

## Assignment 4: Angular

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### Project Scenario

You have been approached by a Car Dealership company XYZ Cars. As part of their new initiative, you are asked to set up a basic Angular application to which Angular components will be added. You are supposed to setup an Angular environment.

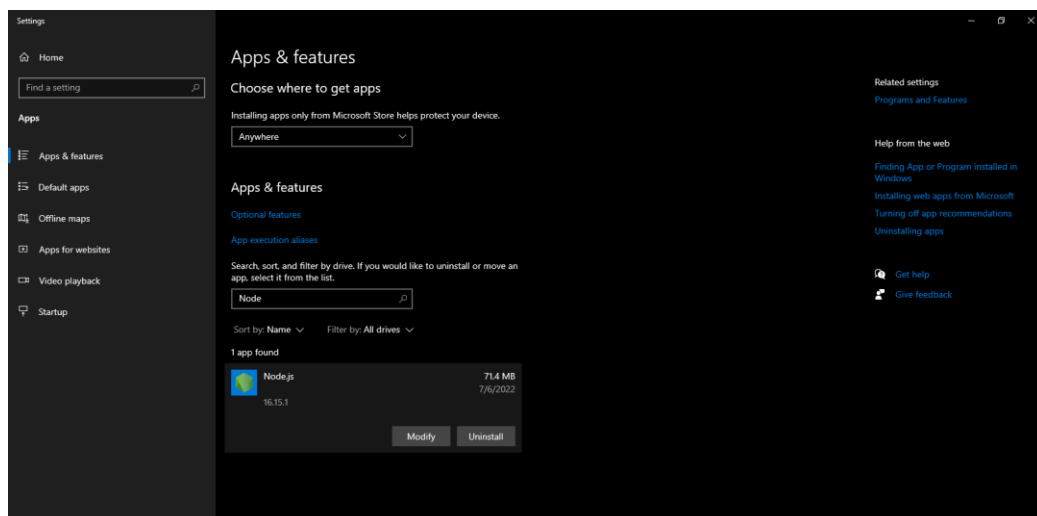
#### 1. Setup NodeJS

```
C:\> Command Prompt

Microsoft Windows [Version 10.0.19043.1706]
(c) Microsoft Corporation. All rights reserved.

C:\Users\PC>node -v
v16.15.1

C:\Users\PC>
```



#### 2. Setup an Angular Project using Angular CLI

```
C:\> npm install

Microsoft Windows [Version 10.0.19043.1706]
(c) Microsoft Corporation. All rights reserved.

L:\angular 10>ng new carsdealership
? Would you like to add Angular routing? Yes
? Which stylesheet format would you like to use? CSS
```

```

CREATE carsdealership/angular.json (2962 bytes)
CREATE carsdealership/package.json (1045 bytes)
CREATE carsdealership/README.md (1068 bytes)
CREATE carsdealership/tsconfig.json (863 bytes)
CREATE carsdealership/.editorconfig (274 bytes)
CREATE carsdealership/.gitignore (348 bytes)
CREATE carsdealership/.browserslistrc (680 bytes)
CREATE carsdealership/karma.conf.js (1431 bytes)
CREATE carsdealership/tsconfig.app.json (287 bytes)
CREATE carsdealership/tsconfig.spec.json (333 bytes)
CREATE carsdealership/.vscode/extensions.json (130 bytes)
CREATE carsdealership/.vscode/launch.json (474 bytes)
CREATE carsdealership/.vscode/tasks.json (938 bytes)
CREATE carsdealership/src/favicon.ico (948 bytes)
CREATE carsdealership/src/index.html (300 bytes)
CREATE carsdealership/src/main.ts (372 bytes)
CREATE carsdealership/src/polyfills.ts (2338 bytes)
CREATE carsdealership/src/styles.css (80 bytes)
CREATE carsdealership/src/test.ts (749 bytes)
CREATE carsdealership/src/assets/.gitkeep (0 bytes)
CREATE carsdealership/src/environments/environment.prod.ts (51 bytes)
CREATE carsdealership/src/environments/environment.ts (658 bytes)
CREATE carsdealership/src/app/app-routing.module.ts (245 bytes)
CREATE carsdealership/src/app/app.module.ts (393 bytes)
CREATE carsdealership/src/app/app.component.html (23364 bytes)
CREATE carsdealership/src/app/app.component.spec.ts (1097 bytes)
CREATE carsdealership/src/app/app.component.ts (218 bytes)
CREATE carsdealership/src/app/app.component.css (0 bytes)
- Installing packages (npm)...

