



**CourseCube®**  
( Formerly Java Learning Center )

# Angular 7

## Study Guide

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## Introduction to Angular

### What is Angular?

- Angular is an open source client side JavaScript Framework.
- Angular is developed by Google.
- Angular gives complete solution for rapid and awesome front-end development.
- Angular combines declarative templates, dependency injection, end to end tooling and integrated best practice to solve development challenges.
- Angular empowers developers to build application that live on the web, mobile or desktop.
- Built on Object Oriented Type Script Language for Easy Development.

### Key features of Angular.

- Client Side Scripting
- Best in Performance
- Device Independent
- OS Independent
- Mobile Rendering
- Rich UI
- Separation Of Concerns
- Dependency Injection
- Two way binding
- Services
- Components
- Modular Approach
- HTTP Calls
- SPA/Routing
- Directives/Pipes
- Hot Skill in 2020



## Setup Angular7

### 1) Install Node JS(10.15.3)

- Download from <https://nodejs.org/en>
- Install to E:\Nodejs)

### 2) Observe the following after Installation :

- You can see npm folder under C:\Users\SRINIVAS DANDE\AppData\Roaming
- NodeJS installed under E:\Nodejs

### 3) check the installation:

- npm --version

### 4) Install VisualSource Code

- Download from <https://code.visualstudio.com/Download>
- Install to E:\VSCode

### 5) Install Angular CLI

- Go to command prompt and type the following
- npm install -g @angular/cli@7

### 6) Create your First Angular project.

- Create the folder to keep all of your angular projects and go to that folder
- D:\Angular\MyLabs>ng new Lab1

### 7) Start the Server

- D:\Angular\MyLabs\Lab1>ng serve

### 8) Open the browser and hit the following url

- <http://localhost:4200>

### 9) Open your angular project in VS Code Editor

### 10) Explore the IMP files from Angular Project.

#### A. package.json =>

- All the dependencies required for angular project
- NPM download all dependencies based on this file only.

#### B. angular.json =>

- Build file.

#### C. main.ts=>

- List of Modules for this project
- BootStrap Module is Specified as AppModule.



**D. index.html=>**

- Starting Point of the Application while rendering.

**E. styles.scss =>**

- global styles goes here
- BootStrap Componet is Specified as AppComponet.

**F. app.module.ts =>**

- List of Components for this module
- BootStrap Componet is Specified as AppComponet.

**G. AppComponet related files=>**

- app.component.html (Component Template)
- app.component.scss (Component CSS) ---local styles goes here
- app.component.ts (Component Class)
- app.component.spec.ts(Component UnitTest).

**H. Play with First Angular Project.**

- How to Remove the Image?
- How to Remove the Hyperlinks?
- How to Display the Following output?

Welcome to CourseCube!!!

- How to Declare the variable called trainer in the app.component.ts

```
trainer = 'Srinivas Dande';
```

- How to Display the Following output?

You are Learning Angular 7 from Srinivas Dande

- How to Change selector name of App Component class?

```
selector: 'myroot'
```

- How Can I use selector name of App Component class?

```
<myroot></myroot>
```

- How to apply CSS Styles for <div>?

```
.myclass {  
    text-align: center;  
    box-sizing: content-box;  
    border: 2px solid red;  
    margin: 50px;  
}
```

```
<div class="myclass">  
    ....  
</div>
```



## Lab1 : Files Required

1. index.html	2. app.module.ts
3. app.component.ts	4. app.component.html
5. app.component.scss	

### 1. index.html

```
<!doctype html>
<html lang="en"> <body>
  <myroot></myroot>
</body> </html>
```

### 2. app.module.ts

```
import { BrowserModule } from '@angular/platform-browser';
import { NgModule } from '@angular/core';

import { AppComponent } from './app.component';

@NgModule({
  declarations: [ AppComponent ],
  imports: [ BrowserModule ],
  providers: [],
  bootstrap: [AppComponent]
})
export class AppModule {}
```

### 3. app.component.ts

```
import { Component } from '@angular/core';
@Component({
  selector: 'myroot',
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.scss']
})
export class AppComponent {
  title = 'CourseCube!!!';
  trainer = 'Srinivas Dande';
}
```



#### **4. app.component.html**

```
<div class="myclass">
  <h2> Welcome to {{ title }}! </h2>
  <h3> You are Learning Angular 7 from {{trainer}}</h3>
</div>
```

#### **5. app.component.scss**

```
.myclass {
  text-align: center;
  border: 2px solid red;
  margin: 50px;
  font-size: 25px;
}
```

### **Basic Flow:**

- 1) When send the request to localhost:4200 then , initial file to render is index.html
- 2) Index.html using <myroot> element .
- 3) Checks whether any component is there whose selector name is matching with element name or not.
- 4) If matching component is not found then error will be given.
- 5) if matching component is found then That component realated templateUrl will be displayed. (while rendering templateUrl - app.component.html , it uses CSS and Script).

