Day 1 : 05-03-2021

Git :

Application Or Project

A Person Login module

B Person Customer module

C Person Account module

Merge code

Version Control tool

Git : Git is a version control system for tracking changes in file or folder or application or project and coordinates work of those file or projects among the multiple people.

Create folder : then create one or more than one file with simple message.

Git init : to create local repository

Git status :

Git add filename.extension

Git add a1.txt a2.txt a3.txt

Git add \*.txt

Git add .

Git commit –m “File created”

Git status

Git init

Then create the file

Git add .

Git commit –m “message”

Git remote add origin URL

Git push –u origin HEAD

Or

Git push – origin master

Day 2 : 08-03-2021

Git init : This command is use to create local repository.

Git status : This command is use to check the last command status.

Git add . : This command is use to add file or folder or project in staging area.

Git commit –m “Message” : This command is use to pass the files or folder from staging area to local repository.

Git remote add origin URL : This command is use to link local repository to remote repository.

Git push –u origin HEAD/branchName: This command use to pass the value from local repository to remote repository.

Git clone URL : This command is use to download the remote repository to local machine.

Manager 🡪 Simple.txt

File created by Manager

Git init

Git add .

Git commit –m “File created”

Git remote add origin URL

Git push –u origin HEAD/BranchName

Default branchName –master/main

Raj

Git clone URL

Master/main

Ajay

Git clone URL

Master/Main

Branch : Branch is like a pointer which hold more than one commit details.

Git branch : This command is use to check the all branch details.

Git branch branchName : This command is use to create the branch.

Git checkout branchName : This command is use to switch from one branch to anther branch.

Git checkout –b branchName: This command is use to create the branch and switch to created branch.

Git branch –D branchName : This command is use to delete the branch locally.

Manager -- > Create main file

And push to remote repository

Raj Developer -🡪 clone remote repository

Create the file in Raj branch

Push raj branch to remote repository

Ajay Developer 🡪 Clone remote repository

Create the file in Ajay branch

Push ajay branch to remote repository

Create Folder TCSMEANStackTraining

Test file

Your Details

Remote Repository : EmpId\_YourName\_TCSMEANStackTraining

Web Technologies.

https://[**www.google.com**](http://www.google.com) 🡪 URL

http/https🡪Req---🡪

Client Server

🡨-res(http/https)---

http/https: Hyper text transfer protocol.

Protocol : set of rules which help to communicate more than one machine or device.

www: world wide web

google : domain or search engine.

com : commercial

Uniform Resource Locator

HTML : Hyper Text Mark up Language.

It is use to display the contents.

CSS : Cascading Style sheet

Look and Feel or Presentation on Contents.

JS : JavaScript

Action on Contents

HTML : Hyper Text Mark Up Language : it is use to create the web page.

Web Page : It is use to display the contents in different format like normal, bold, italics, video, audio, clips etc.

Web Application : Collection of more than one web page.

Using HTML we can create static as well as dynamic web page.

Static : Display contents as it is on browser.

Dynamic : When user interact with web page event(action performed) generate.

Version

1, 2, 3, 4 and 5 : HTML5

Tags or elements.

Syntax

<tagName> opening tag

</tagName> closing tag

<tagName/> self closing tag

HTML is case insensitive.

HTML tags

Html

Head

Body

Title : This tag is use to display the message in title bar.

Paragraph tag : This tag is use to display the contents in browsing area.

This tag must in in between body tag.

<p> </p>

Break or br tag : This tag is use to break the content in next line. Break tag doesn’t contains closing tag.

<br>

<br/>

Heading tag : This tag is use to write the heading for paragraph or any contents.

There totally 6 heading tag

H1 : largest

To

H6 : smallest

Day 3 : 09-03-2021

Attribute : attribute is know as properties of a tags.

Syntax

<tagName name1=”value1” name2=’valule2’ name3=value3></tagName>

Attribute must in opening tag

In the form of key-value pairs.

Key may in single quote or double quote or without quote.

If value may be more than one world then it must be in single or double quote.

<p align=”center”></p>

<h1 align=right></h1>

Hyperlink :

This tag is use to connect external as well as internal (bookmark) contents.