```

```

✓ Packages installed successfully.
'git' is not recognized as an internal or external command,
operable program or batch file.

```

```

L:\angular 10>cd carsdealership

```

```

L:\angular 10\carsdealership>_

```

### 3. Run the Angular Project using ng serve --open

```

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS L:\angular 10\carsdealerships> ng serve --open
✓ Browser application bundle generation complete.

Initial Chunk Files | Names          | Raw Size
vendor.js           | vendor         | 2.30 MB
polyfills.js        | polyfills      | 315.33 kB
styles.css, styles.js | styles        | 207.36 kB
main.js             | main           | 24.51 kB
runtime.js          | runtime        | 6.53 kB

| Initial Total | 2.84 MB

Build at: 2022-07-08T08:59:57.406Z - Hash: 91e6797c7cedc705 - Time: 66717ms

** Angular Live Development Server is listening on localhost:4200, open your browser on http://localhost:4200/ **

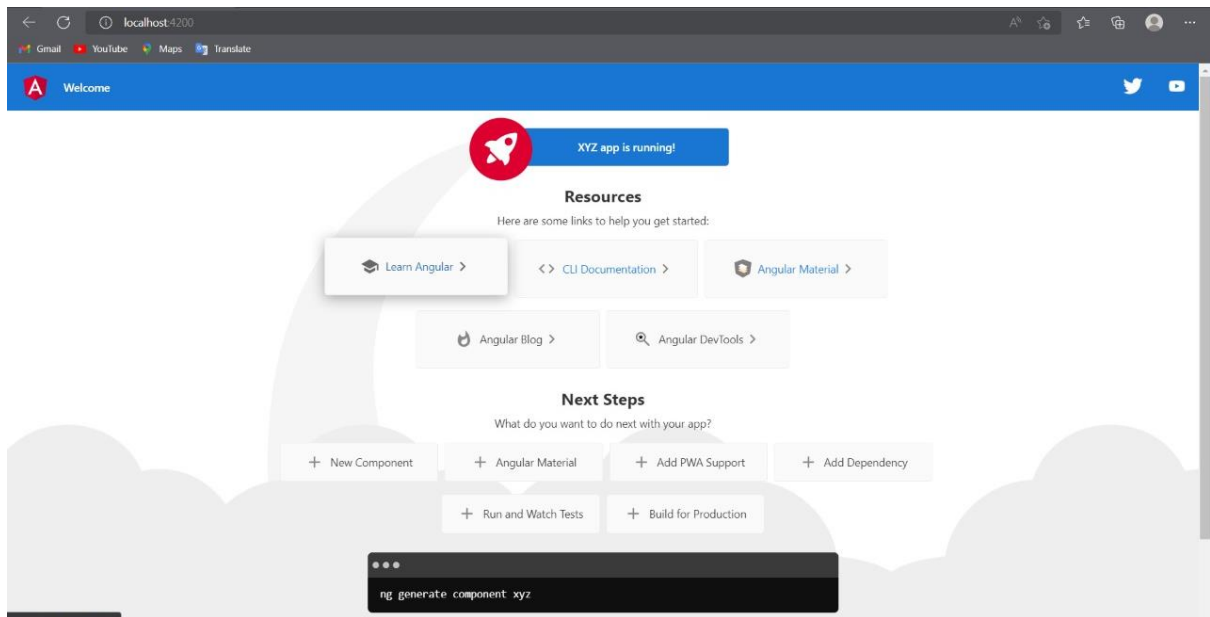
✓ Compiled successfully.
✓ Browser application bundle generation complete.

5 unchanged chunks

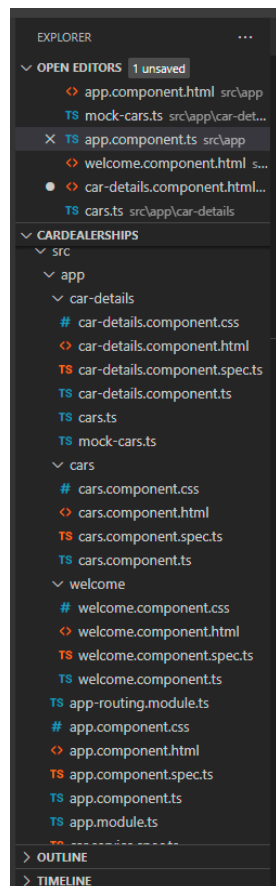
Build at: 2022-07-08T09:00:10.865Z - Hash: 91e6797c7cedc705 - Time: 7041ms

✓ Compiled successfully.

