Phase 1

03-09-2022

Day 1

MEAN Stack : Mongo Db / MySQL Express JS Angular Framework Node JS(JavaScript)

4 phases

Phase 1 Self learning

Agile

Git

HTML,CSS and Basic JavaScript

Adv JavaScript

Bootstrap

Phase end project.

Phase 2

JavaScript using ES6

TypeScript

Angular Framework

Phase 2nd project

Phase 3

Node JS

Modules

Express module : with REST API

Mongo DB database

Etc

Phase end project

Phase 4

Testing and deployment

Jasmine and Karma

Devops : Docker, Jenking, Overview of Kubernetes

AWS Overview

Phase end project

Capstone Project

Phase 1 :

Day1 : Software engineering and SDLC (Software development life cycle).

Git : it is a subversion control system. Which help to record the flow the application. Using git and github we can share the code from one team to another team.

Online Shopping : using MEAN Stack

Login module

Customer module

Feedback module

Product module

How to make the normal folder as local repository.

git init : This command is use to make local folder as local repository

ls : this is known as list command which is use to display all file and folder present in current directory

ls –a : this command is us display hidden folder present in current directory.

git status : This command is use to check the current status of local repository.

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

git add . : This command is use to add all files and folder present in current directory to staging area.

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

git branch :

git branch is like a pointer which hold more than one commit details.

git branch : This command is use to view all branches present in local repository.

Default branch name may be master or main .

git branch branchname

to switch from one branch to another branch

git checkout branchname

git merge branchName: This command is use to merge user-defined branch task into current branch

git branch –D branchName: This command is use to delete the branch

we have to share this code with help of remote repository

Github : it is a open source remote repository provided by micro soft organization.

Gitlab

Bitbusket

Code commit part AWS

Azure etc

git branch -M main : This command is use to rename the branch

git remote add origin https://github.com/Kaleakash/test11.git

git remote add origin URL

This command is use to link local repository with remote repository

git push –u origin main

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Day 2

If you want to download fresh new existing repository in local machine we have to use below command.

git clone URL : This command is use to download the public existing repository in local machine.

git clone https://github.com/Kaleakash/MEAN\_Batch\_Sep\_2022.git

git pull : This command is use to get new updated in existing repository.

But make sure your command prompt inside a repository folder.

git clone https://github.com/Kaleakash/MEAN\_Batch\_Sep\_2022.git

don’t open or change any file in repository in master or main branch.

git branch yourname

git branch ajay

git checkout branchname

git checkout ajay

then if you need new updated from my repository then you have to switch to

main or master branch and then run the command as

git pull

https://[www.google.com](http://www.google.com) : URL : Uniform resource locator

http : hypertext transfer protocol : set of rules which help to communicate more than one machine.

https: secure

www : word wide web

google : domain or server

com : commercial

req(https/http)--------------------🡪

Client Server

🡨----------------Res(http/https) html

Html : Hypertext markup language: it is use to create the web page. Display the content in different format on browser like plain text format, bold format, color format, picture, audio or video format.

Html provided lot of pre-defined tags which help to create the web page.

Syntax

<tagName> opening tag

</tagName> closing tag

Html is not a case sensitive. We can write the tag in upper case or lower case don’t matter.

Html tags

1. Html tag
2. Head tag
3. Body tag
4. Paragraph tag

<html>

<head>

<title>My App</title>

</head>

<body>

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

</body>

</html>

IDE : Integrated Development Environment

MEAN Stack developer : VSCode IDE

We can write more than one p tag.

Break tag : <br> or <br/> self – closing.

Bold tag <b>

Italic tag <i>

Underline <u>

Heading tag : if we want to write any heading top of paragraph or any other tags then we can use heading tag.

Heading tags divided into 6 types.

H1 : largest

To

H6 : smallest

Attribute : Attribute is known as properties of tags. Every tag contains one or more than one attribute. Attribute we have to use in opening tag in the form of key-value or name-value pairs.

Syntax

<tagName name1=”value1” name2=’value2’ name3=value3></tagName>

In html value can be in double quote or single quote or without quote. If value have more than one word then it must in single or double quote.

Font tag This tag is use to change the color, style(face) and size.

Html 1.0, 2.0, 3.0, 4.0 and 5.0

In html 4

<!doctype HTML PUBLIC URL=”<https://publichtmlurl.dtd>”/> document type definition

That dtd file contains rules for html page like what is the root tag name ie html, which contains two child tag ie head and body and inside body tag we can write more than one p or heading or other tags.

In html 5 they remove this rules and added more new tags in html to make html page dynamic.

