

# **Learning Plan**

Let's start the journey of learning. We are going to learn Web Developments basics along with Angular Framework Concepts. The items we are going to learn here are:

1. HTML5
2. CSS3
3. Javascript
4. Typescript
5. Angular Framework

So we are going to start weekly plans. After each week we will do some Quizzes, Mini Projects and discussions. So lets start !!!

## **Week 1**

### **What is Hyper Text Markup Language (HTML)?**

You can learn it from here: [Link-1](#), [Link-2](#), [Link-3](#) .

### **On which editors we can work on?**

Basic editors which we need for HTML are NotePad, Webstorm, VS Code etc. You can learn it from here: [Link](#)

### **What are tags in HTML?**

There are many tags in html. You can learn it from here: [Link](#)

### **What are elements in HTML?**

Elements are those which we represent like that: `<tagName>.....</tagName>`. You can study about these from here: [Link](#)

Some basic elements are:

1. [Header](#)
2. [Paragraphs](#)
3. [Lists](#) types [Ordered](#), [Unordered](#), [Other](#).
4. [Button](#)

### **What are block and inline elements?**

Blocks are those who cover all the width in row and inline are those who cover only the provided information width. You can study it from here: [Link](#)

### **What are attributes in HTML?**

Attributes are additional information for HTML Elements. You can study about these from here: [Link](#).

### **What are hyperlinks in HTML?**

Hyperlinks are those with which you can move to another page or you can navigate to some section of the same page. You can study about these from here: [Link](#)

### **What is *id* in HTML?**

This is the type of attribute in HTML elements. With the help of this you can do many things like style providing, DOM manipulations, navigation etc. you can study about these from here: [Link](#)

### **What are colors available in HTML?**

In HTML we can define colors with four formats: RGBA, HexCode, HSL and color name. You can study more about these from here: [Link](#)

### **How can we use *styles* attributes in HTML?**

This attribute is used for providing inline styling to HTML elements. That is why it is called an attribute. You can study more from here: [Link](#)

### **What is a *class* attribute in HTML?**

This is also used for providing design specific properties. It is also used within the elements. You can study more about it from here: [Link](#)

### **How can we add comments in HTML?**

Comments are mainly for identifying what this part of HTML will do. This helps other developers and also makes HTML code understandable. You can study more about it from here: [Link](#)

### **How can we show images in HTML?**

In HTML we can show images in many ways: [img](#) element, [Background images](#), [picture](#) element and [image maps](#).

### **How can we create tables in HTML?**

We can directly use the *table* element of HTML. But this [table element](#) is the combination of multiple tags. For eq. [table](#), [thead](#), [th](#), [tbody](#), [tfoot](#), [tr](#), [td](#).

## **Week 2**

### **How many sections avail in HTML?**

When we write HTML code. So it looks like this:

```
<!DOCTYPE html>
<html>
  <head>
    .....
  </head>
  <body>
    .....
  </body>
</html>
```

### **What is the *head* section in HTML?**

It's actually an element. Which contains many elements in this. You can learn it from here: [Link](#)

### **What are layout, responsiveness and style guide?**

These all three have the same motive to design the website properly.

[Layout](#) is used to make schema of different elements.

[Responsive](#) is used to make our website user friendly on all devices.

[Style Guide](#) how to write HTML.

### **How to create HTML inputs?**

These are mostly called as data collectors. Because users mostly enter data in these.

There are various types of inputs available. You can study about all these from here:

[Link](#)

### **What are input attributes?**

These are the same as element attributes. But for inputs we have a different list of attributes. You can study from here: [Link](#)

### **How to create forms in HTML?**

Actually *form* is also an element in HTML. These also have their attributes. And you can create forms with the help of inputs. You can study forms from here: [Link-1](#), [Link-2](#), [Link-3](#), [Link-4](#)

### **What are HTML API's?**

These are the API's which are provided by the browser to perform some particular process according to data received and stored. Mostly used one's are:

1. [Geolocation](#)
2. [Drag/Drop](#)
3. [Web Storage](#)

There are many more which you can learn from here: [Link](#)

### **Additional Concept of HTML:**

[Media Players](#): For attaching any type of video in HTML.