```



4. Provide the script to generate an Angular Component using Angular CLI  
**Ng generate component <componentname>**  
**ng g c <component name>**



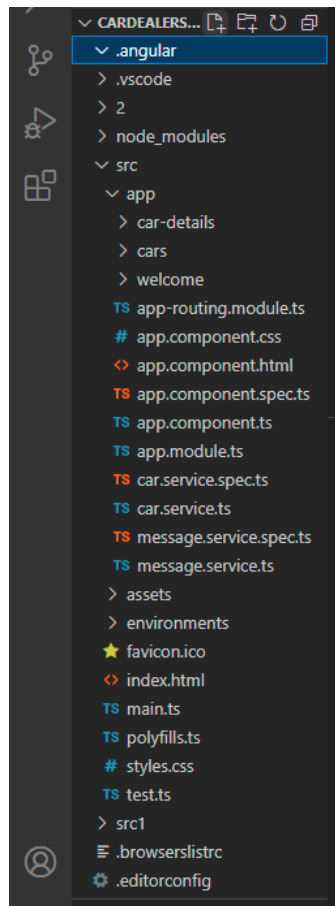
## 5. Generate an Angular Component called WelcomeComponent

```
PS L:\angular 10\carsdealership> ng generate component welcome
CREATE src/app/welcome/welcome.component.html (22 bytes)
CREATE src/app/welcome/welcome.component.spec.ts (606 bytes)
CREATE src/app/welcome/welcome.component.ts (279 bytes)
CREATE src/app/welcome/welcome.component.css (0 bytes)
UPDATE src/app/app.module.ts (479 bytes)
PS L:\angular 10\carsdealership>
```

## 6. Include the text “Welcome to XYZ Cars...” in the Component

```
<> welcome.component.html X
src > app > welcome > <> welcome.component.html
Go to component
1 <div>
2 |   <h1>Welcome XYZ CAR SALE !</h1>
3 </div>
4 <br>
5 <div>
6 |   
7 </div>
8
9 <style>
10   h1 {
11     text-align: center;
12     position: absolute;
13     padding: 1px;
14     margin: 220px;
15     text-shadow: rgb(147, 6, 6) 3px 4px 3px;
16   }
17
18   img {
19     box-shadow: rgb(21, 22, 21) 3px 5px 5px;
20   }
21 </style>
22
23
```

## 7. Include the Component created as part of AppComponent



## 8. Create 2 Components

```
PS L:\angular 10\carsdealership> ng generate component cars
CREATE src/app/cars/cars.component.html (19 bytes)
CREATE src/app/cars/cars.component.spec.ts (585 bytes)
CREATE src/app/cars/cars.component.ts (267 bytes)
CREATE src/app/cars/cars.component.css (0 bytes)
UPDATE src/app/app.module.ts (737 bytes)
```

```
PS L:\angular 10\carsdealership> ng generate component cardetails
CREATE src/app/cardetails/cardetails.component.html (25 bytes)
CREATE src/app/cardetails/cardetails.component.spec.ts (627 bytes)
CREATE src/app/cardetails/cardetails.component.ts (291 bytes)
CREATE src/app/cardetails/cardetails.component.css (0 bytes)
UPDATE src/app/app.module.ts (663 bytes)
```

- One for displaying Cars on Sale
  - ✓ Car.component.spec.ts

```
src > app > cars > TS cars.component.spec.ts > ...
1  import { ComponentFixture, TestBed } from '@angular/core/testing';
2
3  import { CarsComponentList } from './cars.component';
4
5  describe('CarsComponentList', () => {
6    let component: CarsComponentList;
7    let fixture: ComponentFixture<CarsComponentList>;
8
9    beforeEach(async () => {
10     await TestBed.configureTestingModule({
11       declarations: [CarsComponentList]
12     })
13     .compileComponents();
14   });
15
16   beforeEach(() => {
17     fixture = TestBed.createComponent(CarsComponentList);
18     component = fixture.componentInstance;
19     fixture.detectChanges();
20   });
21
22   it('should create', () => {
23     expect(component).toBeTruthy();
24   });
25 });
26
```