External hyper link

Internal hyper link (book mark)

External hyper link

<a href=”pathOfFile.html”></a>

a 🡪 anchor

href 🡪 hyper reference.

Hr : horizontal line

<hr/>

Internal hyper link or book mark

<a href=”#a1”></a>

<a href=”#a2”></a>

<a name=”a1”></a>

<a name=”a2”></a>

Image tag

<img src=”NameOfImage.extension”/>

List Tag :

Unorder List

<ul>

<li>Raj</li>

<li>Ravi</li>

<li>Ramesh</li>

</ul>

UL : Unorder List

Li : List item

Order list

<ol>

<li>Java</li>

<li>Python></li>

<li>JavaScript</li>

</ol>

Ol : order list

Li : list item

Definition list

DL : definition list

DT : Definition term

DD : definition description

Table Tag :

Employee Details

Id Name Salary

100 Raj 12000

101 Ramesh 14000

<table>

<tr>

<th>Id</th>

<th>Name</th>

<th>Salary</th>

</tr>

<tr>

<td>1</td>

<td>Ravi</td>

<td>12000</td>

</tr>

</table>

Tr 🡪 table row

Th 🡪 table heading

Td 🡪 table data

Form Tag

Login, Application, Feedback Page, etc

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

By default HTML form method is Get consider.

If method is get information send through URL using URL rewrite technique.

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

Get is not a secure.

If you want secure then use method is POST

Get faster than post method.

VS Code :

Day 4 : 10-03-2021

HTML 4 version

<html public =”URL .dtd”>

<head>

</head>

<body>

</body>

</html>

Document type definition

HTML 5

<!doctype HTML> : Given the instruction to browser writing HTML5 version features.

VS Code

: Visual Studio Code :

MEAN Stack

Mongo DB Express Angular Node JS

CSS :

If we want to apply any formatting style for the contents we have to depending upon other tags.

As well HTML provided only few tags with the help of those tags we can’t apply good look and feel for web page.

Using HTML if we apply formatting style.

The content and formatting style combined together.

CSS : Cascading style sheet. CSS provide lot property in the form of key-value pairs which help to apply good look and feel for the web page.

With help of CSS we can achieve separation of concern.

Actual Content Formatting style

CSS file divided into 3 types

Inline css

Internal or Embedded CSS

External CSS

Inline CSS

Syntax

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

</tagName>

P,h1,h6,b,form,input,table, tr, td etc

Internal or Embedded CSS

In between head tag we have to write style tag

<style type=”text/css”>

Selector {property : value;property:value}

</style>

Types of selectors

Universal selector : \*

 \* {color: skyblue;}

Specific selector

tagName {property : value}

p,h1,h6,div,span, b etc

Multi specific selector

tagName,tagName,tagName {property:value;}

Local Class selector :

tagName.className{property:value}

Global class selector

.className{property:vaulu;}

Id selector :

#idName {property:value;}

Class selector Vs Id selector

More than one tag must be part of same class

Or

Class is a group of more than one tags.

Id is use to give unique ness for the tags.

<p class=”abc” id=”a1”>First Para</p>

<p class=”xyz” id=”a2”>Second Para</p>

<p class=”abc” id=”a3”>Third Para</p>

<p class=”xyz” id=”a4”>Fourth Para</p>

Div tag : Div tag is known as container tag. Which contains more than one other tags like p, h1, span, as well as another div.

External CSS File : CSS rules globally available for all web pages.

Font related property

Day 5 : 11-03-2021

CSS3 Property

CSS3 Transformation : Transformation allow you to translate, rotate, scale and skew html element (DOM (Document Object Model)).

CSS3 Transition : CSS3 Transition allow you to change CSS property value smoothly over a period of a time.

CSS property you want to add an effect to like width, height, color, size etc

Duration (time).

CSS3 Animation :

CSS3 animation allow most of HTML tags with JavaScript or Flash.

@keyframes : Which contains set of rules to execute the animation (ie start and end position for animation).

JavaScript

JavaScript was object based interpreter scripting language.

ES5 ECMA Script : European Computer Manufacture Association.

Using JavaScript we can do coding or programming on web page.

JavaScript tags

Syntax

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

</script> closing tag

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

In one html page we can write more than one script tags.

