



## Java Full Stack Angular content

SI No	Module	Topics	Objectives
1	Web UI	HTML - Intro., Structure, Section, Header, Footer	• Identify the applications and benefits of HTML
			• Demonstrate creating valid web page with title
			• Describe HTML document Structure
			• Demonstrate usage of Header, Footer and Section tags appropriately
			• Demonstrate usage of Heading, Paragraphs and List tags to compile a document
			• Demonstrate usage of image tag to display image
2	Web UI	HTML - Image, Anchor, Table, Block and Inline Elements	• Demonstrate usage of anchor tag to navigate between pages
			• Demonstrate usage of table tag to display a list of items
			• Demonstrate usage of Blocks and Inline to align content within the document
			• Demonstrate usage of Form to group input elements and submit form data
			• Demonstrate usage of Input and text area
3	Web UI	HTML - Forms	• Demonstrate usage of Select and Option tag to define list of items
			• Demonstrate linking of form field with Label
			• List the options available in HTML5 form fields
			• Explain the need and benefits of CSS
			• Recall correct syntax for defining a style
4	Web UI	CSS - Basics	• Demonstrate various ways of application of styles
			• Demonstrate usage of various selectors
			• Demonstrate formatting of HTML elements
			• Demonstrate Box Model in CSS
			• Need and Benefits of JavaScript
			• Demonstrate various options available to include JavaScript in HTML
			• Demonstrate handling events for validations
5	Web UI	JavaScript - Intro., Functions, DOM	• Use functions to handle form validations
			• Use variables to store numbers and text
			• Explain Document Object Model
			• Use document object to read form values
			• Demonstrate string manipulation using built-in methods
			• Use method isNaN() to check if form value entered is a number or not
6	Web UI	JavaScript - Variables, Operators, Forms	• Use conditional statements, relational operators and logical operators to validate form field values
			• Use alerts to display messages

			<ul style="list-style-type: none"> <li>• Use form object to submit the form</li> </ul>
			<ul style="list-style-type: none"> <li>• Identify the applications and benefits of Bootstrap</li> </ul>
7	Web UI	Bootstrap - Intro, Grid System, Nav Bar	<ul style="list-style-type: none"> <li>• Demonstrate bootstrap usage with starter template</li> </ul>
			<ul style="list-style-type: none"> <li>• Demonstrate RWD using Grid System</li> </ul>
			<ul style="list-style-type: none"> <li>• Demonstrate creation of navigation bar</li> </ul>
			<ul style="list-style-type: none"> <li>• Demonstrate creation of navigation bar items</li> </ul>
			<ul style="list-style-type: none"> <li>• Demonstrate collapsing navigation items</li> </ul>
8	Web UI	Bootstrap - Nav Items, Chrome Dev Tools, Badge, List	<ul style="list-style-type: none"> <li>• Demonstrate troubleshooting UI issues using Chrome Developer Tools</li> </ul>
			<ul style="list-style-type: none"> <li>• Demonstrate using badge component</li> </ul>
			<ul style="list-style-type: none"> <li>• Demonstrate using third party icons in web page design</li> </ul>
			<ul style="list-style-type: none"> <li>• Demonstrate displaying a list of items</li> </ul>
9	Web UI	Bootstrap - Cards	<ul style="list-style-type: none"> <li>• Demonstrate displaying a card with image, title and body</li> </ul>
			<ul style="list-style-type: none"> <li>• Demonstrate displaying list of cards with RWD</li> </ul>
			<ul style="list-style-type: none"> <li>• Demonstrate using third party date picker in web page</li> </ul>
10	Web UI	Bootstrap - Date Picker, Form Elements, Style Customization	<ul style="list-style-type: none"> <li>• Demonstrate displaying form elements with RWD</li> </ul>
			<ul style="list-style-type: none"> <li>• Demonstrate customizing bootstrap styles</li> </ul>
			<ul style="list-style-type: none"> <li>• Explain the characteristics of a Single Page Application (SPA)</li> </ul>
			<ul style="list-style-type: none"> <li>• Describe the Single Page Application Lifecycle</li> </ul>
11	SPA	Angular - Intro, Benefits	<ul style="list-style-type: none"> <li>• Demonstrate usage of JavaScript objects</li> </ul>
			<ul style="list-style-type: none"> <li>• Demonstrate usage of JavaScript Object Notation (JSON)</li> </ul>
			<ul style="list-style-type: none"> <li>• Explain the need and benefits of Angular</li> </ul>
			<ul style="list-style-type: none"> <li>• Describe the difference between AngularJS and Angular</li> </ul>
			<ul style="list-style-type: none"> <li>• List key features of ECMAScript6 (ES6)</li> </ul>
			<ul style="list-style-type: none"> <li>• Explain the need and benefits of TypeScript</li> </ul>
12	SPA	Angular - TypeScript	<ul style="list-style-type: none"> <li>• Demonstrate compilation and execution of a typescript file</li> </ul>
			<ul style="list-style-type: none"> <li>• Demonstrate defining objects using data types, interfaces and classes</li> </ul>
			<ul style="list-style-type: none"> <li>• Interpret how to implement functions and for .. of in TypeScript</li> </ul>
			Demonstrate creation of angular application
13	SPA	Angular - Displaying Data, Karma	Demonstrate displaying data using interpolation, ngIf and ngFor
			Demonstrate using pipes to format number and date Demonstrate karma test case creation with DOM reading
			Demonstrate creation of component
14	SPA	Angular - Component, Routing, Event Handling, Two Way Biding	Demonstrate routing
			Demonstrate event handling and two way binding
15	SPA	Angular - Template Driven Forms	
			Demonstrate implementation of forms using Template Driven Forms with validations
16	SPA	Angular - Reactive Forms	Demonstrate implementation of forms using Reactive Forms with validations