[Charset](#)

[URL Encoding](#)

HTML [Doctypes](#)

### **What is the Cascading Style System (CSS)?**

This is something we call designing our HTML. In this we can give various properties to design our HTML elements or pages. For eq. Color, Fonts, Width, Height etc. You can study about these: [Link-1](#), [Link-2](#), [Link-3](#)

### **What is CSS syntax?**

It's a way to represent styling for HTML. For eq: `h1 {color: red};` This code is called CSS syntax. You can learn it from here: [Link](#)

### **What are CSS selectors?**

These are used for defining a particular style to a particular HTML element or group of HTML elements. You can study about it from here: [Link](#)

## **Week 3**

### **How many ways we can add CSS in HTML?**

There are 3 simple ways to do that. You can study these ways from here: [Link](#)

### **How to make comments in CSS?**

Comments are the most useful in CSS. Because it will help you when the project is on a large scale. You can study it from here: [Link](#)

### **What is the CSS Box Model?**

It is a box of layout for a particular section in HTML which tells us how many style properties applied to that box. You can study more from here: [Link](#)

### **What are the units we are using in CSS?**

We mostly use *px* units because our browser or mobile screen is divided into pixels. But there are also some derived units which you can study from here: [Link](#)

### **What is the CSS precedence order or specificity?**

This is the part where developers have to put extra care. Because sometimes we apply multiple CSS on the same element. Then out of that multiple CSS which is more effective and of highest order that is decided by precedence or specificity. You can study these from here: [Link-1](#), [Link-2](#)

### **Basic properties of CSS:**

1. [Color](#)
2. [Background](#)
3. [Border](#)
4. [Margin](#)
5. [Padding](#)
6. [Height/Width](#)
7. [Display](#)
8. [Position](#)
9. [Float](#)
10. [Overflow](#)
11. [Max-Width/ Max-Height](#)
12. [Min-Width/ Min-Height](#)

You can learn any more property from CSS you can learn it from this list: [Link](#)

### **How to give design using HTML Attributes?**

In CSS we can also specify the design using HTML attributes. You can study it from here: [Link](#)

### **How to design text?**

Text can be designed with multiple properties. For eq. *color*, *font-style*, *font-size*, *text-shadow*, *text-align* etc. You can study these from here: [Link-1](#), [Link-2](#)

### **How to design particular links in HTML?**

The links have four states of designing. You can learn about each state from here: [Link](#)

### **What is list and table styling?**

These are two different types of styling. These both are related to HTML tags: *ul, li, table, tr, td, th, thead, tbody,tfoot* etc. You can study about these from here: [List](#), [Table](#)

### **What are CSS Combinators?**

These are to combine the style to multiple selectors according to the relationship they have like child, sibling, next one etc. You can study about these from here: [Link](#)

### **What are pseudo classes?**

These classes are defining the special state of an element. There are multiple states available by default: *active, visited, hover, focus* etc. You can study about these from here: [Link](#)

### **What are pseudo elements?**

This is to apply style to a particular element. You can study all about these from here: [Link](#)

### **Other basic style methods to create:**

1. [Dropdown](#)
2. [Navigation](#)
3. [Image Gallery](#)

## **Week 4**

### **What are responsive designs?**

These are designs which make our web page appearance good on all devices whether it is desktop of size 1900\*800px or device with size 300\*600px. You can learn more about these from here: [Link-1](#), [Link-2](#)

### **How can we create responsive designs?**

These designs can be created with the help of following: [Media queries](#), [Grid Styling](#), [Image Styling](#). These we all have to do from scratch.

### **How can we automate the responsive designs?**

There are some other libraries with which we can achieve this. [Bootstrap](#).

