**Phase 1**

**Day 1**

**03-07-2021**

**Full Stack**

**MEAN Stack**

**MERN Stack**

**MEAN Stack**

**Mongo DB / MySQL**

**Express Module** using JavaScript we can create web application as well as REST full web service.

**Angular Framework** / React JS

**Node JS**

**MEAN Stack**

**Front end Phase 1 and Phase 2**

Phase 1

SDLC Agile

Git

HTML/CSS/Basic JavaScript

Using ES5 style DOM, event, function

Using ES6 style

Babel

Webpack

Overview Of Node JS

Phase 2

TypeScript

Angular Framework 10/11/12 etc

**Phase 3 backend**

Phase 3

Node JS

Module fs, util, url, http module

Express , REST API.

Mongo DB : Database

Mongodb as well as mongoose module.

**Phase 4**

Testing : jasmine, mocha, chai etc

Docker

AWS Overview etc

Visual Studio Code

**VSCode**

**Phase 1**

**Git**

**Version Control System :** Version control system that records or history changes of files or code inside the application.

3 line commit s1,

3 line commit s2,

3 line commit s3

Local version control :RCS : Revision Control system.

Centralized version control : SVN :

c1 c2 c3

Server (Repository ) folder.

Distributed Version Control

c1 c2 c3

Local Rep Local Rep Local rep

Server (Repository ) folder.

Github, bitbucket, AWZ, Azure, Google cloud etc.

We are going to learn Distributed Version control system

Git is type of Distributed version control system.

It is open source.

**Git commands**

**git --version**

to make local folder as local repository we have to run the command as

git init : This command is use to create the local repository. (only one time).

git status : This command is use to display last command status.

git add filename : This command is use to add the file from local folder to git staging area.

git add . : all files and folder present in current directory.

git commit –m “Message” : This command is use to send the file from staging area to local repository.

git config --global user.email "akash300383@gmail.com"

git config --global user.name "Akash"

if we do any changes

git add .

git status

git commit –m “message”

Github is one of the remote repository

Connecting local repository with remote repository

git remote add origin URL

git push –u origin HEAD

to check remote repository URL

git remote show origin

to push the data from local repository to remote repository we have to run the command as

connect the virtual lab

create folder

create file with data

git init

git add .

git commit –m “message”

**git branch :** git branch is like a pointer. git branch is use to keep or hold more than one commit details.

Default branch may **main** or **master**.

---🡪c--🡪c--🡪c A branch

---🡪commit---🡪commit---🡪commit-🡪

--🡪C-🡪C B---Branch

To create user-defined branch

git branch branchName

to check all branch details as well as current branch details.

git branch

To switch from one branch to another branch

**git checkout branchName**

**Phase 1**

**Day 2**

**04-07-2021**

**git branch : view all branch**

**git branch branchName : created new branch**

**git checkout branchName : switch to branch**

**git checkout –b branchName : create as well as switch to new branch**

manager main.txt

coding….

Push this code to remote repository

Create folder

Create files (main.txt)

Git init

Git add .

Git commit –m “done”

Git remote add origin URL

Git push –u origin HEAD

Git clone URL : first time to load the new repository

Git pull : it add new changes in existing repository

C1---🡪C2---🡪c3(HEAD)

**Raj**

**git clone URL**

create new file

create branch

git checkout –b Raj\_Login

git add .

git commit –m “message”

git push –u origin HEAD

inform to manager or remote repository developer after merge then branch code in main or master branch

clean up activity

git checkout main

git branch –D Raj\_login

git pull ( pull from remote repository)

**Ravi**

**Git clone URL**

If we want to do any changes even to write . or space. Do in user-defined branch.

**Push user-defined branch to remote repository**

**Pull in main/master branch from remote repository**

**demo.txt**

Demo.java

int a;

1st person code

int a;

2nd person code

**UI Technologies**

**HTML**

https://[www.googel.com](http://www.googel.com) URL

http : it is protocol. Set of rules which help to communicate more than one machine.

Www :world wide web

Google : domain

Com : commercial

Req(http/https)----🡪

Client Server

🡨--res(http/https)----

HTML/HTML5

Using HTML1, html2 and html3 we can create static web pages. We can create dynamic web page using other programming language like jsp, asp, php or JavaScript.