<!doctype HTML /> : It provided instruction to browser we are going to write html 5 features.

Without this tag also we can use html5 features.

Using hyperlink we can connect one page to another page as well as we can point to same page particular content ie bookmark.

1. External hyperlink : <a href=”pageName.html”>Text</a>

a : anchor tag

href : hyper reference

<p name=”abc” id=”p1”> First para</p>

<p name=”abc” id=”p2”>Second para</p>

<p name=”xyz” id=”p3”>Third para</p>

<h1 name=”abc” id=”p4”>First heading</h1>

<h2 name=”xyz” id=”p5”>Second heading</h2>

Two tag have same name or different name they can have same name.

To make the uniqueness between two tags if tag name is same or different we have to use

Id. Using id we can read, write and update html content using JavaScript dynamically.

Adding the image to web page

<img src=”imageName.extensionOfImage” />

img 🡪 image

src 🡪 source of image

Day 3 : 09-10-2022

List Tag :

List tag is use to display item in proper format.

Un Order List

Ul : unorder list

Li : list item

Order List

Ol : order list

Li : list item

Definition list

Dl : definition list

Dt : definition term

Dd : definition description

Table Tags

This tags is use to display the content in table format.

Table -🡪

Tr 🡪 table row

Th 🡪 table heading

Td 🡪 table data

Thead

Tfoot

Tbody

Forms

Using form tags we can pass more than one value to server as container.

Before HTML5

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

After HTML5

<input type=”number/email/url/search/data/data-time/color”/>

By default every form default method consider as Get.

If method is get it will send the data through URL using query param concept.

URL?key=value

URL?key=value&key=value

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

Get method is not secure and we can send maximum 255 character data.

If we want data must be secure then we have to use post method

If method is post it will send the data through body part of request. Using post method we can use huge data.

Performance wise post method is slower than get.

If we want to apply formatting style using html. It is complex. Because we have to depends upon other tags or there no tags are available to apply that formatting sytle.

CSS : Cascading style sheet.

CSS provided lot of formatting style in the form of key-value pairs.

3 types

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

Inline css syntax

<tagName style=”property:value;property:value;”></tagName>

Internal or embedded css

<style type=”text/css”>

Selector {property:value}

</style>

This tag we have to write in between head or body tag of web page.

1. Universal selector : \*
2. Specific selector : tagName
3. Class selector
   1. local class selector tagName.className
   2. global class selector .className
4. id selector : #idName

<p class=”abc” id=”p1”>Hi</p>

<p class=”xyz” id=”p2”>Hello</p>

<h1 id=”p3” class=”xyz”>How r you</h1>

<p class=”abc” id=”p4”>I am fine</p>

<h2 class=”abc” id=”p5”>what about you</h2>

Class : group of tags which have same name or different name.

Id : using id we can make two tag uniqueness which have same name or different name.

1. child selector : parentTagName childTagName

external css

MEAN

JavaScript :

JavaScript was known as object based interpreter scripting language till ES5.

JavaScript is known as object oriented interpreter scripting language from ES6 onwards.

ES5 JavaScript or Vanilla JavaScript

ECMA : European Computer Manufacture Association

ECMA is a concept and JavaScript is one of the implementation of ES.

In ES5 JavaScript contains only pre-defined as well as user-defined object. it doesn’t provide class keywords.

Interpreter : it will check the code line by line. JavaScript or Python

Compiler : it convert while code at time. C, C++

Java is compiler as well as interpreter.

Compiler programming language create some file ie exe, object file or byte file.

Using JavaScript we can do programing on web page without server.

If we want to write JavaScript code we have to use script tags

Syntax

<script type=”text/JavaScript”> opening tag

Coding…….

</script> closing tag

This tag we have to write in between head or body tags.

Variable : variable is a name which hold value and value can change during execution of a program.

To declare the variable in JavaScript we use var keyword till ES5. (from es6 let and const).

Syntax

var variableName;

var a; // int a; in C or Java

data type: data type is a type of data which tells what type of value it can be hold.

JavaScript is known as loosely type data types. Base upon the value the variable behave that type of data type.

var a; // value of a is undefined value.

var b=10; // number type consider

var c=10.10 // number type consider

var name = “Raj Deep”; // string type consider

var result = true; // Boolean type consider ie true or false

var obj = new Date(); // object type consider

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Day 4

Using pre-defined function is typeof() which help to check the variable is data type.

Operator : operator is use to do some operation on variable.

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

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

Assignment operator : =

Logical operator &&, ||, !

Increment and decrement operator : ++, --

Pre increment ++i

Post increment i++;

If we use ++i or i++ alone both are increment by 1.