### **Questions:**

Q1) How to Install Angular?

Ans:

Q2) How to UnInstall Angular?

Ans:

Q3) How to Create new Angular project?

Ans:

Q4) How to Run the Angular Application?

Ans:

Q5) How to Build the Angular Application?

Ans:



Q6) How to Run Unit Tests of Angular Application?

Ans:

Q7) What is the Default Starting point of rendering in angular application?

Ans:

Q8) What is the Default module ?

Ans:

Q9) What is the default Component?

Ans: .

Q10) What are the Names of Angular Component?

Ans:

Angular Component has two names.

- 1) Selector name
- 2) Component class name.

\*Selector name has to used html template

\*Component class name has to be used in another Component class.



## Lab2 : Files Required

1. index.html	2. app.module.ts
3. app.component.ts	4. app.component.html
5. app.component.css	6. student.component.ts
7. student.component.html	8. student.component.css
9. course.component.ts	10. course.component.ts
11. course.component.ts	12. student.model.ts
13. course.model.ts	

### **1. index.html**

```
<!doctype html>
<html lang="en"> <body>
  <myroot></myroot>
</body> </html>
```

### **2. app.module.ts**

```
import { BrowserModule } from '@angular/platform-browser';
import { NgModule } from '@angular/core';

import { AppComponent } from './app.component';
import { StudentComponent } from './student/student.component';
import { CourseComponent } from './course/course.component';

@NgModule({
  declarations: [
    AppComponent,    StudentComponent,    CourseComponent
  ],
  imports: [    BrowserModule    ],
  providers: [],
  bootstrap: [AppComponent]
})
export class AppModule { }
```

### **3. app.component.ts**

```
import { Component } from "@angular/core";

@Component({
  selector: "myroot",
  templateUrl: "./app.component.html",
  styleUrls: ["./app.component.css"]
```



```
})  
export class AppComponent {  
}
```

#### 4. app.component.html

```
<div class="myclass">  
  <h2>Welcome to Java Learning Center</h2>  
  <h3>You are learning Angular from Srinivas Dande</h3>  
</div>  
  
<jlc-student> </jlc-student>
```

#### 5. app.component.css

```
.myclass {  
  text-align: center;  
  border: 2px solid red;  
  border-radius: 5px;  
  margin: 5px;  
}
```

#### 6. student.component.ts

```
import { Component, OnInit } from "@angular/core";  
import { Student } from "../student.model";  
  
@Component({  
  selector: "jlc-student",  
  templateUrl: "./student.component.html",  
  styleUrls: ["./student.component.css"]  
})  
export class StudentComponent {  
  sid: number;  
  sname: string;  
  email: string;  
  phone: number;  
  city: string;  
  
  mystudent: Student = null;
```



```
constructor() {  
    this.sid = 101;  
    this.sname = "Sri";  
    this.email = "sri@jlc.com";  
    this.phone = 12345;  
    this.city = "Blore";  
  
    this.mystudent = new Student();  
  
    this.mystudent.sid = 102;  
    this.mystudent.sname = "Vas";  
    this.mystudent.email = "Vas@jlc.com";  
    this.mystudent.phone = 54321;  
    this.mystudent.city = "Blore";  
}  
}
```

## 7. student.component.html

```
<div class="stu-class">  
    <p>Student Id : {{ sid }}</p>  
    <p>Student Name : {{ sname }}</p>  
    <p>Email Id : {{ email }}</p>  
    <p>Phone Number : {{ phone }}</p>  
    <p>City : {{ city }}</p>  
    <jlc-course></jlc-course>  
</div>  
  
<div class="stu-class">  
    <p>Student Id : {{ mystudent.sid }}</p>  
    <p>Student Name : {{ mystudent.sname }}</p>  
    <p>Email Id : {{ mystudent.email }}</p>  
    <p>Phone Number : {{ mystudent.phone }}</p>  
    <p>City : {{ mystudent.city }}</p>  
    <jlc-course></jlc-course>  
</div>
```