Variable and data types.

Variable is a name which hold the value.

In JavaScript to declare the variable we have to use the keyword as var(up to ES5 JavaScript).

var variableName;

Data types : Data type is a type of data which tells that type of value it can hold.

JavaScript data types

Number (with or without decimal)

String : more than one character single or double quote.

Boolean : true or false.

Object reference.

Operator

1: Arithmetic Operator : +, -, \*, /, %

2 Relational operator >, >=, <, <=, ==, !=

Assignment operator : =

=== :

Logical operator : &&, ||, !

Typeof operator or function

If statement

Simple if

if(condition) {

}

if else

if(condition) {

}else {

}

if else if

if(condition){

}else if(condition) {

}else if(condition) {

}else {

}

Switch statement

Syntax

switch(variableName) {

case label1: block1;

break;

case label2: block2

break;

case lable3:block3

break;

default : defaultblock

break;

}

Avg =80

if(avg>90) {

a++

}else if(avg>80) {

a

}else if(avg>70) {

b

}else {

c

}

Looping : It use to execute the statement again and again till the condition become false.

While loop

Do while loop

For loop

Initialization : start / end

Conditions true

Increment / decrement

styles.css (external CSS)

.className : global class selector

tagName.className : local class selector

.divFontClass{

font-size:

font-style:

font-family:

}

<div class=”divFontClass”>

</div>

<p></p>

<input type=”button”/>

<h1></h1>

<table>

Min 3 tag for 3 class selector (CSS class selector which contains min 3 css property).

Function and events

Function : it use to write set of instruction to perform a specific task.

2 types

pre-defined function

document.write(“Welcome to JS”);

alert(“welcome to JS”);

prompt(“Msg”): This function is use to receive the value from keyboards.

eval() : This function is use to convert string to number.

parseInt(): string to int

parseFloat(): string to float

eval() = parseInt() + parseFloat()

user-defined function

syntax

function functionName(parameterList) {

}

Event : Event is a interaction between user and html tags ( components) or DOM (Document Object Model).

DOM : All html tag is known as DOM elements. Like html, p, h1, b, form etc.

Event provide the bridge between html and JS code.

Type of events

In JavaScript all event start with prefix on followed by event name

onClick

onDblClick

onMouseOver

onMouseOut

onKeyUp

onKeyDown

onSubmit

onChange

onBlur

onFocus

etc

External JavaScript file

JSON : Java Script Object Notation

JSON is use to share the data between one application to anther application.

JSON is use to store the data in the form of key-value pairs. Where key is string type and value may be number, string, boolean, object reference type.

Object / JSON to String conversation

JSON.stringify()

String to JSON conversation

JSON.parse()

Storage objects

HTML5/JavaScript provide two types of storage object

sessionStorage : It hold the value till application close. Once application close the value get destroy from session.

localStorage : It hold the value in secondary memory after close the application also we can get next time open the application.

Using storage object we can share the value between more than one page or application.

One.js

sessionStorage.setItem(“key”,value);

localStorage.setItem(“key”,value);

two.js

sessionStorage.getItem(“key”)

localStorage.getItem(“key”);

sessionStorage.removeItem(“key”);

localStorage.removeItem(“key”);

**Day 7 : 15-03-2021**

**Types of function in JS**

1. Normal function
2. Expression style function
3. Callback function : passing the function body or function itself to another function is known as callback functions.
4. Arrow function
5. Using Array with normal function, anonymous function and arrow function
6. IIEF function.

**Creating User defined objects Using ES5 style**

function Employee() {

}

Synchronous and Asynchronous Communication.

Synchronous Communication : This code is executed in sequence.

Asynchronous communication : This code execute independently.

setTimeout() : it is pre-defined function which is use to achieve asynchronous communication.

**Promise :** Promise is a pre-defined object provided by JavaScript which help to handle asynchronous operation.

It also handle error.

4 has state

1. Fulfilled : When promise is success.
2. Rejected : when promise is failure
3. Pending : when promise is pending state.
4. Settled : when promise completed.

**Day 8 : 16-03-2021**

**Bootstrap :** It is a open source CSS framework which help for developing responsive and mobile – first application or websites.