- ✓ Car.component.ts

```
> app.component.html TS app.component.ts TS cars.component.ts X
src > app > cars > TS cars.component.ts
1  import { Component, OnInit } from '@angular/core';
2
3  @Component({
4    selector: 'app-cars',
5    templateUrl: './cars.component.html',
6    styleUrls: ['./cars.component.css']
7  })
8  export class CarsComponentList implements OnInit {
9
10   constructor() { }
11
12   ngOnInit(): void {
13   }
14
15 }
16
```

- Details of a car which is being clicked
  - ✓ Car-details.component.spec.ts

```

TS car-details.component.spec.ts X TS cars.component.spec.ts
src > app > car-details > TS car-details.component.spec.ts > ...
1  import { ComponentFixture, TestBed } from '@angular/core/testing';
2
3  import { CarsComponent } from './car-details.component';
4
5  describe('CarsComponent', () => {
6    let component: CarsComponent;
7    let fixture: ComponentFixture<CarsComponent>;
8
9    beforeEach(async () => {
10     await TestBed.configureTestingModule({
11       declarations: [CarsComponent]
12     })
13     .compileComponents();
14   });
15
16   beforeEach(() => {
17     fixture = TestBed.createComponent(CarsComponent);
18     component = fixture.componentInstance;
19     fixture.detectChanges();
20   });
21
22   it('should create', () => {
23     expect(component).toBeTruthy();
24   });
25 });
26

```

- ✓ Car-details.component.ts

```

TS car-details.component.spec.ts TS car-details.component.ts X
src > app > car-details > TS car-details.component.ts > CarsComponent > getCars
1  import { Component, OnInit } from '@angular/core';
2  import { car } from './cars';
3  import { CARS } from './mock-cars';
4  import { CarService } from './car.service';
5  import { MessageService } from './message.service';
6  @Component({
7    selector: 'app-car-details',
8    templateUrl: './car-details.component.html',
9    styleUrls: ['./car-details.component.css']
10 })
11 export class CarsComponent implements OnInit {
12   selectedCar?: car;
13   cars = CARS;
14   Cars: car[] = [];
15   constructor(private carService: CarService, private messageService:
16     MessageService) { }
17
18   ngOnInit(): void {
19     this.getCars();
20   }
21   onSelect(car: car): void {
22     this.selectedCar = car;
23     this.messageService.add(`CarsComponent: Selected car id=${car.id}`);
24   }
25   getCars(): void {
26     this.carService.getCars()
27       .subscribe(cars => this.cars = cars);
28   }
29 }

```

## 9. Configure 2 Routes

```
src > app > TS app-routing.module.ts > AppRoutingModule
1  import { Component, NgModule } from '@angular/core';
2  import { RouterModule, Routes } from '@angular/router';
3  import { WelcomeComponent } from '../welcome/welcome.component';
4  import { CarsComponent } from '../car-details/car-details.component';
5
6  const routes: Routes = [
7    { path: 'welcome', component: WelcomeComponent },
8    { path: 'cars', component: CarsComponent }
9  ];
10
11
12  @NgModule({
13    imports: [RouterModule.forRoot(routes)],
14    exports: [RouterModule]
15  })
16  export class AppRoutingModule { }
17
```

## 10. Create a Custom Service to provide test Car Data with 3 fields, Make, Model, Year, Description & Car Photo & subscribe to the service

### 01) Car Service

```
PS L:\angular 10\carsdealership> ng generate service cars
CREATE src/app/cars.service.spec.ts (347 bytes)
CREATE src/app/cars.service.ts (133 bytes)
```

### ✓ Car service.spec.ts

```
car-details.component.spec.ts  TS car-details.component.ts  TS app-routing.module.ts  TS car.service.spec.ts X
app > TS car.service.spec.ts > ...
import { TestBed } from '@angular/core/testing';

import { CarService } from '../car.service';

describe('CarService', () => {
  let service: CarService;

  beforeEach(() => {
    TestBed.configureTestingModule({});
    service = TestBed.inject(CarService);
  });

  it('should be created', () => {
    expect(service).toBeTruthy();
  });
});
```