From HTML4 and HTML5 we can create dynamic web page alone without depending other technologies.

If user interact with web page some changes happen on web page.

HTML is provide lot of pre-defined tags.

Html is not a case sensitive.

Tags syntax

<tagName> opening tag

</tagName> closing tag

1. Html
2. Head
3. Body

What is html

Few html tags

Hyperlink

Add image

List tag

Table

Forms table

P

Heading h1 to h6

Attribute : attribute is known as properties of tags.

Attribute we have to use opening tag in the form of key-value pairs. Value may be single or double or without quote. We can write more than one attribute for tags.

<tagName key1=”value” key2=’value’ key3=value>

</tagName>

**Html 4**

**JSF : Java Server Faces**

Xhtml

<!doctype HTML PUBLIC =”URL……..dtd”/>

Document type definition

This file contains the rules for html page

What is the root tag name,

What is child tag tagName

Number of type tags 0 or 1 or many. Etc

**Html 5**

**<!doctype HTML>** giving the instruction to browser we are using html5 features in that page. (optional).

**Hyperlink**

Using hyperlink we can connect one page to another page or connect to content in same page(like bookmark).

External hyperlink

<a href=”PagePath.html”>Text</a>

a anchor

href hyper reference

Internal hyperlink

**Phase 1**

**Day 3**

**10-07-2021**

RxJS : Reactive JavaScript

**List tags**

**Unorder List**

**Order list**

**Table tags**

Employee Details

**Id Name Salary**

100 Ravi 12000

101 Ramesh 14000

Table

Tr table row

Th table heading

tr

td table data

**table**

**thead**

**tr**

**th**

**tbody**

**tr**

**td**

**tr**

**td**

**tfoot**

**tr**

**td**

**forms**

in HTML using form tag we can create GUI application. The end user can fill details like application form, login page, feedback page.

**Login page**

UserName

**HTML4**

<input type=”text/password/radio/checkbox/button/submit/reset/file”/>

**HTML5**

<input type=”number/email/date/time/url/range/radiobox”/>

<file:///C:/Users/91990/Desktop/July%202021%20MEAN%20Stack%20Batch/Phase%201%20Material/Notes/MEAN%20Stack%20July%202021%20Batch/HTML%20Programs/home.html?user=Raj>

file:///C:/Users/91990/Desktop/July%202021%20MEAN%20Stack%20Batch/Phase%201%20Material/Notes/MEAN%20Stack%20July%202021%20Batch/HTML%20Programs/home.html?user=Ramesh&pass=123345

by default form tag method consider as a **GET**

If method is GET. Data send through URL using query param concept.

URL?key=value&key=value&key=value

**Method = post**

If method is post data will send through body part of request.

<file:///C:/Users/91990/Desktop/July%202021%20MEAN%20Stack%20Batch/Phase%201%20Material/Notes/MEAN%20Stack%20July%202021%20Batch/HTML%20Programs/home.html>

**HTML :** it is use to display the contents on browser.

**CSS : Cascading style sheet.**

CSS provide lot of pre-defined properties which help apply good look and feel for web page.

Using CSS we can achieve separation of concern.

HTML CSS

Actual content Formatting style

Types of CSS files

1. Inline CSS
2. Internal CSS or embedded CSS
3. External CSS

**Inline CSS syntax**

<tagname style=”property:value;property:value”>

</tagName>

**Internal css or embedded CSS**

Syntax

<style type=”text/css”>

selector {property:value;property:value;}

</style>

Types of selector

1. Universal selector : \*
2. Specific selector : tagName :p, h1, h2, b etc
3. Multi specific selector : p,b,h1{property:value}
4. Local class selector : **tagName.className{property:value;}**
5. Global class selector

.className{property:value}

1. #idName{property:value}
2. parentTAgName childTagName{property:value}

class selector : groups of tag of same type or different types.

to make unique between two tags we use id attribute.

Id selector and class selector

<p class=”p1” id=”a1”>First para</p>

<p class=”p2” id=”a2”>Second Para</p>

<p class=”p1” id=”a3”>Third para</p>

<p class=”p2” id=”a4”>Fourth para</p>

<p></p>

Div is like a container which can contains more than other tags like p, div, h1 to h6 etc. This refer the part of the web page.