.fontClass {

font-size:24pt;

}

<div class=”fontClass”>

Information

</div>

**Bootstrap pre-defined css classes**

**Container : Container is the fixed width container. It is fixed base on the screen size.**

**Container-fluid : This type of class take the full width of the device.**

**Bootstrap grid layout :**

Boot strap grid layout use a series of rows and columns to layout and align the contents.

In Grid layout each row divided into 12 columns.

**Navigation** is type of bootstrap css class using **.nav** class to activate and disable states.

**Phase 2 :**

**Day 9 : 18-03-2021**

**Node JS : Node JS is a run time environment for Java Script library and Java Framework.**

**Java – JRE**

**JavaScript – Node JS**

**To do typescript program as well as Angular program it require node js.**

**TypeScript**

**Angular 9/10/11**

**Typescript : Typescript is super set of JavaScript. Typescript support ES6 as well as ES7 all features.**

**Features of TypeScript**

1. **To declare variable var, let and const**
2. **Support all data types. number, string, Boolean, Array, generics etc.**
3. **Different type of functions**
4. **Different type of loop** 
   1. **Of loop and in loop**
5. **OOPs concept using class, interface, constructor, static keyword,**
6. **Modules.**

**To run simple external JS file we were using HTML page.**

**<script src=”demo.js”></script>**

**With help of node Js we can run JavaScript program without html page.**

**Using command prompt we can run external JavaScript programs.**

**If we are planning to run javascript program through node js. In that program don’t use window as well as document.**

**First create**

**demo.js**

**console.log(“node js program”);**

**.js**

**If file is .js we can run through html page or node js.**

**.ts (typescript).**

**If file is ts file we have to convert this ts file into js file.**

**It require transpiler (like interpreter) which help to convert ts to js.**

**Tsc (typescript compiler) : this command help to convert ts to js.**

**npm (node package manager) : npm is use to download external modules.**

**Command to download external modules**

**Syntax**

**npm install –g moduleName**

**npm install –g typescript**

**or**

**tsc**

**var,let and const**

1. **var : var keyword is use to declare the variable. It is use to declare the global scope.**

**Using var keyword we can declare same variable with same or different values.**

1. **let : let keyword is use to declare the local or block scope.**

**Using let keyword we can’t to re-declaration.**

**Typescript support data types.**

var variableName:datatype;

let variableName:datatype;

**Array declaration :**

Up ES5

ES5 array declaration

var num=[100,200,300,”Ravi”,true];

ES6 using TypeScript

var num:number[]=[100,200,300,400,500];

different type of loop

for in loop

for of loop

**Array methods**

Till ES5

function functionName(a,b,c){

}

functionName(10);

functionName(10,20);

functionName(10,20,30);

functionName(10,20,30,40);

functionName(“Ravi”);

**Phase 2 :**

**Day 10 : 19-03-2021**

**OOPs Concept Using Typescript**

**object : any real world entity.**

**State / properties – have --fields/variables**

**Person   
 behaviour ---do/does –function / methods**

**Bank**

**Animal**

**Car**

**Employee**

Employee class ES6 style

class Employee {

    id:number=100;

    name:string="Ravi Kumar";

    salary:number=12000;

    empInfo():void {

        console.log("id is "+this.id);

        console.log("name is "+this.name);

        console.log("salary is "+this.salary);

    }

}

let emp1 = new Employee();

emp1.empInfo();

let emp2 = new Employee();

emp2.empInfo();

**constructor : constructor is use to create the object or memory.**

**To create the constructor we have to write name for the function as constructor. Constructor get call automatically when we create the object.**

**Difference between constructor and instance functions.**

**In the life of the object if we want to perform any task only one time that type of code we have to write inside a constructor.**

**In the life of the object if we want to perform any**

**More than one time that type of code we have to write inside a functions.**

**In Typescript we can’t write more than one constructor may empty or parameterized.**

**Private property or function we can’t access outside class using object as well as directly.**

**Public we can access using object of that class.**

**Inheritance : It is use to inherits the properties and behaviour of old class to new class.**

**Interface :**

**Interface is use to write more than incomplete functions.**

**Syntax**

**interface interfaceName {**

**variables;**

**incomplete function**

**}**

**In typescript write interface which contains only variable or only function (incomplete).**

**Modules : modules is a collection of variable, function, classes , interfaces which have same name different purpose.**