✓ Car service.ts

```
TS car-details.component.spec.ts TS car-details.component.ts TS app-routing.module.ts TS car.service.spec.ts TS carservice.ts X
src > app > TS carservice.ts
1 import { Injectable } from '@angular/core';
2 import { CARS } from './car-details/mock-cars';
3 import { car } from './car-details/cars';
4 import { Observable, of } from 'rxjs';
5 import { MessageService } from './message.service';
6
7 @Injectable({
8   providedIn: 'root'
9 })
10 export class CarService {
11   getCars(): Observable<car[]> {
12     const cars = of(CARS);
13     this.messageService.add('CarService: fetched heroes');
14     return cars;
15   }
16   constructor(private messageService: MessageService) { }
17 }
18
```

## 02) Message Service

```
PS L:\angular 10\carsdealership> ng generate service message
CREATE src/app/message.service.spec.ts (362 bytes)
CREATE src/app/message.service.ts (136 bytes)
```

✓ Message service.sepc.ts

```
TS message.service.spec.ts X TS message.service.ts
src > app > TS message.service.spec.ts > describe('MessageService') callback
1 import { TestBed } from '@angular/core/testing';
2
3 import { MessageService } from './message.service';
4
5 describe('MessageService', () => {
6   let service: MessageService;
7
8   beforeEach(() => {
9     TestBed.configureTestingModule({});
10    service = TestBed.inject(MessageService);
11  });
12
13   it('should be created', () => {
14     expect(service).toBeTruthy();
15   });
16 });
17
```

## ✓ Message service.ts

```
TS message.service.ts X
src > app > TS message.service.ts > ...
1  import { Injectable } from '@angular/core';
2
3  @Injectable({
4    providedIn: 'root'
5  })
6  export class MessageService {
7    messages: string[] = [];
8    add(message: string) {
9      this.messages.push(message);
10   }
11
12   clear() {
13     this.messages = [];
14   }
15   constructor() { }
16 }
17
```

## 03)Car.ts

```
app.component.html TS mock-cars.ts welcome.comp
src > app > car-details > TS cars.ts > ...
1  export class car {
2    id: string | undefined
3    name: string | undefined
4    model: string | undefined
5    make: string | undefined
6    year: number | undefined
7    price: string | undefined
8    photo: string | undefined
9
10   id2: String | undefined
11   name2: string | undefined
12   model2: string | undefined
13   make2: string | undefined
14   year2: number | undefined
15   price2: string | undefined
16   photo2: string | undefined
17
18 }
```

## 04)mock-cars.ts

```
app.component.html TS mock-cars.ts X welcome.component.html car-details.component.html TS cars.ts
src > app > car-details > TS mock-cars.ts > @CARS
1  import { car } from './cars';
2
3  export const CARS: car[] = [
4    {
5      id: '#2013B678', name: 'BMW', price: '$34,998', model: 'BMW X6', year: 2013, make: 'America', photo: '3-series-gran-limousine-exterior-r',
6      id2: '#2013B678', name2: 'BMW', price2: '$38,899', model2: 'BMW R9', year2: 2013, make2: 'America', photo2: '14361_089-removebg-preview.png'
7    },
8    { id: '#XY22021B6', name: 'BMW', price: '$53000', model: '8 series ', year: 2021, make: 'Germany', photo: '2_1_-removebg-preview.png',
9      id2: '#2013B678', name2: 'BMW', price2: '$38,899', model2: 'BMW R9', year2: 2013, make2: 'America', photo2: '14361_089-removebg-preview.png'
10   },
11   { id: '#XY22022R3', name: 'RollsRoyce', price: '$920000', model: 'Phantom ', year: 2022, make: 'UK', photo: 'Rolls-Royce_Phanom_2022-removebg-preview.png',
12     id2: '#2013B678', name2: 'BMW', price2: '$38,899', model2: 'BMW R9', year2: 2013, make2: 'America', photo2: '14361_089-removebg-preview.png'
13   },
14   ],
15
16 ]
```