But we can assign this value in another variable or if we use inside some expression the pre and post behave differently.

Pre : first increment then assign or use

Post : first use or assign then increment.

Ternary operator : condition?true:false;

If statement : if statement is use to take decision and base upon the decision we can execute the set of code.

1. Simple if
2. If else
3. If else if
4. Switch statement

Switch statement will execute base upon user requirements.

switch(variableName) {

case label1: block1;

break;

case label2: block2;

break;

case label3: block3;

break;

default : wrong block

break;

}

Looping :

Looping is use to execute the set of statement again and again till the condition become false.

while loop

do while loop

for loop

initialization : Start and end position

condition : condition must be true

do the task

increment or decrement the value.

While loop syntax

Initialization

while(condition) {

do the task

increment or decrement.

}

Do while loop syntax

Initialization

Do {

Do the task

Increment or decrement.

}while(condition);

For loop

1 2 4

for(initialization;condition;increment/decrement) {

body of the loop 3

}

Cycling between 2, 3 and 4 till condition become false.

forEach

for in

for of

functions :

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

Function mainly divided into two types.

1. Pre-defined or global function
2. User-defined function.

Pre-defined functions

1. alert(“Msg”): it is a pre-defined function which help to display pop up message.
2. prompt() : this function is use to take the value through keyboard.
3. parseInt() : this function is use to convert string to integer(without decimal)
4. parseFloat() : this function is use to convert string to float(with decimal)
5. eval() : this function is use to convert string to number (it can integer or float).
6. Confirm() : this function contains two button ok and cancel. If user click ok it return true and if user click cancel it return false.

User defined function

In JavaScript we can write user defined function lot of ways.

1. Normal function declaration syntax

Syntax

function functionName() {

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 type
4. function no passing parameter and return type.

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Day 5

Event : event is known as interaction between user and component(html tags). Event provide bridge between html and JS code.

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

onClick

onDblClick

onMouseOver

onMouseOut

onKeyUp

onKeyDown

onChange

onSubmit

etc

DOM : document object model

index.html : if we run this file in browser internally it will create dom hierarchy

html – root tag

head body

title div hello (textNode)

script p welcome (textNode)

style

meta

DOM API (Document Object Model Application Programming interface).

Lot programming language like Java, Python, C# or JavaScript provided lot function or classes which help to read, write and update html contents dynamically.

JavaScript provided two pre-defined hierarchy

BOM : Browser Object Model

DOM : Document Object Model

Object : any real world entity

Person

Place

Bank

Car

Every object we contains two things

Property and behavior

Property or state or field --🡪 have -🡪name, height, weight, color, age

Person

Behavior --🡪 do/does -🡪 teaching(), sleeping(), going(), etc

Predefined Object hierarchy

Object -🡪 property

Behavior

Object --🡪 property

Behavior

Object --🡪 property

Behavior

Object --🡪 property

Behavior



document.getElementById()

document.getElementsByName();

document.getElementsByTagName();

documene.createElement()

<input type=”text/number/email” name=”” id =“”/>

In BOM window is pre-defined top most object.

DOM is a property of BOM.

If we want to work browser related details then we have to work on BOM.

If we want to work web page content then we have to work on DOM.

Online Calculator

1st Number TextField

2nd Number TextField

Result Display result

add Sub mul div

frame -🡪 one html page

frame 🡪 another html page

main page 🡪 with help of frameset we can add multiple page in one web page.

external javascript file

if we need common logic from js file for more than one web page then we can use external JS file.

ES6 JavaScript

From ES6 to declare the variable In JavaScript we can use var, let and const keyword.

Using var keyword we can re-declare same variable once again with same value or different value.

var a=10; // declaration with initialization int a=10;

a=20; // assign different value a=20;

var a=30; // re-declaration int a=30; Error

let b=10

b =20;

let b=30; // error variable already declared.

Using var we can declare global scope if variable is outside a function.

If variable inside a function then it is consider as function scope.

Using let we can declare block scope ie if block or loop block etc.

Using const keyword we can declare constant variable.

const c=400;

c=500; we can’t change

without css

<body background=”imageName.jpeg”>

</body>

Types of function

1. normal syntax
2. expression style
3. arrow function : arrow function is a short cut of expression style function without function keyword. In Arrow function, function keyword replace by arrow operator.

Arrow function created using expression style function. In arrow function we can return the value without return keyword. In arrow function if we are planning to write more than one statement then we have to use return keyword mandatory.