### **What is Grid Layout?**

It is something we have to design with the help of a number of rows and columns. You can study more about it from here: [Link-1](#), [Link-2](#), [Link-3](#)

### **What is Flex box styling?**

This is the technique to make responsive design also. You can study more about it from here: [Link-1](#), [Link-2](#), [Link-3](#), [Link-4](#)

### **What are the animation specific style properties?**

These are the animation specific list:

1. Transform - [2D](#), [3D](#)
2. [Transitions](#)
3. [Animations](#)

### **Other useful design methods and properties:**

1. [CSS Variables](#)
2. [Shadows](#)
3. [Gradients](#)
4. [Web Fonts](#)
5. [Buttons](#)
6. [Pagination](#)

### **What is Javascript?**

Javascript is a programming language. Which is mostly used for Web Development.

You can get the intro from here: [Link-1](#), [Link-2](#)

### **How can we write and where to write in HTML?**

Generally you can create individual files with extension .js in your editor. Or you can also use a script tag in the HTML body to do that. You can study more from here: [Link](#)

### **How does Javascript give output?**

Like any other language we can also check output from Javascript. But for this there are various methods. You can study those methods here: [Link](#)

### **What are the Javascript Statements and Syntax?**

You can study about it from here: [Link-1](#), [Link-2](#)

### **How can we comment in Javascript?**

Commenting is most important for coding because it helps you and other developers in future. [Link](#)

## **Week 5**

### **How to write variables in Javascript?**

As we all know every language has their own syntax to write variables. Similarly Javascript has its own: [var](#), [let](#), [const](#). Mostly we use [var](#) as syntax but as tech is growing regularly so in the latest ECMAScript we have defined these two another syntax also: [let](#) and [const](#).

### **What is the scope of Javascript?**

Javascript has two scopes. Which you can study from here: [Link](#)

### **What are operators in Javascript?**

Operators are those with the help of which we can do any operation on variables. You can study about them from here: [Link-1](#), [Link-2](#), [Link-3](#), [Link-4](#), [Link-5](#)

### **How to check and apply conditions?**

To check and apply conditions we have if else. With this you can create conditions. You can study from here: [Link](#)

### **Switch and Loops in Javascript?**

You can study these both from here: [Switch](#), [For Loop](#), [While Loop](#)

### **What is break and continue in Javascript?**

Actually like in any other language break and continue has the same meaning. You can study it from here: [Link](#)

### **What are the Data Types?**

Data types are the type of values held by a variable. It can be string, number, object etc. You can study from here: [Link](#).

### **What are Objects?**

Basically Javascript is fully object oriented. But you can learn the basics from here [Link](#).

### **What are Functions?**

It is a block of code for performing a particular task. You can study from here [Link](#).

### **What are strings?**

It is the type of random text which contains all types of characters. You can study it from here: [Link](#)

### **What methods can we use on strings?**

To manipulate strings for various process we do following methods which are basic: *indexOf*, *lastIndexOf*, *search*, *subStr* etc. For studying full about these methods you can refer this link: [Link](#)

### **What are numbers?**

Numbers can be integer, float, decimal etc. You can study about these from here: [Link](#).

### **What methods to use for Numbers?**

Numbers can be manipulated in many ways. You can check that from this [Link](#).

### **What are Arrays?**

Arrays are simply storing multiple things in a single variable. You can get basic from here: [Link](#)

### **What methods to use for Arrays?**

Arrays can be manipulated by various methods. You can get a full list and study from this [Link](#). Array other methods like [Sorting](#) and [Iteration](#) you can study that also.

## **Week 6**

### **What are Dates?**

Dates are mostly used in Web Applications. Because we always show the date and time in every project. Dates come with these concepts: [Formats](#), [Get](#) and [Set](#). You can get basic ideas of dates from this [Link](#).

### **How can we perform Mathematical Task?**

In Javascript we have *Math* Object. This object provides us various methods with the help of which we can perform mathematical tasks. You can study from here: [Link-1](#), [Link-2](#).

### **What are booleans?**

Booleans are mainly *true* or *false*, *0* or *1*. You can study from here: [Link](#).