P 🡪 it contains contents or information.

**External CSS**

**styles.css**

css rules

**Box Model**

Every DOM (Document Object Model). Every html tag is known as dom elements.

Every DOM element internally follow BOX Model.

Div

P

B

H1

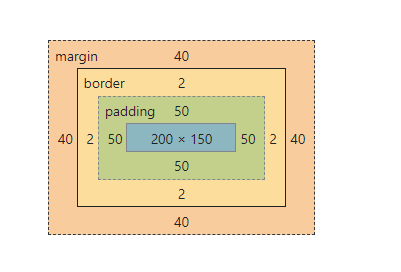
**BOX Model**

Margin

Border

Padding

Contents



border-style: solid;

            border-width: 2px;

            border-color: red;

            width: 200px;

            height: 150px;

            padding: 50px;

            margin: 40px;

            display: inline-block;

**Box Model :**

**FlexBox Model : Flex box model use one – dimension (row or columns).**

**FlexBox Architecture**

**Display : flex : It is consider as flex-box model or container**

**Inside that DOM tags is known as flex-items.**

**We can display Flex-item 🡪 Row wise or columns side.**

**Grid Box Model 🡪 Two dimension (row and column)**

Grid Box Model defines the elements or arrange the element in rows and columns. Two dimension

Inside a grid box model if we use any dom elements. They are consider as grid item. We can place grid item into specific location using line numbers, names or grid target area.

It is like a Tables

<div>

<img src=”imageName.”>

<span>Desc</span>

<input type=”button” value=”Add to Card”/>

</div>

<div>

<img src=”imageName.”>

<span>Desc</span>

<input type=”button” value=”Add to Card”/>

</div>

<div>

<img src=”imageName.”>

<span>Desc</span>

<input type=”button” value=”Add to Card”/>

</div>

<div>

<img src=”imageName.”>

<span>Desc</span>

<input type=”button” value=”Add to Card”/>

</div>

Visibility : hidden This property help to remove the element from DOM hierarchy

Display : None : it doesn’t display on browser it but contains memory space in DOM hierarchy.

float :left/right

float : left Vs display : inline-block

div

div

**JavaScript**

JavaScript is use to do programming on web page.

JavaScript was object based interpreter scripting language.

Object based Or Proto type vs Object Oriented (C++,Java, Python etc)

**class, object, inheritance, encapsulation, polymorphism and abstraction.**

Interpreter Vs compiler

Compiler convert whole code at time. But interpreter convert line by line.

Scripting Vs Programming

**JavaScript Using ES5**

ECMA (European Computer Manufacture Association)

ECMA is a concept.

The short cut of ECMA is ES

ES5

ES6

ES7

ES8

JavaScript is one of the implementation of ECMA Script.

**Syntax of JavaScript**

<script type=”text/JavaScript”>

</script>

This script tag we have to write in between head tag or body tag or without any tags.

**.html**

**Variable :** variable is a name which hold value.

To declare the variable in JavaScript (ES5) we can use **var** keyword.