1. Callback function : passing the function name or function body or function itself to another function as a parameter is known as callback function.
2. IIFE : Immediate invoke function expression

(functionbody)(functioncall). Using this function we can’t do re-suability. We can’t call once again. It must call while creating the function only.

Closure :

array : array is a reference data type which help of store more than one value of same or different types. In JavaScript array is not a fixed memory size. In JS array provided lot of method which help do to more operation on those elements.

JavaScript array also known as predefined object.

let referenceName = new ObjectName();

referecenName.property; this access pre-defined property which is part of that object.

referenceName.fucntionName() this is use to call function part of that object.

if want to get the value from array we have to use index position. Array index position start from zero.

splice(1st,2nd,3rd, 4th,nth)

1st parameter is index position.

2nd number of elements to delete

3rd, 4th,5 till nth parameter add the elements.

Retrieve elements from array

1. Using for loop
2. Using for in loop
3. Using for of loop
4. Using forEach loop

User Defined Object

Object is any real world entity.

Person

Employee

Manager

Customer

Bank

Car

Product

Every object contains two things first one is property and second one is behavior

We can create user-defined object 3 ways.

1. Literal style : ES5
2. Function style : ES5
3. Class style : ES6

this is a keyword which help to define property and behavior for user defined object in function style object creation.

object : object is any real world entity.

To describe object in JavaScript using ES5 style we have to use function.

To describe object from JavaScript ES6 onward we can use class.

class : class is known as blue print of object or template object.

login

username or emaild and password

customer

cid, fname,lname,age, address, phonenumber etc

product

order

admin

etc

constructor : it is a type of special function which help to create the memory for object in class style.

1. To create a constructor we have to create a function with name as constructor.
2. Constructor call automatically when we create the object.

JSON : JavaScript Object Notation

REST full web service

If we want to share the data between two technologies we required common format JSON or XML.

If we want to store the data in the form of json we have to follow syntax as

{key:value,key:value,value:value};

Key must in double quotation and value can be string, number, Boolean, array, complex object.

JavaScript provided JSON as a pre-defined objet which help to convert object to string or string to json or json to string.

Java to .net to python or JS

Storage Object

Storage object mainly use to share the data between two pages.

sessionStorage

localStorage

setItem(“key”,value)

getItem(“key”)

removeItem(“key”)

if we store the value in session storage we can get the value from session storage till application running or open. Once we close the application the data from session storage get destroy.

localStorage. It store the value permanently in browser memory. We have to remove explicitly using removeItem functions.

Synchronization and Asynchronization

Promise

fetch() : Get, Post, Delete, Put and Patch : Phase 3 rest api

Ajax

Closure

Try catch

Prototype

Bind

Garbage collection

Debugger in JS in browser

Regular expression

Debug through Vs Code

Recursion

Await and asyc

Synchronization and Asynchronization

Synchronization : it will execute the set of statement one by one.

document.write(“1st statement”)

document.write(“2ndt statement”)

document.write(“3rd statement”)

function call

dis1();

dis2();

dis3();

1st req

2nd req

3rd req

Client Server

setTimeOut

setInterval

clearInterval

Promise : It is a JavaScript pre defined object which is use to handle asynchronous event of data.

Promise can be resolved or rejected or fulfill.

User defined promise object.

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Day 8

If we hit any URL it may live url or our application URL develop any language. That URL provide us data in the JSON format ie REST API

Using JavaScript we can take the help of one of the pre-defined function ie fetch()

fetch(“URL”)

fetch function or method return type is promise object. To handle promise data we have to use then and catch. If promise resolved using then we can load the data if promise rejected we will get the error.

await and async keyword :

ES7 features.

await keyword is use to make the statement as synchronous.

We can use wait within that function only if function is asyn. So we have to use asyn function before function keyword.

Await is replacement of then() function.

Closure : closure means an inner function always has access to var, let, const and parameter(variable part of outer function) of its outer function even after outer function has returned.

The closure function that remember the variable of outer function from the place where it is defined regardless of their it is executed later.

Ajax : Asynchronous JavaScript and XML

1st req

2nd req

3rd req

Client Server

JavaScript provided pre defined object ie XMlHttpRequest() or ActiveXObject (IE)This object is use to make the request as asynchronous.

Bootstrap : Bootstrap is an open source CSS web framework which provided lot of pre-defined classes base upon DOM Elements like div, p, form, table etc. To make responsive web application bootstrap.

Now day we can use HTML5 features to make responsible web application without bootstrap.

Bootstrap is external CSS file.

We have to add external css fle

1. Offline
2. Online
3. Using Node JS

Bootstrap grid layout :

Grid layout is use to arrange the html component in row and column format.