### **How to do type conversion of values?**

This is the concept in which numbers can be converted into string and vice versa. So to do this refer to this [Link](#).

### **What is Hoisting?**

This is the main concept of Javascript. In this concept variables can be used before its declared. You can study about it from here [Link](#).

### **What is “use strict”?**

This is the new concept. It stops the behaviour of Hoisting. You can study from here [Link](#).

### **What is the use of *this* keyword?**

As you know Javascript is basically prototype based object oriented language. So *this* keyword is most important to understand. You can study from here [Link](#).

### **How can we create classes in Javascript?**

This is the new concept which comes in ES6. To learn about this use [Link](#).

### **Other concepts which you can learn from Javascript are:**

1. [Debugging](#)
2. [Arrow Functions](#)
3. [JSON](#)
4. [Error Handling](#)

### **Javascript Object concepts:**

1. [Basic Intro](#)
2. [Properties](#)
3. [Methods](#)
4. [Display](#)
5. [Accessors](#)
6. [Constructor](#)
7. [Prototypes](#)

### **Javascript Function Concepts:**

1. [Definition](#)
2. [Parameters](#)
3. [Invocation](#)
4. [Call](#)
5. [Apply](#)
6. [Closure](#)



## **Week 7**

### **Javascript Classes Concept:**

1. [Intro](#)
2. [Inheritance](#)
3. [Static Methods](#)

### **How to access HTML using JS?**

Before studying this we need to study what is HTML DOM. So let's understand this from this [Link](#).

### **How to find HTML Elements through JS?**

These can be through following methods:

1. document.getElementById()
2. document.getElementsByTagName()
3. document.getElementsByClassName()
4. document.querySelectorAll()

You can study these all from here [Link](#).

### **How to change HTML using JS?**

This is something with which you can create, delete and change content of HTML. You can study about these from here [Link](#).

### **How to change CSS style from JS?**

With this concept we can change CSS properties from Javascript. You can study some basic concepts from here [Link](#). For doing some animation property changes you can study here [Link](#).

### **How to access Document from JS?**

To remove, add and change any particular thing from a document through Javascript we have a list of methods which we can use. To study all these you can use this [Link-1](#), [Link-2](#), [Link-3](#), [Link-4](#).

### **What are HTML DOM Events?**

These are some events with which we can execute JS code whenever that is performed on HTML Element. You can get a basic intro from this [Link](#). The basic ones are:

1. Onclick
2. Onload
3. Onchange

You can study about these events from this list [Link](#).

### **How to listen to a particular event?**

This will help you listen to all the events performed on HTML Elements. You can study about this from here [Link](#).

### **How DOM Navigation works?**

This is not about URL change. This is the relationship between each DOM Node and DOM Tree structure. This is compulsory to understand properly because this helps you to apply all the above concepts. You can study this concept from here [Link](#).

### **What is Browser Object Model (BOM)?**

This is the object in which we can access the properties and methods of the Browser window. These methods and properties can change according to the browser. You can get some basic intro from here [Link](#).

#### **Basic Concepts of BOM:**

1. [Screen Info](#)
2. [Location Info](#)
3. [History](#)
4. [Navigator](#)
5. [Alerts](#)
6. [Timing Functions](#)
7. [Cookies](#)

### **How to check HTML Forms validations and other Form API's?**

As we have studied HTML Forms where we define groups of inputs and collect data from that form. But sometimes these inputs have some particular validations which make the user enter data correctly. You can study this from here [Link-1](#), [Link-2](#).

### **How to access Web API from JS?**

In HTML we have defined some API's which we can access from Javascript also. There is the list of following:

1. [Intro](#)
2. [History](#)
3. [Storage](#)
4. [Geolocation](#)

## **Week 8**

### **JSON Concepts in Javascript:**

1. [Introduction](#)
2. [Syntax](#)
3. [Data Type](#)
4. [Parsing](#)
5. [Stringify](#)
6. [Object](#)
7. [Array](#)

**Before jumping into Server API implementation, I would like to go into these basic concepts:**

1. XMLHttpRequest or JS Ajax - [Link](#)

2. JQuery Ajax - [Link](#)
3. HTTP - [Link](#)

The above mentioned concepts help you to understand how data flow between Browser and Server. The first one is quite old one which we will not use for learning. We will start from the second point.

