| Identify the applications and benefits of HTML | Sequence | Module | Topics | Objectives |
|--|----------|---------|---|--|
| - Describe HTML document Structure - Demonstrate usage of Header, Footer and Section tags appropriately - Demonstrate usage of Indeeding, Paragraphs and List tups to compile a document - Demonstrate usage of Indeeding, Paragraphs and List tups to compile a document - Demonstrate usage of Indeeding, Paragraphs and List tups to compile a document - Demonstrate usage of Indeeding, Paragraphs and List tups to compile a document - Demonstrate usage of Indeeding to Obligaty Institute of Indeeding - Demonstrate usage of List tups to Obligaty alist of Items - Demonstrate usage of List tups to Obligaty alist of Items - Demonstrate usage of Form to group part elements and submit form data - Demonstrate usage of Form to group part elements and submit form data - Demonstrate United of List tups - Demonstrate United Office United Off | | | | |
| Demonstrate usage of Heading, Pragraphs and list tags to compile a document Demonstrate usage of Heading, Pragraphs and list tags to compile a document Demonstrate usage of Heading, Pragraphs and list tags to compile a document Demonstrate usage of Index and pragraphs and list tags to compile a document Demonstrate usage of Index and provide between pages Demonstrate usage of anchor tag to not splay a list of items Demonstrate usage of Blocks and India protents within the document Demonstrate usage of Blocks and India protents within the document Demonstrate usage of Form to group input elements and submit form data Demonstrate usage of Indust and early office the Industrate usage of Industrate Industrate | | | | |
| Demonstrate usage of Haeding Paragraphs and Little gas compile a document | 1 | Web UI | HTML - Intro., Structure, Section, Header, Footer | |
| Web UI HTML - Image, Anchor, Table, Block and Inline Elements Demonstrate usage of anchor tag to navigate between pages | | | | |
| ### Demonstrate usage of ancher to a long value between pages #### Demonstrate usage of tables to a long on the transport of | | | | |
| ### HTML - Image, Anchor, Table, Block and Inline Elements ### Demonstrate usage of flobics and to align content within the document ### Demonstrate usage of floors and text area ### Demonstrate usage of floors and text usage of various selectors ### Demonstrate usage of floors and text area ### Demonstrate usage of various selectors ### Demonstrate usage of place usage of the | | | HTML - Image, Anchor, Table, Block and Inline Elements | |
| Bemonstrate usage of slocks and finine to align content within the document Demonstrate usage of flore up input elements and submit from data Demonstrate usage of flore up of point and text area Demonstrate usage of flore up of point and text area Demonstrate usage of flore up of point and text area Demonstrate usage of slocks of point and text area Demonstrate usage of slocks of point and text area Demonstrate usage of slocks of point and text area Demonstrate usage of various form field with tabel Usit the options available in TMIST form fields Explain the need and benefits of CSS Recall Correct syntax for defining a style Demonstrate various ways of application of styles Demonstrate usage of various styles Demonstrate lank doel in CSS Need and Benefits of ITML elements Demonstrate loss Model in CSS Need and Benefits of ITML elements Demonstrate bandling events for validations Use variables to store numbers and text Demonstrate handling events for validations Use variables to store numbers and text Demonstrate handling events for validations Use unables to store numbers and text Demonstrate handling events for validations Use unables to store numbers and text Demonstrate broad the store sumbers and text Demonstrate broad the store sumbers and text Demonstrate string manipulation using plust in methods Use wariables to store numbers and text Demonstrate string manipulation using plust in methods Use method is NaNIV to check! if form value entered is a number or not Use conditional storements, relational operators and logical operators to validate • form field values Demonstrate string language with starter template Demonstrate was only and the string badge contents of society and the string badge contents of society and string badge contents of the string bad | 2 | Web UI | | |
| Demonstrate usage of from to group input leiments and submit form data | | | | |
| Demonstrate usage of short and text area | | | | |
| Beautiful 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 formfields Explain the need and benefits of CSS Recall Correct syntax for defining a style Demonstrate various was papilization of styles Demonstrate base Model in CSS Need and Benefits of JavaScript in HTML Demonstrate base Model in CSS Need and Benefits of JavaScript in HTML Demonstrate base Model in CSS Need and Benefits of JavaScript in HTML Demonstrate various uspirate various was probabilitied to include JavaScript in HTML Demonstrate various uspirate various variables to store numbers and text Demonstrate various variables to store numbers and text Demonstrate various variables to store numbers and text Demonstrate variables variables to read form validations Use document object to read form validations Use variables to store numbers and text Demonstrate variables variables Demonstrate variables variables Demonstrate variables variables Demonstrate variabl | | | | |
