommerce website, a video streaming website, interactive maps, and so on.

- Computer language that is largely utilized by Web browsers to provide users with a dynamic and interactive experience
- It is lightweight and can be interpreted in an object-oriented manner
- It is also used in a variety of non-browser applications, including Node.js, Apache.
- It follows the syntax and structure of the C programming language. Thus, it is a structured programming language.
- It's a dynamic language this is prototype-based, single-threaded, multi-paradigm, and supports object-oriented and declarative styles.

- HTML is the markup language that enables us to structure and give meaning to the web content which is enhanced and modified by other technologies like CSS and JavaScript.
- CSS is a language that we use to set the styling rules for our HTML content.
- JavaScript is used to control the behavior of different elements.



3. Introduction to NodeJS



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- Node.js is an open-source, cross-platform JavaScript run-time environment built on Chrome's V8 JavaScript engine.
- It allows the creation of Web servers and networking tools using JavaScript
- It is being used in developing desktop applications as well with a popular framework called electron.
- Since we use Javascript in both the frontend and backend the development will be much faster.

- It uses async processing on a single thread.

Example -

```
var http = require("http");
http.createServer(function (request, response) {
 response.writeHead(200, {'Content-Type': 'text/plain'});
 response.end('Hello World\n');
}).listen(3000);
```

4. Installation of Tools

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Browser Installation (Google Chrome)

Windows Installation

1> Download the installation file.
2> If prompted, click Run or Save.
If you choose Save, to start the installation, either:
i>Double-click the download.
iI>Click Open file.
3> If you're asked, "Do you want to allow this app to make changes to your device," click Yes.
4> Start Chrome:
Windows 7: A Chrome window opens once everything is done.
Windows 8 & 8.1: A welcome dialog appears.
Windows 10 & 11: A Chrome window opens after everything is done.

Mac OS X Installation

1> Download the installation file.
2> In the window that opens, find Chrome
3> Drag Chrome to the Applications folder.
4> Open Chrome.

Linux Installation

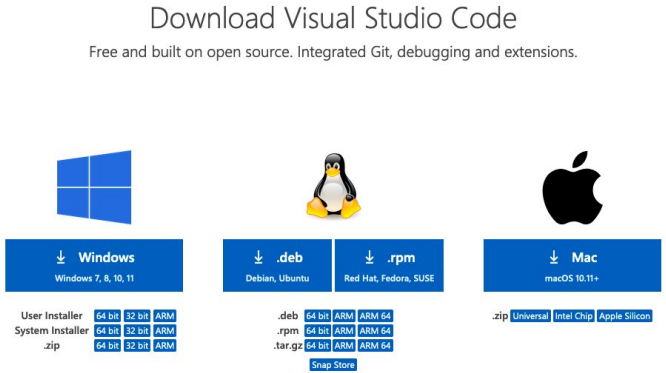
1> Use the same software that installs programs on your computer to install Chrome. You'll be asked to enter the administrator account password.
2>Download the installation file.
3>To open the package, click **OK**.
4> Open Chrome.
5> Click Install Package

VS Code Installation

1>Download the installation file.

2> Depending on the operating system and system setup, different installation files are available.

3> Download the file based on your requirement.



Installation of Git/GitBash (windows)

Windows Installation

1> Download the latest Git for window installer

2> The Git Setup wizard screen will appear after the installer has completed successfully. Complete the installation by following the Next and Finish prompts. For most people, the default options are visible

3>Open a Command Prompt (or Git Bash if during installation you elected not to use Git from the Windows Command Prompt).

4> Run the following commands to configure your Git username and email, substituting Tanay's user name with your own, and the following details will be associated with any commits you make:

```
$ git config --global user.name "TANAYTAPANSHU" $ git config --global user.email
"tanaytapanshu@gmail.com"
```

Installation guide for Linux (Debian / Ubuntu) :

1> From your shell, install Git using apt-get:

```
$ sudo apt-get install git
```

2> Verify the installation using the command

```
$ git --version

git version 2.9.2
```

3> Configure your Git username and email using the following commands Replace the user. name with your username and email with your email.

```
$ git config --global user.name "TANAYTAPANSHU"

$ git config --global user.email "tanaytapanshu@gmail.com"
```

Installation guide for Mac OS X:

1> Download the latest version of the installer.