17	SPA	Angular - Component Interaction	Demonstrate implementation of interaction between components
18	SPA	Angular - Service, Auth Guard	Demonstrate implementation of service
			Demonstrate protecting routes using auth guard
19	SPA	Angular - HttpClient	Demonstrate using HttpClient to invoke web service
20	SPA	Angular - Protractor, Build and Deploy	Demonstrate end to end testing using Protractor
			Demonstrate building and deploying an angular application in web server
			• Describe the need and benefits of Java
			• Demonstrate compilation and execution of a Java program
			• Describe the difference between JDK, JVM and JRE
21	Java	Intro, Platform, Syntax, Variables	• Explain how Java is platform independent
			• Write a valid java program with correct file name, compilation error free, comments, spacing and indentation
			• Demonstrate usage of variable with assignment of value
			• Explain the importance of keywords
22	Java	Keywords, Operators, Conditional Statements	• Use the arithmetic operators in an expression
			• Demonstrate getting user input from keyboard
			• Use conditional statements
			• Demonstrate creation and usage of String
23	Java	String, Arrays, Loops	• Demonstrate creation and manipulation of Arrays
			• Use loops to execute block of statements
			• Write reusable / modular methods
24	Java	Methods, Class, Object, static	• Describe Class & Objects
			• Explain the benefit of wrapper classes
			• Define and use static variables (class variables)
25	Java	OOPS - Encapsulation, Inheritance	• Demonstrate Encapsulation
			• Demonstrate Inheritance
26	Java	OOPS - Polymorphism, Abstraction	• Demonstrate Polymorphism
			• Demonstrate inheritance using Abstract class
27	Java	Interface, Object methods	• Demonstrate Inheritance using Interface
			• Demonstrate usage of Object class
			• Demonstrate usage of packages
			• Explain usage of Access Modifiers
28	Java	Package, Modifier, Exceptions	• Explain the need and benefit of custom exception
			• Explain Unchecked Exceptions
			• Demonstrate creation and usage of custom exception
29	Java	Collections - Introduction, List	• Explain Collections Framework
			• Demonstrate usage of List
30	Java	Collections - Map, Set	• Demonstrate usage of Map
			• Demonstrate usage of Set
31	Java	File Handling, Date API	• Demonstrate reading and writing a text file
			• Demonstrate managing date and time
			• Explain Annotations
32	Java	Annotations, Threads, GC, JUnit	• Explain how memory management works in Java