**Request Types Available:** [Link](#)

**Response Handling from API:** [Link](#)

**Making API request from JQuery Ajax:** [Link-1](#), [Link-2](#)

**What is synchronous and asynchronous?**

Synchronous is the process in which all processes occur one by one.

Asynchronous are those processes which take time to complete without blocking any next process.

**How to handle Async methods in JS?**

As we all know Javascript is synchronous which executes line wise. But javascript has some additional methods which makes it Async also. To handle those Async process here are some listed out concepts which you can use:

1. [Callback](#)
2. [Inbuilt Methods](#)
3. [Promises](#)
4. [Async/Await](#)

## **Week 9**

**What is Typescript?**

Typescript is also a Javascript but with some additional things. That is why it's called the Superset of Javascript. You can learn it from here: [Link](#), [Video Link](#).

**How to start work on Typescript?**

In this you will learn how you will set up Typescript on your own local system. You can learn it from here: [Link](#), [Video Link-1](#), [Video Link-2](#).

**What are the advantages of Typescript?**

You can get to know about advantage from here: [Link](#)

**What is the Basic Syntax of Typescript?**

These are the set of rules for coding in Typescript which you have to learn from here: [Link](#).

**What are the Types in Typescript?**

These are the different types of values supported in that. You can learn it from here: [Link](#), [Video Link-1](#), [Video Link-2](#).

**How to declare variables in Typescript?**

Variable declaration is the main part of coding. You have to understand which variable is of which data type and then assign the correct value to that variable. You can study that thing from this [Link](#).

### **What are Operators in Typescript?**

With Operators you can do anything with variables. You can study it from here [Link](#).

### **What are Functions in Typescript?**

Functions have various concepts involved in Typescript. You can study all those concepts from these links: [Link-1](#), [Video Link-1](#), [Video Link-2](#), [Video Link-3](#).

### **Other Useful Concepts are:**

1. [Number](#)
2. [String](#)
3. [Array](#)
4. [Objects](#)

[Video Link](#) for Numbers, String and Boolean

[Video Link](#) for Objects

[Video Link](#) for Arrays

## **Week 10**

### **Unique Concepts on Types:**

1. Tuples: [Link](#), [Video Link](#)
2. Union: [Link](#), [Video Link](#)
3. Enums: [Video Link](#)
4. Any: [Video Link](#)
5. Literal: [Video Link](#)
6. Aliases: [Video Link](#)
7. Unknown: [Video Link](#)
8. Never: [Video Link](#)
9. Interfaces: [Link](#), [Video Link](#)
10. Generic: [Link](#)

### **What are Classes in Typescript?**

It is basically an Object with some properties and methods defined in that. Classes have some other concepts as well. You can study that from this [Link](#).

### **How to create Namespaces in Typescript?**

This is very important to understand. Because it will cause complexity and errors if you choose the same naming for some group of code. So you can study that from here: [Link](#)

### **What is Destructuring in Typescript?**

This is defining or getting values from Array, Object and functions without defining any new variable. You can study it from here [Link](#)

### **What are Modules?**

Modules are to reuse our code and not repeat anything. In this also import and export module concepts came. You can study all these from here [Link](#).

### **What is a Decorator?**

These are mostly used in Angular. So you must keep good knowledge of this. Study it from here: [Link](#)

### **Other coding concepts of Typescript:**

1. [Arrow Function](#)
2. [Spread](#)
3. [Ambients](#)

To set up and create a project of Typescript you can refer to this Video [Link](#). To get more knowledge about Typescript refer this official [Link](#).

## **Week 11**

### **What is Angular?**

Angular is an application design framework and development platform for creating efficient and sophisticated single-page apps.