## **8. student.component.css**

```
.stu-class {  
    text-align: left;  
    margin-left: 15px;  
    border: 2px solid red;  
    border-radius: 5px;  
    margin: 5px;  
    padding: 15px;  
    float: left;  
    width: 45%;  
    font-size: 20px;  
}
```

## **9. course.component.ts**

```
import { Component, OnInit } from "@angular/core";  
import { Course } from "../course.model";
```

```
@Component({  
    selector: "jl-course",  
    templateUrl: "./course.component.html",  
    styleUrls: ["./course.component.css"]  
})  
export class CourseComponent {  
    mycourse: Course = null;  
    showCourse: boolean = false;  
    constructor() {  
        this.mycourse = new Course();  
        this.mycourse.cid = 11;  
        this.mycourse.cname = "Angular";  
        this.mycourse.trainer = "Srinivas Dande";  
        this.mycourse.price = 16000;  
        this.mycourse.isActive = true;  
    }  
}
```

```
public showCourseInfo(): void {  
    this.showCourse = !this.showCourse;  
}  
}
```



## 10. course.component.html

```
<button (click)="showCourseInfo()">Show Course Details</button>
<div class="cou-class" *ngIf="showCourse">
  <p>Course Id : {{ mycourse.cid }}</p>
  <p>Course Name : {{ mycourse.cname }}</p>
  <p>Trainer : {{ mycourse.trainer }}</p>
  <p>Price : {{ mycourse.price }}</p>
  <p>Active : {{ mycourse.isActive }}</p>
</div>
```

## 11. course.component.css

```
.cou-class {
  text-align: left;
  margin-left: 15px;
  border: 2px solid red;
  border-radius: 5px;
  margin: 5px;
  padding: 15px;
  font-size: 20px;
}
```

## 12. student.model.ts

```
export class Student {
  sid: number;
  sname: string;
  email: string;
  phone: number;
  city: string;
  constructor() {}
}
```

## 13. course.model.ts

```
export class Course {
  cid: number;
  cname: string;
  trainer: string;
  price: number;
  isActive: boolean;

  constructor() {}
}
```



### Lab3 : Files Required

1. index.html	2. app.module.ts
3. app.component.ts	4. app.component.html
5. app.component.css	6. student.component.ts
7. student.component.html	8. student.component.css
9. course.component.ts	10. course.component.ts
11. course.component.ts	12. student.model.ts
13. course.model.ts	

1. index.html
2. app.module.ts
3. app.component.ts
4. app.component.html
5. app.component.css
6. student.component.ts

```
import { Component, OnInit } from "@angular/core";
import { Student } from "../Student.model";
import { Course } from "../Course.model";
```

```
@Component({
  selector: "jlc-student",
  templateUrl: "./student.component.html",
  styleUrls: ["./student.component.css"]
})
export class StudentComponent {
  mystudent: Student = null;
  mycourse: Course = null;
```

```
constructor() {
  console.log("StudentComponent - Con");
```

```
  this.mystudent = new Student();
  this.mystudent.sid;
```

```
  this.mystudent.sid = 101;
  this.mystudent.sname = "Sri";
  this.mystudent.email = "Sri@jlc.com";
  this.mystudent.phone = 54321;
  this.mystudent.city = "Blore";
```



```
this.mycourse = new Course();
this.mycourse.cid = 99;
this.mycourse cname = "Angular 7";
this.mycourse.trainer = "Srinivas Dande";
this.mycourse.price = 15000;
this.mycourse.isActive = true;
}
}
```

## 7. student.component.html

```
<div class="stu-class">
<p>Student Id : {{ mystudent.sid }}</p>
<p>Student Name : {{ mystudent.sname }}</p>
<p>Email Id : {{ mystudent.email }}</p>
<p>Phone Number : {{ mystudent.phone }}</p>
<p>City : {{ mystudent.city }}</p>
<jlc-course [CourseData]="mycourse"></jlc-course>
</div>
```

## 8. student.component.css

## 9. course.component.ts

```
import { Component, OnInit, Input } from "@angular/core";
import { Course } from "../Course.model";
```

```
@Component({
  selector: "jlc-course",
  templateUrl: "./course.component.html",
  styleUrls: ["./course.component.css"]
})
```

```
export class CourseComponent {
  showCourse: boolean = false;
```

```
  @Input()
  CourseData: Course;
```

```
  constructor() {
    console.log("CourseComponent - Con");
  }
```



```
public showCourseInfo(): void {  
    this.showCourse = !this.showCourse;  
}  
}
```