Syntax

**var** variableName;

**Operator :**

**Arithmetic Operator :** +, -, \*, /, % (remainder)

**Conditional operator :** >, >=, <, <=, ==, === , !=

**Assignment operator :** =

**Increment and decrement operator : ++, --**

Pre – increment and post increment

**Ternary operator** : condition ? true : false;

**Logical** : &&, ||, !

**typeof**

**Phase 1 : Day 5**

**17-07-2021**

**If statements :**

**Simple if**

**if(condition){**

**}**

**If else**

**if(condition) {**

**}else {**

**}**

**Nested if : if within another if**

**if(condition) {**

**if(condition) {**

**}else {**

**}**

**}else {**

**}**

**If ladder or if else if**

**if(condition1) {**

**}else if(condition2) {**

**}else if(condition3) {**

**}else {**

**}**

**Looping : looping is use to execute the code again and again till the condition become false.**

**Initialization : start and end**

**Condition : true**

**Increment and decrement : increment or decrement**

**While loop**

**Syntax**

**var i=1,n=10;**

**while(i<=n) {**

**do the task**

**i++ or n--;**

**}**

**Do while loop**

**var i=0,i<=10;**

**do {**

**}while(i<=n);**

**For loop : fixed iteration.**

**1 2 4**

**for(initialization;condition;increment/decrement) {**

**body of the loop 3**

**}**

**function : function is use to write the set of instruction to perform a specific task.**

**2 types**

1. **Pre-defined function**
2. **alert(“msg”) : pop up message or alert box.**
3. **Prompt: this function is use to take the value through keyboards.**
4. **parseInt() : it is use to convert string to number(without decimal).**
5. **parseFloat() : it is use to convert string to number (with decimal).**
6. **eval(): it is use to convert string to number ( the number with or without decimal).**
7. **Confirm() : This function contains 2 button ok and cancel. If user click ok button it return true and if user click cancel button it return false.**

1. **User-defined function**

**In JavaScript we can declare the function different ways.**

1. **Normal function syntax**

**Syntax**

**function functionName(parameterList) {**

**function body;**

**}**

1. **Function no passing parameter and no return type.**
2. **Function passing parameter and no return type.**
3. **Function passing parameter and return value.**
4. **No passing parameter but return type.**

**Event : Event provide the interaction between user and html component(html tags).**

**Event provide the bridge between html code and JavaScript logic.**

**Type of event. In JavaScript all event start with pre-fix on followed by event name.**

**<select>**

**<option>Bangalore</option>**

**<option>Mumbai</option>**

**<option>Delhi</option>**

**</select>**

**Example**

**onClick**

**onDblclick : button**

**onMouseOver**

**onMouseOut : image**

**onKeyUp : search box of google**

**onKeyDown : chatting : she /he typing**

**onChange : drop down**

**onSubmit : form validation**

**onFocus : after enter in text field**

**onBlur : exit from text field**

**onLoad : web page or application loaded body tag**

**onUnload : when application close or re start.**

**etc**

**DOM : Document Object Model**

**index.html**

**<html>**

**<head>**

**<title>This is title message</title>**

**</head>**

**<body>**

**<h1>This is heading </h1>**

**<p>Welcome to HTML Web Page</p>**

**</body>**

**</html>**

**When we open this web page on browser. Internally browser created DOM Hierarchy.**

**Html**

**Head body**

**Title h1 p**

**TextNode textNode textNode**

**This is title message Welcome to My Web Page.**

**DOM API : Document Object Model Application programming interface.**

**DOM : in html all tags are knows as DOM elements.**

**All programming language like Java, Python, C#, JavaScript provided pre-defined function/ methods or classes which help to read, write and update DOM element dynamically or programmatically.**

**DOM API using JavaScript**

**Read the text field value**

**1st way**

**document.formName.textFieldName.value**

**2nd way**

**Form Validation : required, min length, max length, phone number must be numerical value, email format must be valid.**

**Client -🡪REq---------------🡪 Server**

**Banking application**

**Facebook**

* **Empty request-🡪**

**JavaScript is use to do validation on Client side.**

**Form Validation we can do using JavaScript**

**Form Validation we can do using HTML5**

**Login page**

**Phase 1**

**Day 6**

**18-07-2021**

**Adding and removing DOM element dynamically.**

**We added scripting code in html web page.**

**External JavaScript**

**JavaScript using ES6**

ECMA Script ES6 Version

1. var let and const

Till ES5 to declare the variable in JavaScript we were using var keywords. But from ES6 JavaScript we can use var, let and const keywords to declare the variable.

Using var keywords we can declare same variable once again ie we can do re-declaration. But using let keyword we can’t do re-declare.

Using var we can declare global scope but using let we can declare local or block scope.

Using const keyword we can declare constant variable. So we can’t change the value of that variable.

1. Function types :

Normal style function

Expression style

Arrow style

Callback function

Passing the function body or functionName or function itself to another function as parameter is known as callback function.

**Phase 1**

**Day 7**

**24-07-2021**

**array : array is use to store more than one element of same type as well as different types.**

**syntax to create the array**

**let obj1 = [] literal style**

**let obj3 = [10,20,30,40,50]; initialization**

**let obj2 = new Array(); object creation style**

**let obj4 = new Array(10,20,30,40,50); initialization**

**length : to check the size**

**push() to add at last**

**unshift() to add at beginning**

**pop() remove from last**

**shift() remove from beginning**

**splice()** : This method is use to add, remove and update the element in array

//Array elements elements start from 0 index position

// splice methods

// splice methods 1st number index position, 2nd parameter

// number of elements to delete

Syntax of in loop

for(let variableName in arrayName) {

}

variableName retrieve all array elements index position one by one till end of the elements.