## 11. Include the 2 Components in the AppComponent

### 01) Car Details

#### ✓ Car-details.component.html

```
car-details.component.html X
src > app > car-details > car-details.component.html
1 <h2>Car Details</h2>
2 <ul class="cars">
3   <li *ngFor="let car of cars" [class.selected]="car === selectedCar" (click)="onSelect(car)">
4     <span class="badge">{{car.id}}</span> {{car.name}}
5   </li>
6 </ul>
7
8 <div *ngIf="selectedCar">
9   <h2>{{selectedCar.name | uppercase}} Details</h2>
10  <div><span>Id: </span>{{selectedCar.id}}</div>
11  <div><span>Name: </span>{{selectedCar.name}}</div>
12  <div><span>Year: </span>{{selectedCar.year}}</div>
13  <div><span>Model: </span>{{selectedCar.model}}</div>
14  <div><span>Make: </span>{{selectedCar.make}}</div>
15  <div><span>Price: </span>{{selectedCar.price}}</div>
16  <div></div>
17
18
19 </div>
```

#### ✓ Car-details.component.spec.ts

```
car-details.component.spec.ts X
src > app > car-details > car-details.component.spec.ts > ...
1 import { ComponentFixture, TestBed } from '@angular/core/testing';
2
3 import { CarsComponent } from './car-details.component';
4
5 describe('CarsComponent', () => {
6   let component: CarsComponent;
7   let fixture: ComponentFixture<CarsComponent>;
8
9   beforeEach(async () => {
10     await TestBed.configureTestingModule({
11       declarations: [CarsComponent]
12     })
13     .compileComponents();
14   });
15
16   beforeEach(() => {
17     fixture = TestBed.createComponent(CarsComponent);
18     component = fixture.componentInstance;
19     fixture.detectChanges();
20   });
21
22   it('should create', () => {
23     expect(component).toBeTruthy();
24   });
25 });
26
```

#### ✓ Car-details.component.ts

```
car-details.component.ts X
src > app > car-details > car-details.component.ts > CarsComponent > get Cars
1 import { Component, OnInit } from '@angular/core';
2 import { car } from './cars';
3 import { CARS } from './mock-cars';
4 import { CarService } from './car.service';
5 import { MessageService } from './message.service';
6 @Component({
7   selector: 'app-car-details',
8   templateUrl: './car-details.component.html',
9   styleUrls: ['./car-details.component.css']
10 })
11 export class CarsComponent implements OnInit {
12   selectedCar?: car;
13   cars = CARS;
14   cars: car[] = [];
15   constructor(private carService: CarService, private messageService:
16     MessageService) { }
17
18   ngOnInit(): void {
19     this.getCars();
20   }
21
22   onSelect(car: car): void {
23     this.selectedCar = car;
24     this.messageService.add('CarsComponent: Selected car id-{{car.id}}');
25   }
26
27   getCars(): void {
28     this.carService.getCars()
29       .subscribe(cars => this.cars = cars);
30   }
31 }
```

## 02) welcome

### ✓ Welcome.component.html

```
welcome.component.html X
src > app > welcome > welcome.component.html > ...
Go to component
1 <div>
2   <h1>Welcome XYZ CAR SALE !</h1>
3 </div>
4 <br>
5 <div>
6   
7 </div>
8
9 <style>
10   h1 {
11     text-align: center;
12     position: absolute;
13     padding: 1px;
14     margin: 220px;
15     text-shadow: 2px 2px 4px #000;
16   }
17
18   img {
19     box-shadow: 2px 2px 4px #000;
20   }
21 </style>
22
23
```

### ✓ Welcome.component.spec.ts

```
TS welcome.component.spec.ts X welcome.component.html
src > app > welcome > TS welcome.component.spec.ts > ...
1 import { ComponentFixture, TestBed } from '@angular/core/testing';
2
3 import { WelcomeComponent } from './welcome.component';
4
5 describe('WelcomeComponent', () => {
6   let component: WelcomeComponent;
7   let fixture: ComponentFixture<WelcomeComponent>;
8
9   beforeEach(async () => {
10     await TestBed.configureTestingModule({
11       declarations: [ WelcomeComponent ]
12     })
13     .compileComponents();
14
15     fixture = TestBed.createComponent(WelcomeComponent);
16     component = fixture.componentInstance;
17     fixture.detectChanges();
18   });
19
20   it('should create', () => {
21     expect(component).toBeTruthy();
22   });
23
24
```