**Module is like a package in java.**

**Using module we can avoid the conflicts when two function or classes or interface have same name but different purpose.**

**Phase 2 :**

**Day 11 : 22-03-2021**

**HTML/HTML5**

**CSS/CSS3**

**JavaScript ES5 – ES6**

**Bootstrap**

**TypeScript**

**DOM Document Object Model**

**Read, Write and Update DOM Elements (HTML Tags) dynamically.**

**jQuery : jQuery is a external JavaScript library. Which contains set of functions which internally connected to each other. Which help to Read, Write and Update DOM very easily.**

**Library : Library doesn’t follow standards rules and regulations.**

**Framework : Framework follow standards.**

**Framework is know as Prototype or template but not final product. If we develop any application using framework 70% to 80% task taken are by framework.**

**The implementation of design pattern is taken care by framework.**

**Angular : Angular is a open source web framework.**

**Angular JS : HTML/CSS/JavaScript using ES5**

**Angular Framework 2 to 11. : HTML/CSS/TypeScript (JavaScript).**

**Angular Framework help to develop SPA (Single Page Application).**

**Multi page application.**

**Index.html home.html**

**Hyperlink**

**Button (submit)**

**Command button**

**Angular Framework use component to create the application.**

**Component use to control the view or part of the view on web page.**

**In angular every component work independently.**

**One component can interact with another components.**

**React JS is library . Library is not a standard**

**React JS + Redux or Flux (state management tools).**

**Using Angular framework we can develop standalone(desktop), web application as well as mobile application.**

**Angular framework is a part google company.**

**Angular JS: it is use only for web application.**

**Angular CLI (Command Line Interface). So with the help of Angular CLI we can create angular project very easily.**

**Ng : next generation on HTML.**

**Angular**

**npm install –g @angular/cli**

**npm install –g @angular/cli@versionNumber**

**Step to create the Angular project using Angular CLI**

**ng new project-name**

**ng new welcome-app**

**For more information, see https://angular.io/strict Yes/No : select y or n**

**Routing : Y/N : select y or n**

**Style : CSS : css**

**And enter the key.**

**After project created successfully . move inside a project using cd command.**

**cd welcome-app**

**To run the project we have to run the command as**

**ng serve**

**or**

**if you want to change port number**

**ng serve –port=4300**

**after successfully complied 100% project**

**open browser**

[**http://localhost:4200**](http://localhost:4200)

**By default angular provide web server to run the project. The project run by default port number 4200.**

**Open the project in VSCode**

**Then expand**

**src -🡪 app🡪**

**app.component.html**

**(In angular we call as template page)**

**app.component.ts (Component file)**

import { Component } from '@angular/core';

**Component is a pre-defined API(Application Programming interface) which part of @angular/core;**

**import {dis1} from ‘./a’;**

**@NamesOfDecorator : It is know as a decorator. Decorator is concept of typescript. It is like a annotation in Java. Decorator provide meta-data. Data about data.**

**Using decorator we can add extra features to class or property.**

**@Component : It is a pre-defined decorator provided by angular framework. it is type of decorator which help to control the view or part of view.**

**Component decorator property**

**selector : “user-defined-tag-name”: using selector we are creating user-defined tags.**

**selector is use to create the user-defined tags.**

**<h1>Welcome to HTML page</h1>**

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

templateUrl: './app.component.html',

**with the help of templateUrl we are connecting ts file to html page.**

styleUrls: ['./app.component.css']

this property which help to connect ts file to external css file. It is like a link tag in html with CSS.

**app.module.ts**

**module is a collection of more than one components. It is like package in java.**

@NgModule: it is a type of decorator provided by angular to make the class is type of module class.

declaration : we have to provide the details of all components.

import : it use to import pre-defined or user-defined modules.