2> To install Git, follow the prompts.

3> Check the version of git

```
$ git --version
```

3> Configure your Git username and email using the following commands Replace the user. name with your username and email with your email.

```
$ git config --global user.name "TANAYTAPANSHU"

$ git config --global user.email "tanaytapanshu@gmail.com"
```

Installation of NodeJS and NPM

Linux Installation

1>Open the terminal (press Ctrl + Alt + T)

2> Download the node using the following command

```
sudo apt install nodejs
```

3> Once installed check the version of the node

```
node -v or node -version
```

Windows installation :

1> Download the Windows installer from Nodejs.org. (http://nodejs.org/download/)

2> **Run the installer**

3> **Follow the prompts in the installer** (Accept the license agreement, click the NEXT button a bunch of times and accept the default installation settings).

4. Restart the computer once and check the version

```
node -v or node -version
```

Mac OS installation :

1> Check if the brew is installed in your computer.

2> Run the brew command to install node

```
brew install node
```

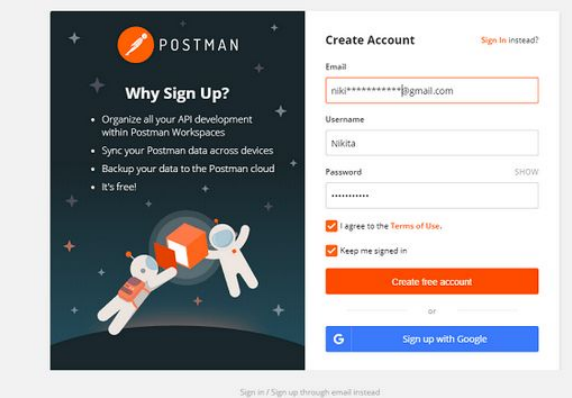
Installation of Postman:

1> Go to the link https://www.postman.com/downloads/

Click download for Mac or Windows or Linux based on your operating system.

2> Check the download options and download the version which is suitable to your System configuration.

3> Once the download is complete , create your account with all the required details, or you can also signup with Google, as shown in the image.



Installation of MySQL Workbench:

1.> Refer the docs for the installation guide - https://docs.oracle.com/cd/E19078-01/mysql/mysql-workbench/wb-installing.html#wb-installing-windows

2.>

3.3. Starting MySQL Workbench

The procedure for launching MySQL Workbench depends on the platform. Generally, there are two ways to launch MySQL Workbench from the command line and from the graphical user interface of the host operating system. Using the command-line launching facility is useful when you want to customize some aspects of the way MySQL Workbench operates. Launching MySQL Workbench for each of the supported platforms is described in the following sections.

In addition to platform-specific command line options, MySQL Workbench has the following command line options:

- `--admin` *`instance`* - Launch MySQL Workbench and load the server instance specified.
- `--query` *`connection`* - Launch MySQL Workbench and load the connection specified.
- `--model` *`modelfile`* - Launch MySQL Workbench and load the model specified.
- `--script` *`script`* - Launch MySQL Workbench and run the script specified.
- `--run` *`code`* - Launch MySQL Workbench and run the code snippet specified.
- `--quit-when-done` - quits MySQL Workbench after --script or --run finishes.

3.> Install the MySQL Workbench version based on your system configuration i.e for Windows, Linux and Mac OS X.

4> Follow the installation steps.

5. How different technologies will be used in the different parts of the course and why have chosen them ?

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- Web development part can be broadly into two parts -
  - Frontend
  - Backend

- HTML, CSS, and JavaScript are the fundamentals of Frontend Development.
  - HTML describes the content of the page, while CSS describes how that content should be displayed. JavaScript is used to make the app interactive.

- React is a Javascript library for building user interfaces. It's based on Facebook's popularity, we will be using this library further for the frontend development.

- For creating the servers and backend database we will be using the Node JS and MySQL database.

- Node.js provides simplicity in development because of its non-blocking I/O and even-based model results in short response time and concurrent processing, unlike other frameworks where developers have to use thread management

- MySQL is a web-based and server-based open-source relational database management system that is quick, dependable, and simple to use.

Ask Me Anything .....

“If you think education is expensive — try ignorance.”