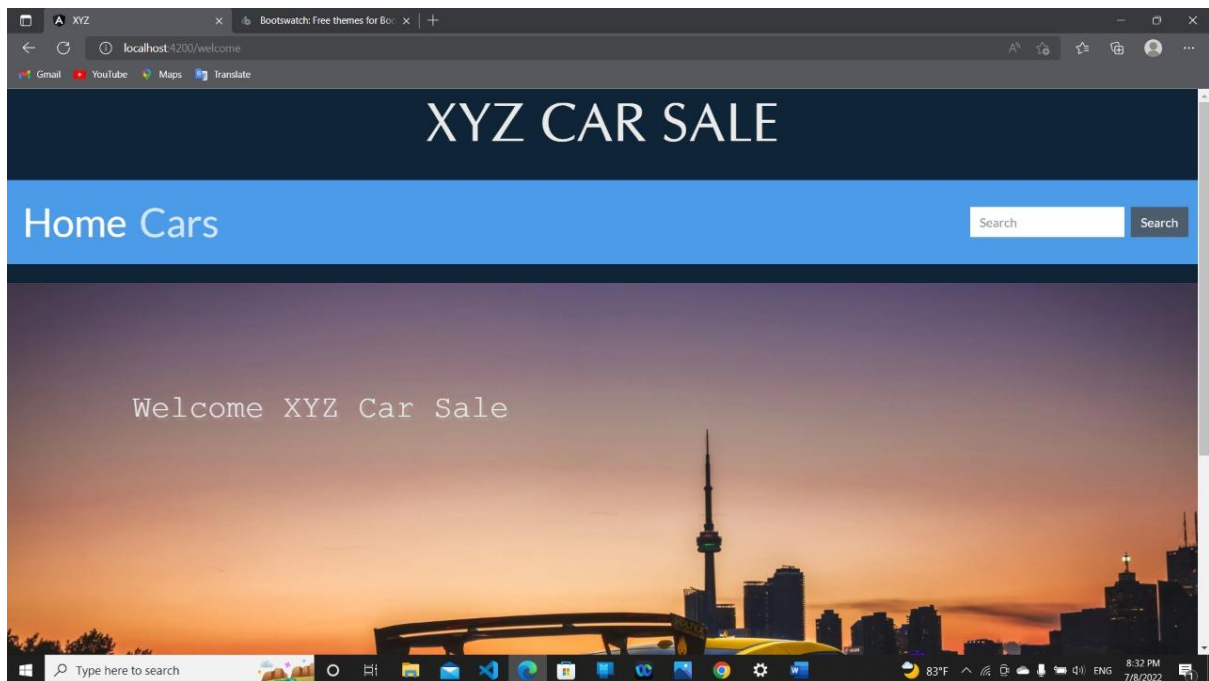
### ✓ Welcome.component.ts

```
TS welcome.component.ts X
src > app > welcome > TS welcome.component.ts > ...
1 import { Component, OnInit } from '@angular/core';
2
3 @Component({
4   selector: 'app-welcome',
5   templateUrl: './welcome.component.html',
6   styleUrls: ['./welcome.component.css']
7 })
8 export class WelcomeComponent implements OnInit {
9
10   constructor() { }
11
12   ngOnInit(): void {
13   }
14
15 }
16
```