### **What is Single Page Application (SPA) and difference between SPA and Multi Page?**

You can study it from here: [Link](#).

### **What are advantages and disadvantages of Angular?**

You can get this from here: [Link](#).

### **What architecture Angular follows?**

You can study this from here: [Link](#)

### **How to set up Angular in a Local Machine?**

There are various online links available for that. But let's just describe some unique of them:

1. Install Node.js in your machine. Refer this [Link](#)
2. Now open your command prompt and type `node -v` and `npm -v`.
3. The above method will tell you the version of node and npm installed in your system. If it doesn't appear in any version then Node.js is not installed properly.
4. Now run this command to `npm install -g @angular/cli` install Angular.
5. The above point will install Angular Globally in your Machine.
6. Now run `ng --version` to check the version of Angular and it will tell you if Angular installed or not.

Now the Angular is installed. So let's study with which commands you can start your projects. For more set up information refer this [Link](#).

### **What are CLI Command Lines?**

These command lines will help you initial setup of the project and other help with which you can do many things with one line of command on your command prompt. There are

many commands which you have to learn. As this step is very important to learn so keep all things in mind.

1. [Overview](#)
2. [Usage Analytics](#)
3. [ng add](#)
4. [ng analytics](#)
5. [ng build](#)
6. [ng config](#)
7. [ng deploy](#)
8. [ng doc](#)
9. [ng e2e](#)
10. [ng extract-i18n](#)
11. [ng generate](#)
12. [ng help](#)
13. [ng lint](#)
14. [ng new](#)
15. [ng run](#)
16. [ng serve](#)
17. [ng test](#)
18. [ng update](#)
19. [ng version](#)

## **Week 12**

### **What is the file structure of Angular project?**

Project generated through ng new command will give a folder with that project name. This folder will have many files and subfolders. Which you can learn from here: [Link](#)

### **What is Workspace Configuration?**

In Angular there is a file called *angular.json* which provides the two types of settings: Angular Setting and Project Settings. These two you can handle from this file. You can study it from here: [Link](#)

### **What is the role of Typescript in angular?**

Typescript is the primary language of Angular. We write our code mostly in this language. So it's important how it will compile and what are the settings we have to understand. Refer to this [Link](#).

### **What Browser does Angular Support?**

Angular supports most latest versions of browsers. You can get it from here: [Link](#)

### **What is strict mode in Angular?**

Strict mode is similar to what we have in Javascript. But with strict mode the new settings opened for the project which you can learn from here [Link](#).

**Components Concept:** This is the main building block of Angular Application. So you must study these following concepts of components.

1. [Overview](#) and [Introduction](#)
2. [Lifecycle Hooks](#)
3. [View Encapsulation](#)
  - a. Shadow DOM
  - b. Emulated
  - c. None
4. [Component Interaction](#)
  - a. Input Property
    - i. Getter/ Setter for Input Changes
    - ii. ngOnChanges Hook
  - b. Output Property
  - c. Local Variable
  - d. @ViewChild
  - e. Service
5. [Component Styles](#)
  - a. :host
  - b. :host-context
  - c. ::ng-deep or deep
6. [Data Sharing](#)

**Component Advance Concepts:**

1. [Dynamic Components](#)
2. [Angular Elements](#)

## **Week 13**

**Template Concepts:** With this you can do many things in Angular HTML files.

1. [Overview](#)
2. [Interpolations](#)
3. [Statements](#)
4. [Binding Syntax](#)
5. [Pipes](#)
  - a. Pure Pipes
  - b. Impure Pipes
6. [Property Binding](#)
7. [Style Binding](#)
  - a. NgClass
  - b. NgStyle
  - c. style.property

- d. attr.property
- e. Class.name
- 8. [Event Binding](#)
- 9. [Two way Binding](#)
- 10. [Template Reference Variables](#)
- 11. [Input and Outputs](#)

#### **Directives Concept:**

- 1. [Overview](#)
- 2. [Attribute Directive](#)
  - a. NgClass
  - b. NgStyle
- 3. [Structural Directive](#)
  - a. *ng-container*
  - b. *ng-template*
  - c. *ng-content*
  - d. *\*ngIf*
  - e. *\*ngFor*
  - f. *\*ngSwitchCase* etc.