## 10. course.component.html

```
<button (click)="showCourseInfo()">Show Course Details</button>  
<div class="cou-class" *ngIf="showCourse">  
    <p>Course Id : {{ CourseData.cid }}</p>  
    <p>Course Name : {{ CourseData cname }}</p>  
    <p>Trainer : {{ CourseData.trainer }}</p>  
    <p>Price : {{ CourseData.price }}</p>  
    <p>Active : {{ CourseData.isActive }}</p>  
</div>
```

## 11. course.component.css

## 12. student.model.ts

## 13. course.model.ts

## Lab4 : Files Required

1. index.html	2. app.module.ts
3. app.component.ts	4. app.component.html
5. app.component.css	6. student.component.ts
7. student.component.html	8. student.component.css
9. course.component.ts	10. course.component.ts
11. course.component.ts	12. student.model.ts
13. course.model.ts	

## 1. index.html

## 2. app.module.ts

## 3. app.component.ts

```
import { Component } from "@angular/core";  
import { Course } from "./Course.model";  
import { Student } from "./Student.model";  
  
@Component({  
    selector: "app-root",  
    templateUrl: "./app.component.html",  
    styleUrls: ["./app.component.css"]  
})
```



```
export class AppComponent {  
    mystudent: Student = null;  
    constructor() {  
        console.log("StudentComponent - Con");  
  
        this.mystudent = new Student();  
        this.mystudent.sid;  
  
        this.mystudent.sid = 1001;  
        this.mystudent.sname = "Srinivas";  
        this.mystudent.email = "Srinivas@jlc.com";  
        this.mystudent.phone = 55555;  
        this.mystudent.city = "Blore";  
  
        this.mystudent.mycourse = new Course();  
  
        this.mystudent.mycourse.cid = 99;  
        this.mystudent.mycourse cname = "Angular 7";  
        this.mystudent.mycourse.trainer = "Srinivas ";  
        this.mystudent.mycourse.price = 20000;  
        this.mystudent.mycourse.isActive = true;  
    }  
}
```

#### 4. app.component.html

```
<div class="myclass">  
    <h2>Welcome to Java Learning Center</h2>  
    <h3>You are learning Angular from Srinivas Dande</h3>  
</div>  
  
<jlc-student [StudentData]="mystudent"> </jlc-student>
```

#### 5. app.component.css

#### 6. student.component.ts

```
import { Component, OnInit, Input } from "@angular/core";  
import { Student } from "../Student.model";  
import { Course } from "../Course.model";
```



```
@Component({
  selector: "jlc-student",
  templateUrl: "./student.component.html",
  styleUrls: ["./student.component.css"]
})
export class StudentComponent {
  @Input()
  StudentData: Student;
  constructor() {}
}
```

## 7. student.component.html

```
<div class="stu-class">
  <p>Student Id : {{ StudentData.sid }}</p>
  <p>Student Name : {{ StudentData.sname }}</p>
  <p>Email Id : {{ StudentData.email }}</p>
  <p>Phone Number : {{ StudentData.phone }}</p>
  <p>City : {{ StudentData.city }}</p>
  <jlc-course [CourseData]="StudentData.mycourse"></jlc-course>
</div>
```

## 8. student.component.css

## 9. course.component.ts

```
import { Component, OnInit, Input } from "@angular/core";
import { Course } from "../Course.model";
```

```
@Component({
  selector: "jlc-course",
  templateUrl: "./course.component.html",
  styleUrls: ["./course.component.css"]
})
export class CourseComponent {
  showCourse: boolean = false;
  @Input()
  CourseData: Course;
  constructor() {
    console.log("CourseComponent - Con");
  }
}
```



```
public showCourseInfo(): void {  
    this.showCourse = !this.showCourse;  
}  
}
```

## 10. course.component.html

```
<button (click)="showCourseInfo()">Show Course Details</button>  
<div class="cou-class" *ngIf="showCourse">  
    <p>Course Id : {{ CourseData.cid }}</p>  
    <p>Course Name : {{ CourseData cname }}</p>  
    <p>Trainer : {{ CourseData.trainer }}</p>  
    <p>Price : {{ CourseData.price }}</p>  
    <p>Active : {{ CourseData.isActive }}</p>  
</div>
```

## 11. course.component.css

## 12. student.model.ts

```
import { Course } from "./Course.model";
```

```
export class Student {  
    sid: number;  
    sname: string;  
    email: string;  
    phone: number;  
    city: string;  
    mycourse: Course;  
    constructor() {}  
}
```

