## Angular Training

(Intermediate to Advanced)



#### Narasimha

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#### Schedule for Angular Training

Day#	Date	Topic
Day-1	16-Nov-2023	Custom Pipes in Angular
Day-2	17-Nov-2023	Parent-Child Communication
Day-3	20-Nov-2023	Custom Directives in Angular
Day-4	21-Nov-2023	Working with Reactive Forms
Day-5	22-Nov-2023	Dependency Injection and Services in Angular
Day-6	23-Nov-2023	Http Client – Server calls in Angular
Day-7	24-Nov-2023	Routing and Security in Angular
Day-8	27-Nov-2023	Unit Testing in Angular

Duration: 8 days (2hours per day); 2pm to 4 pm; 16<sup>th</sup> Nov – 27<sup>th</sup> Nov

# Day-8 Unit Testing Angular Applications



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#### Index – Day8

- Introduction to Unit Testing
- AAA pattern of Unit Testing
- Jasmine and Karma
- Assert Methods in Jasmine
- Writing Unit Test Cases
  - Testing Components Class
  - Testing Components Template (UI Elements)
  - Testing Events and Data Binding Props



### Introduction to Unit Testing

#### **Introduction to Unit Testing**

- A unit test is a way of testing a unit the smallest piece of code that can be logically isolated in a system.
- In most programming languages, that is a function, a subroutine, a method or property.
- Unit testing is considered part of the programming phase, with the developer who wrote the program.

#### **Introduction to Unit Testing**

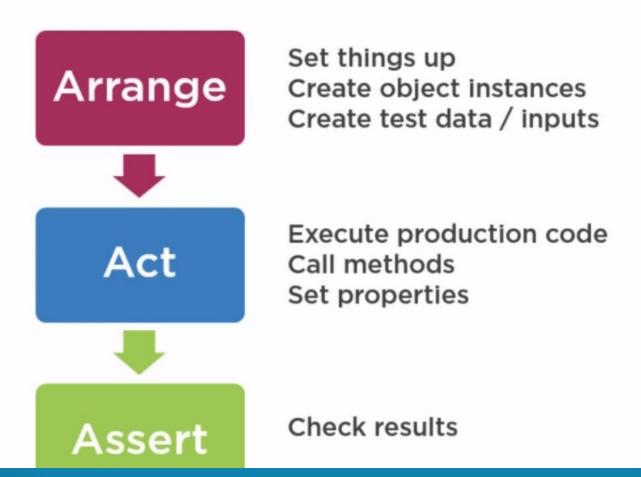
#### • Benefits:

- keep code maintainable
- Keep code understandable
- Keep code debug-able
- Keep code bug-free



### AAA pattern of Unit Testing

#### The Logical Phases of an Automated Test





### Jasmine and Karma

#### **Jasmin and Karma**



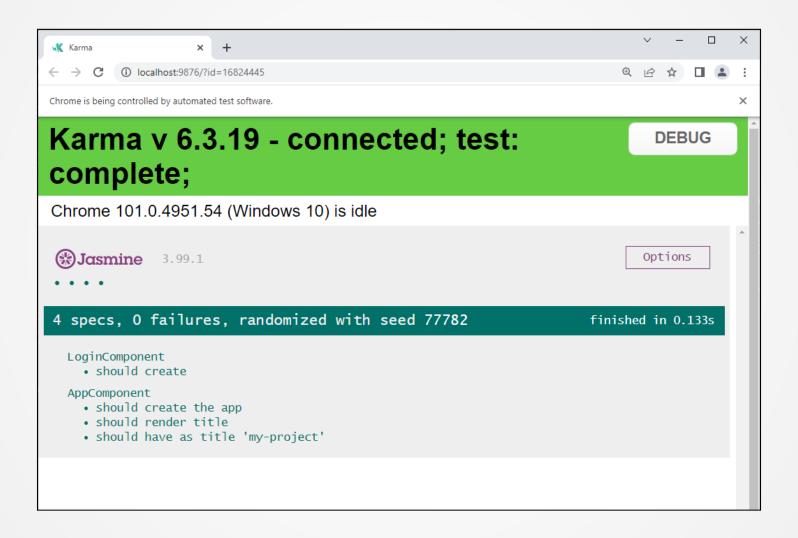
#### 1. Jasmine

- Jasmine is an open-source testing framework for JavaScript.
- It aims to run on any JavaScript-enabled platform, provides easy-to-read syntax.

#### 2. Karma

- Karma is essentially a tool which provides a web server that executes source code against test code for each of the browsers connected.
- Its automatically start the browsers and generate the results: pass and failure of unit tests

#### **Jasmin and Karma**





### **Assert Methods**

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Sr. IT Trainer/Consultant

#### **Assert Methods**

Jasmine test library provides several assert functions to check the results of unit test.

- 1. Expect function: Used to create an assertion that compares an actual value with an expected value.
- 2. Mather functions: Matchers are functions that take one or more arguments and return a boolean value indicating if the actual value matches the expected value.

#### **Assert Methods**

- expect(app).toBeTruthy();
- expect(str).toBe("Welcome to Admin");
- expect(str).toContain("Welcome");
- expect(app.title).toEqual('my-project2');



### Writing Unit Test Cases

#### **TestBed**

- 1. Module: @angular/core/testing
- 2. Important Types: TestBed, ComponentFixture
- 3. Methods:
  - describe(): define a suite i.e group of tests cases
  - it(): define a individual spec or test
  - expect(): assertion implementation

#### **TestBed**

- TestBed is the primary API for writing unit tests for Angular applications and libraries.
- Configures and initializes environment for unit testing and provides methods for creating components and services in unit tests.
- The TestBed creates a dynamically-constructed Angular test module that emulates an Angular @NgModule.

#### **TestBed**

 The TestBed.configureTestingModule() method takes a metadata object that can have most of the properties of an @NgModule.

```
TestBed.configureTestingModule({
    declarations: [ LoginComponent ],
    imports : [FormsModule]
    })
```

#### **Sample Tests**

```
it('should create the app', async(() => {
   const fixture = TestBed.createComponent(AppComponent);
   const app = fixture.debugElement.componentInstance;
   expect(app).toBeTruthy();
}));
```

```
it(`should have as title 'app'`, async(() => {
   const fixture = TestBed.createComponent(AppComponent);
   const app = fixture.debugElement.componentInstance;
   expect(app.title).toEqual('app');
}));
```

# Practical HandsOns