### **Week 14**

#### **Dependency Injection and Service Concept:**

- 1. [Introduction](#)
- 2. [Dependency Injections](#)
- 3. [DI Providers](#)
- 4. [DI in Actions](#)
- 5. [Hierarchical Injectors](#)
- 6. [Singleton Service](#)

#### **What are NgModules?**

These modules help us to extend our application liability more. There are many inbuilt modules available in Angular and you can create your individual ones also for project features. You can get basic ones from this [Link](#).

**Js Modules vs NgModules:** You can get basic details from here [Link](#)

### **Week 15**

#### **Module Concepts:**

- 1. [Intro](#)
- 2. [Bootstrapping](#)
- 3. [Mostly Used Modules](#)



4. [Types of Feature Modules](#)
5. [Entry Components](#)
6. [Feature Modules](#)
7. [Providing Dependencies](#)
8. [Lazy Loading](#)
9. [Sharing Modules](#)
10. [NgModule API](#)

## **Week 16**

### **What is Routing in Angular?**

As we all know Angular in SPA. But in this also we have a process to change Urls of the browser and load different UI according to that Url. This process is managed by Angular Routing.

### **Angular Routing Concepts:**

1. [Basic Introduction](#)
2. [Objective of Routing](#)
3. [Definition of Routes](#)
4. [Register Router or Routes](#)
5. [Router Outlet](#)
6. [Wildcard Route](#)
7. [Redirects](#)
8. [Routing Module](#)
  - a. [Integration](#)
  - b. [Refactoring Routing in Module](#)
  - c. [Benefits](#)
9. [Route Parameters](#)
10. [Activated Route](#), [ActivatedRoute Service](#)
11. [Route Navigation](#)
12. [Prepare Child Routes](#)
  - a. [Child Route Components](#)
  - b. [Route Configuration](#)
  - c. [Relative Navigation](#)
  - d. [Navigation by relative Url](#)
13. [Route Guards](#)
  - a. [CanActivate](#)
  - b. [CanActivateChild](#)
  - c. [CanDeactivate](#)
  - d. [CanLoad](#)
  - e. [Resolve](#)

- f. [Query Params](#)
- 14. [Lazy Loading](#)
  - a. [Preload](#)
  - b. [Custom Preload](#)
- 15. [Redirecting from Url to Another](#)
- 16. [Debug and Inspect Routing](#)
- 17. [Router Events](#)

## **Week 17**

### **What are Angular Forms?**

Forms are actually to collect data from users interacting with our application. Angular similarly have two types of Forms: Reactive and Template Driven. You can get the basic intro of both these and differences from this [Link](#).

### **Angular Forms Concepts:**

1. [Reactive Forms](#)
  - a. FormModule
  - b. FormGroup
  - c. FormArray
  - d. FormBuilder
  - e. Controls
2. [Template Driven Form](#)
  - a. NgForm
  - b. NgModel
3. [Validation In Forms](#)
  - a. Reactive Validations:
    - i. Sync Validations
    - ii. Async Validations
    - iii. Custom Validators
    - iv. Inbuilt Validators
  - b. Template Driven Validations:
    - i. Inbuilt Validations
    - ii. Custom Validations
4. [Dynamic Forms](#)

## **Week 18**

### **What are Promises?**

Promises are used to handle async operations in Javascript. Async operations are like API Calls, Ajax Calls, Http Calls, Events etc. These all can be handled with Promises.

You can study about these from this [Link](#).

### **Promise Concepts:**

1. [Intro](#)
2. Promise States
3. Promise Chaining
4. Error Handling

### **How does async/await works?**

This is the concept in which an asynchronous function has to wait for completion if await syntax is written there. After that the next statement will execute. You can study this from here [Link](#).