**Provider : This property is use to provide angular service details.**

**bootstrap :**

**we can create more than one modules and each module contains more than one components.**

**Login Modules**

**LoginCreate, LoginDisplayComponent**

**Application Modules**

**ApplicationCreate,ApplicationDisplay**

**Customer Modules**

**main.ts :This file provide the details about main modules to load using bootstrap.**

**A Module B Module C Module**

**If A is main module then B and C are child module**

**A module**

**Abc component : Parent Component**

**Xyz component : child component**

**Mno component : child component.**

**AppModule 🡪 root module**

**AppComponent 🡪 parent components.**

**index.html**

**This tag contains root-tag details.**

**2 angular projects**

**ng new angular-data-binding**

**ng new angular-forms**

**please don’t create nested projects.**

**No routing options**

**Phase 2 :**

**Day 12 : 23-03-2021**

**Creating new component with local template and local CSS file.**

**ng serve :**

**ng serve –o : after loaded 100% successfully it automatically open in system default browser.**

**Creating new component using angular cli command**

**ng generate component componentname;**

**or**

**ng g c componetname**

**Data binding :**

**Data binding is use to share the data between template (html) to component (typescript file).**

**It provide bridge between template(view) to components.**

**View ---------------------------------Component**

**2 types**

1. **one way data binding** 
   1. **string interpolation : component --🡪view**

**{{variableName}}**

* 1. **property biding : component 🡪 view**

**[]**

* 1. **event binding : view---🡪 component**

**Angular use same event provided by JavaScript but remove on prefix and event name must wrap using ().**

**Javascript event Angular**

**onClick (click)**

**template reference :**

**syntax to create the template reference**

**#referenceName**

**Angular directive : angular directive is use to add extra behaviour for DOM Elements.**

**3 types**

1. **component directive :@Component it use to create the component directive. Which help to create the user-defined tags with the help of selector.**
2. **structure directive : Using structure directive we can add dom as well as remove dom(html tags) from web page.**

**\*ngIf : show and hide**

**\*ngFor : iterate collection of data.**

1. **attribute directive : it use to add styling for web page with help of ngStyle and ngClass.**
2. **two way data binding**

**angular-form**

**angular-routing :**

**while creating the project it ask touring options**

**yes**

**Day 13 : 24-03-2021**

**Angular forms :**

**Using angular we can create two types of forms.**

1. **Template Driven Form (TDF)**
2. **Reactive Form Or Model driven Form (MDF)**

**Template Driven Form**

**View(Template) --- > Component : HTML**

**It is very easily to create.**

**Good for simple forms.**

**Model Driven Form**

**Component --🡪 View (Template) : TypeScript**

**It is good for complex forms.**

**Create two component**

**ng g c tdf-login-page**

**ng g c mdf-login-page**

**In Template driven form we have to create the reference of form using ngForm attribute.**

**Syntax to create**

**In form opening tag**

**<form #userRef = “ngForm”>**

**</form>**

**Once you create the reference of form using ngForm in template page we will get the error.**

**Because ngForm is a part of FormsModule. So we have to import FormsModule in app.module.ts file**

**If we want to pass the textfield, passwordfield, radio button, checkbox etc value through form reference we have to write ngModel attribute in every html texfield, passwordfields etc.**

**Model Driven Form or Reactive Form**

**Component --🡪 View (Template)**

**Angular provided set of API(Application Programming interface) to achieve model driven form**

**FormGroup and FormControl**

**According to Model Driven form**

**TextField, PasswordField,RadioButton, CheckBox etc are consider as FormControl.**

**FormGroup contains one or more than FormControl as well as another FormGroup.**

**FormGroup and FormControl API is a part of ReactiveFormsModule. So we have to import ReactiveFormsModule in app.mdoule.ts file.**

**Angular Routing :**

**Angular routing is use to navigate from one component to another component base upon the path provided in routing file.**

**If path match one component’s template (HTML) code replace by another component’s template(HTML)**

**Aboutus component**

**Contactus component**

**Login component**

**Dashboard component**

**ng g c aboutus**

**ng g c contactus**

**ng g c login**

**ng g c dashboard**

**https://www.surveymonkey.com/r/NBKJBF7?trainer=akash%20kale&company=Tata%20Consultancy%20Services&milestone\_id=00060460\_01&course=phase%202%20-%20create%20websites%20using%20front%20and%20back-end%20frameworks&geo=US&type=ELVC&Webex\_Session\_ID=1840928935**