			• Explain Multi-Threading
			• Demonstrate implementation of JUnit
			Explain the need and benefits of Maven
			Setup maven for command line
33	Spring REST	Maven - Build, Deploy, Life Cycle and POM	Create, build and deploy a maven project Explain the maven build lifecycle
			Explain the various aspects available in pom.xml
			Explain the importance of profiles in maven
			Explain the need and benefits of Spring Core
			Demonstrate creation of Spring Boot Application Explain the need and benefits of Spring Boot Demonstrate loading bean from spring configuration file
34	Spring REST	Spring Core - Intro, Spring Boot, XML Config, Logging	Demonstrate inclusion of logging in Spring Boot Application
35	Spring REST	Spring Core - Dependency Injection	Demonstrate dependency injection based on spring configuration file
			Demonstrate dependency injection based on annotations and autowiring
			Explain in detail about HTTP Request and Response
			Explain the need and benefits of RESTful Web Services
36	Spring REST	Spring REST - HTTP Intro, GET, Service Layer	Demonstrate implementation of RESTful Web Service using GET method Demonstrate implementation of end to end testing of RESTful Web Service using MockMVC
37	Spring REST	Spring REST - Front end integration	
			Demonstrate integration of RESTful Web Service of type GET with Angular front end
38	Spring REST	Spring REST - POST, PUT, DELETE	Demonstrate implementation of RESTful Web Service using POST/PUT/DELETE method
			with input validation
39	Spring REST	Spring REST - Front end integration of POST and PUT	Demonstrate integration of RESTful Web Service of type POST and PUT with Angular front end
			• Describe DBMS and its types
			• Define SQL and its purpose
			• Describe 3 datatypes stored in database
40	SQL	Introduction, CREATE, INSERT, UPDATE, DELETE Statements	• Explain CREATE statement with unique and not null constraints
			• Write valid INSERT statement to add data into atable
			• Write valid UPDATE statement to change data by a specific criteria
			• Write valid DELETE statement to remove data from a table by a specific criteria
41	SQL	ALTER, DROP, SELECT Statements	• Explain ALTER and DROP statements in SQL
			• Write valid SELECT statement to query, filter data and sort data from a table
			• Use arithmetic operators to compute values from multiple columns
42	SQL	Arithmetic, Logical Operators and Functions	• Use logical operators to filter data based on single and multiple criteria
			• Define SQL Built-in functions

			<ul style="list-style-type: none"><li>• Use aggregate functions with GROUP BY and HAVING clause</li></ul>
			<ul style="list-style-type: none"><li>• Explain Normalization and its forms</li></ul>
			<ul style="list-style-type: none"><li>• Create table with referential integrity</li></ul>
			<ul style="list-style-type: none"><li>• Write valid SELECT statement with INNER JOIN</li></ul>
			<ul style="list-style-type: none"><li>• Write valid SELECT statement with OUTER JOIN</li></ul>
			Explain the need and benefit of ORM
			Demonstrate the need and benefit of Spring Data JPA Explain about core objects of hibernate framework
			Explain ORM implementation with Hibernate XML Configuration and Annotation Configuration
			Explain the difference between Java Persistence API, Hibernate and Spring Data JPA
			Demonstrate implementation of DML using Spring Data JPA on a single database table
43	SQL	Normalization, INNER JOIN	
44	Spring Data JPA	ORM - Intro to ORM, Spring Data JPA & Hibernate	