### **What are Observables?**

These are also similar like Promises and callbacks. They used the same concepts for which Promise and callbacks are used. You can get a basic Intro from this [Link-1](#), [Link-2](#).

### **Observable Concepts:**

1. Operators & Subscriptions: [Link-1](#), [Link-2](#), [Link-3](#)
2. Built in Observables: [Link](#)
3. Custom Operators: [Link](#)
4. Subject & Behaviour Subject: [Link](#)
5. Hot & Cold Observable: [Link](#)
6. Error Handling in Observable: [Link](#)

These all above concepts are introduced in **RxJs Library**. This library is specially developed for async operations. You can study the other Observables from the official document of [RxJS](#).

The other famous thing in RxJs is Operators. With this we can do many things. You can get a basic intro of this and its from this [Link](#).

## **Week 19**

### **How have we used Observable in Angular?**

Angular Observables have a main area. Without this it's just a normal Javascript Framework. You can get full knowledge of this from this [Link](#).

### **What is Angular Serving and Build?**

Angular serve will help you to run Angular projects on a local machine. This also helps you to create environment variables in your project. You can study all these from this [Link](#).

### **What is HttpClientModule?**

This is the module with which you can Get and Send data from Client browser to Backend server.

### **HttpClient Concepts:**

1. [Setup](#)
2. [Requesting Data](#)
  - a. [Typed Response](#)
  - b. [Full Response](#)
  - c. [JSONP Request](#)
  - d. [Get Non JSON Data](#)
3. [Request Errors](#)
  - a. [Get Error](#)
  - b. [Retry Failed Request](#)
4. [Sending Data to server](#)
  - a. [POST](#)
  - b. [Delete](#)
  - c. [Put](#)
  - d. [Adding & Updating Headers](#)
5. [HTTP Url Params](#)
6. [Intercepting Request and Response](#)
  - a. [Create Interceptor](#)
  - b. [Next](#)
  - c. [Provide Interceptor](#)
  - d. [Interceptor Order](#)
  - e. [Interceptor Events](#)
  - f. [Default Header](#)
  - g. [Interceptor For Logging](#)
  - h. [For Caching](#)
  - i. [For Multiple Values](#)
7. [Track & Show Request Progress](#)
8. [Debounce with Server API](#)
  - a. [switchMap operator](#)

## **Week 20**

### **How does Angular compilation work?**

Angular compilations is divided into two parts: Local and Production Compilations. These settings can be handled in *angular.json* file. Angular as these compilers available: Just in Time(JIT), Ahead of Time(AOT). You can study the basics from this [Link](#).

### **How does AOT compiler work?**

AOT compilation has many processes involved. Please study full from here [Link](#).

### **AOT Concepts:**

1. [Compiler Options](#)

2. [Metadata Errors](#)
3. [Template Type Checking](#)

Next generation compilation in Angular is launched in Angular 9 version. It's called an Ivy compiler. So this you can study from here: [Link](#).

### **What is localized in Angular?**

Localized is actually a process in which we define each with local things like date formats, Currency Symbols, Language etc. This we can do in Angular. Please study this from [@angular/localize](#)

### **How can we create multiple Language Web applications?**

This process is called i18n means (internationalization). I18n because internationalization has 20 characters. You can study this from here: [Link](#).

### **What is Server Side Rendering(SSR)?**

This is mainly used for getting better performance of applications. All content of the application will come from Server on which our application is hosted. That is why its called Server Side Rendering. You can study this from here: [Link](#)

## **Week 21**

### **Angular other useful concepts:**

1. Service Workers or PWA
  - a. [Intro](#)
  - b. [Setup](#)
  - c. [Configuration](#)
  - d. [In Production](#)
  - e. [Communication](#)
2. [@viewChild](#)
3. [@viewChildren](#)
4. [@contentChild](#)
5. [@contentChildren](#)
6. [FormArray](#)
7. [Webpack](#)
8. [Webpack-bundle-analyzer](#)
9. [Security](#)

**Best of Luck !! Now we can start some Mini Projects which are practical of all above study.**