**find(): find() method part of array which check each elements values if elements is present it return that elements else return undefined.**

**findIndex(): findIndex() method part of array which check each elements value if elements is present it return that element index position else return -1.**

**Map() : map function part of array it takes each elements as a input and return output or modified output.**

**map is use to map each elements**

creating user-defined objects

OOPs concept in JavaScript using ES5 style

**object :**

object is any real world entity

Properties or state –have—fields / variables

Person

Behaviour – do/does – functions /methods

Bank

Car

Employee

Customer

Entity

Object is concept.

To implements object in every oops language they provide data types.

Like Java provide class, python,C++ provide class.

JavaScript using ES5 style provide function to describe the objects.

function style

creating user-defined using literal style

**ES6 features**

class style

From JavaScript ES6 onward we can use class keyword to describe the objects.

JSON : JavaScript Object Notation

We are storing the data in the form of key value pairs. Where key must be in double or single quote and value may be number, string, Boolean type or array type.

Req java(req)

Client HDFC XML/JSON HSBC

Python(res)

Res Java Python

.net

Node

**JSON conversation**

JavaScript provide pre-defined object ie JSON which contains method which help to convert string to json and json to string.

JSON Syntax

{“key1”:value,”key2”:”value2”}

**Synchronous and asynchronous communication or operation**

Statement level

document.write(“1st statement”);

document.write(“2nd statement”);

document.write(“3rd statement”);

Synchronous operation means sequentially (one by one) execution.

Asynchronous operation : one line statement or multiline statement execute independently.

**Function call**

fun1();

fun2(); async

fun3()

synchronous communication

1st req-🡪

2nd req🡪

3rd req 🡪

asynchronous communication

1st req-🡪

2nd req🡪

3rd req 🡪

Client Server

In JavaScript provide pre-defined global function part of window object

ie

setTimeout(): it perform task only one after specific period of time.

setInterval(): it perform again and again after specific period of time.

clearInterval()

**Phase 1**

**Day 8**

**25-07-2021**

**Using CSS we can apply look and feel or presentation for the web page.**

**Inline**

**Internal css**

**External css**

**In Internal as well as external css we have to create user-defined class (global or local) class which contains set of css rules.**

**abc.css**

**.fontClasses{**

**font-size:24px;**

**color:red**

**Set of rules**

**}**

**Bootstrap :**

**Bootstrap is a open source Css framework which provide set of pre-defined css classes with respective dom elements.**

**Like div, table, form, p, a etc.**

**Using bootstrap we can create responsive web application.**

**Div tag classes**

1. **Container : container is a pre-defined bootstrap class which is known as fixed width container.**
2. **Container-fluid : container-fluid class take the full width of the viewport.**

**CSS : box model, flex, grid layout**

**Bootstrap provide Grid layout display the content using row and columns format.**

**Bootstrap grid layout divided the layout using row and column. By default each row contains 12 columns.**

**Screen size of device**

**xs : <576 px**

**sm :>=576 px**

**md : >=768px**

**lg : >=992px**

**xl : >=1200px**

**Promise**

**Promise is a pre-defined object which help to handle asynchronous events of data. Promise can be resolve or rejected.**

**then() and catch() are asynchronous callback functions.**

**If promise resolve then function called to load the data or details. If promise rejected then catch will call to load the error message.**

**JavaScript provide pre-defined function ie fetch() which help to call backend technologies REST API.**

**URL : if we hit that URL that url provide the data in the form of JSON.**

**fetch(“url”) : This function return type of promise objects.**

**If function return the promise object to load the data we have to use then() and catch(). If data loaded successfully then() call else catch() call.**

**Angular routing : Angular routing is use to navigate from one component to another component’s template base upon the path provided in routing file. like hyperlink but using hyperlink or submit button we re-direct from one page to another page. So the whole page re-load once again. But in angular routing only the part of the web page loaded base on the path.**