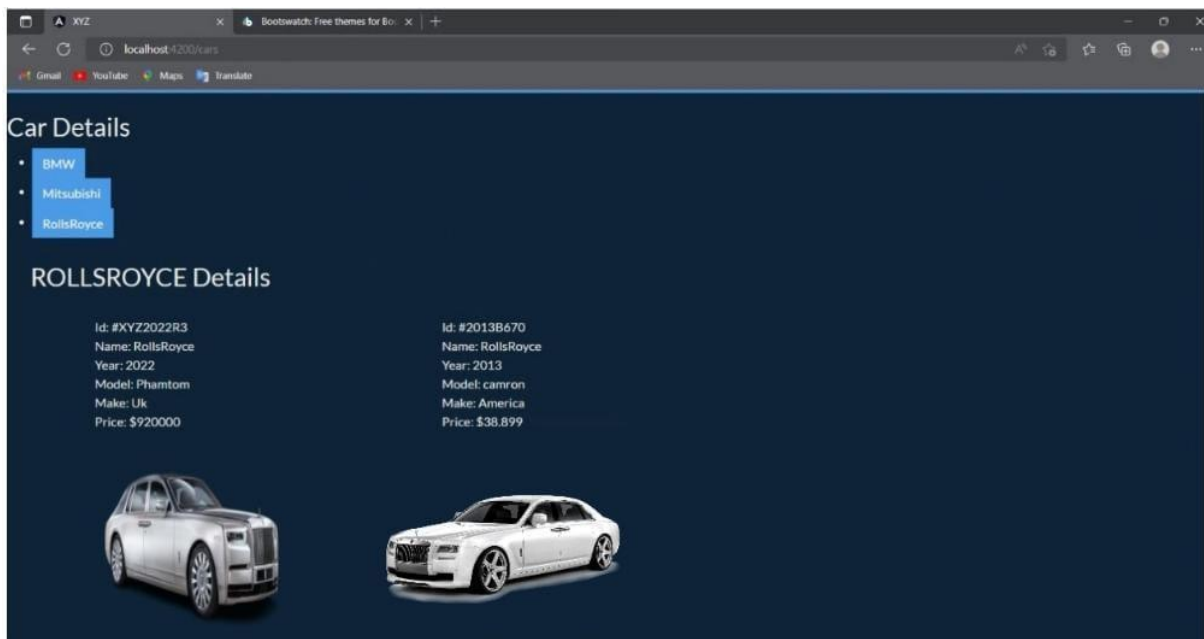
12) The final project should have a Welcome Screen, List of Cars Screen and Car Detail Screen

Provide screen capture & Sources

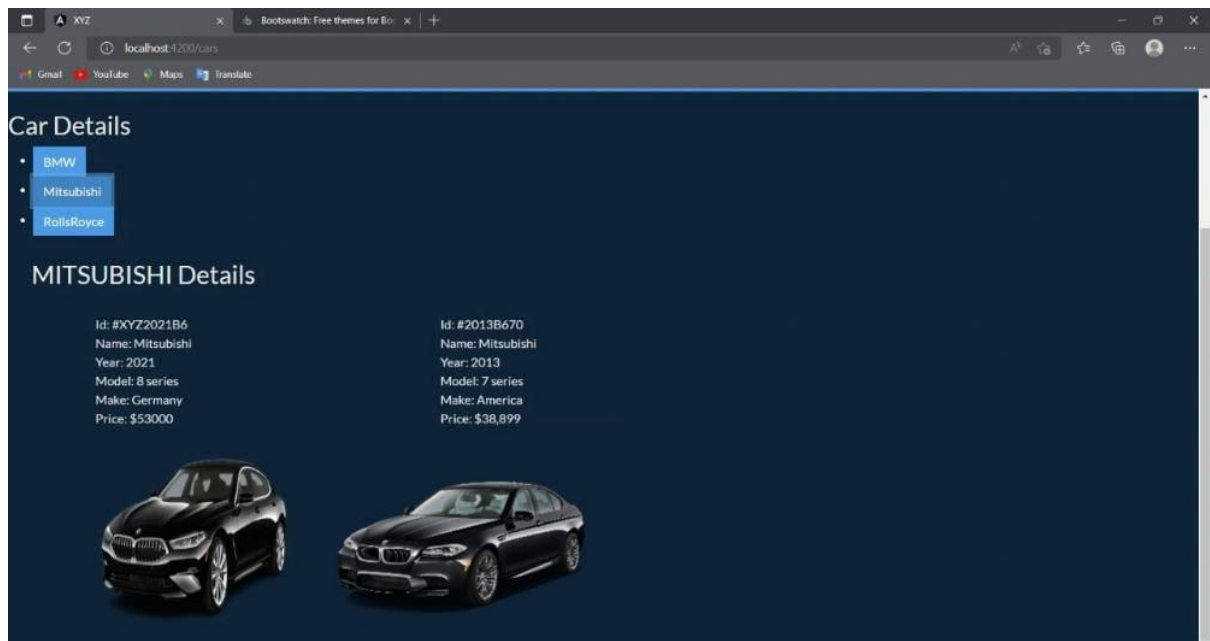
✓ Welcome



✓ Car Detail -Rolls-Royce



## ✓ Car details - Mitsubishi



## Zip File of Source Codes



Assignment4.zip