## 13. course.model.ts

```
export class Course {  
    cid: number;  
    cname: string;  
    trainer: string;  
    price: number;  
    isActive: boolean;  
    constructor() {}  
}
```



## Lab5 : Files Required

1. index.html	2. app.module.ts
3. app.component.ts	4. app.component.html
5. course.model.ts	6. app.component.scss

### **1. index.html**

### **2. app.module.ts**

```
import { BrowserModule } from '@angular/platform-browser';
import { NgModule } from '@angular/core';

import { AppComponent } from './app.component';

@NgModule({
  declarations: [
    AppComponent
  ],
  imports: [
    BrowserModule
  ],
  providers: [],
  bootstrap: [AppComponent]
})
export class AppModule { }
```

### **3. app.component.ts**

```
import { Component } from '@angular/core';
import { Course } from './course.model'

@Component({
  selector: 'myroot',
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.scss']
})
export class AppComponent {
  //Properties
  cname : string ="Angulra 7";
  cost : number= 20000;
  trainer : string = "Srinivas Dande";
  startDate : Date = new Date();
  isOnline : boolean =false;
```



```
//Objects
course : Course ={
  cname :"Angulra 7",
  cost : 20000,
  trainer : "Srinivas Dande",
  duration: '25Hrs',
}
//Arrays
courseNames :string[]=[ "Angular 7","Node JS","MongoDB","Express JS","React JS"];
//Lists or Array of Objects
mycourses:Course[]=[

  {cname:"Angular 7",cost:10000,trainer:"Srinivas Dande",duration:"25Hrs"},
  {cname:"Node JS",cost:5000,trainer:"Srinivas Dande",duration:"10Hrs"},
  {cname:"MongoDB",cost:6000,trainer:"Srinivas Dande",duration:"5Hrs"},
  {cname:"Express JS",cost:4000,trainer:"Srinivas Dande",duration:"5Hrs"},

];
//Methods or Functions
showMessage1(){
  alert("You clicked on Button");
}
showMessage2(name:string,email:string){
  alert("Hi "+name+" Your Email is "+email);
}
getCourseInfo(course:Course){
  alert("Hi Course name: "+course.cname+" Cost : "+course.cost);
}
}
```

#### 4. app.component.html

```
<div class="myclass">
<h3>Welcome to Java Learning Center!!!</h3>
<h4>You are Learning Angular 7 from Srinivas Dande</h4>
<hr />
<h3>Using Event Binding</h3>
<button (click)="showMessage1()">Click Here</button>
<button (click)="showMessage2('Srinivas', 'sri@cc.com')">Click Here</button>
<hr />
```



```
<h3>Using Properties</h3>


|                 |                 |
|-----------------|-----------------|
| CourseName      | {{ cname }}     |
| Cost            | {{ cost }}      |
| Trainer Name    | {{ trainer }}   |
| Start Date      | {{ startDate }} |
| Is Online Class | {{ isOnline }}  |


```

```
<hr />
<h3>Using Objects</h3>


|              |                      |
|--------------|----------------------|
| CourseName   | {{ course.cname }}   |
| Cost         | {{ course.cost }}    |
| Trainer Name | {{ course.trainer }} |


```



```
</tr>
<tr>
<td>Statd Date</td>
<td>{{ course.duration }}</td>
</tr>
</table>

<hr />
<h3>Using Arrays</h3>
<ul>
<ol *ngFor="let cou of courseNames">
  {{ cou }}<br/>
</ol>
</ul>
<hr />
<h3>Using Lists</h3>
<table>
<tr>
<th>Course Name</th>
<th>Cost</th>
<th>Trainer Name</th>
<th>Duration</th>
</tr>
<tr *ngFor="let mycou of mycourses">
<td>{{ mycou.cname }}</td>
<td>{{ mycou.cost }}</td>
<td>{{ mycou.trainer }}</td>
<td>{{ mycou.duration }}</td>
<td>
<button (click)="getCourseInfo(mycou)">View Data</button>
</td>
</tr>
</table>
</div>
```



## 5. course.model.ts

```
export class Course{  
    cname :String;  
    cost : number;  
    trainer :string;  
    duration:string;  
  
    constructor(){  }  
}
```

## 6. app.component.css

```
.myclass {  
    text-align: left;  
    border: 2px solid red;  
    margin: 15px;  
    padding-left: 20px;  
    font-size: 25px;  
}
```