| Demonstrate links paid form field with Label 1 | 2 | Web III | HTML - Forms | |
| List the options available in HTMLs form fields | 3 | WED OI | | |
| Explain the need and benefits of CSS | | | | |
| Demonstrate various ways of application of styles Demonstrate usage of various selectors Demonstrate formatting of HTML elements Demonstrate so I Demonstrate Sox Model In CSS Need and Benefits of JavaScript Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options in methods Use method ishaN() to check if form value entered is a number or not Use conditional stends, () to check if form value entered is a number or not Use method ishaN() to check if form value entered is a number or not Use method ishaN() to check if form value entered is a number or not Use method ishaN() to check if form value entered is a number or not Use method ishaN() to check if form value entered is a number or not Use method ishaN() to check if form value entered is a number or not Use method ishaN() to check if form value entered is a number or not Use method ishaN() to check if form value entered is a number or not Use method ishaN() to check if form value entered is a number or not Use method ishaN() to check if form value entered is a number or not Use method is | | | | |
| 4 Web UI CSS - Basics Demonstrate usage of various selectors Demonstrate formatting of HTML elements Demonstrate formating of HTML elements Demonstrate son Model in CSS Need and Benefits of JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate handling events for validations Use variables to store numbers and text Explain Document Optect Model Use document object for oreal offers walidations Use wariables to store numbers and text Explain Document Optect Model Use document object for oreal offers walidations Use method isNaN() to check lif form value entered is a number or not Use conditional statements, relational operators and logical operators to validate • form field values Use alerts to display messages Use form object to submit the form Identify the applications and benefits of Bootstrap Demonstrate to substrap usage with starter template Demonstrate RVD using Grid System Demonstrate creation of navigation bar items Demonstrate creation of navigation bar Demonstrate to using third party icons in web page design Demonstrate using bidge component Demonstrate displaying a card with image, (title and body Demonstrate displaying a card with image, (title and body Demonstrate displaying form elements with RWD Demonstrate using bidge formation (SPA) Demonstrate using bidge formation (SPA) Demonstrate using bare for elements with RWD Demonstrate using bare for elements with RWD Demonstrate using bare page Application (Iscoyle) Demonstrate using bare page Application (Iscoyle) Demonstrate using bare page Application (Iscoyle) Demonstrate usage of JavaScript Object Notation (ISCN) Explain the need an length of page application (Iscoyle) Demonstrate usage of JavaScript Object Notation (ISCN) | | | CSS - Basics | Recall correct syntax for defining a style |
| Demonstrate formatting of HTML elements Demonstrate Box Model In CSS Need and Benefits of JavaScript Demonstrate arous options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options available to include JavaScript in HTML Demonstrate various options and text Explain Document Object to validations Use document object to read form values Demonstrate of form value entered is a number or not Use conditional storing manipulation using built in methods Use method ishakl() to check if form value entered is a number or not Use conditional storing manipulation using built in methods Use method ishakl() to check if form value entered is a number or not Use conditional stements, relational operators and logical operators to validate • form field values Use alerts to display messages Use form object to submit the form Identify the applications and benefits of Bootstrap Demonstrate RWD using Grid System Demonstrate relation of navigation bar Demonstrate creation of navigation bar Items Demonstrate creation of navigation bar Demonstrate creation of navigation bar Demonstrate using third party (zons in web page design Demonstrate using third party (zons in web page design Demonstrate displaying a card with image, title and body Demonstrate displaying a card with image, title and body Demonstrate displaying bootstrap styles Demonstrate displaying bootstrap styles Demonstrate using bootstrap styles Demonstrate using third party date picker in web page Demonstrate using party developed in party date picker in web page Demonstrate using party and p | | | | Demonstrate various ways of application of styles |
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| **Need and Benefits of JavaScript** **Need and Benefits of JavaScript** **Demonstrate various options available to include JavaScript in HTML **Demonstrate handling events for validations** **Use functions to handle form validations** **Use variables to store numbers and text **Explain Document Object to Wodel **Use document object to read form values **Demonstrate string manipulation using built in methods **Use method shally to check if form value entered is a number or not **Use conditional statements, relational operators and logical operators to validate **form field values **Use alerts to display messages **Use form object to pushbmit the form **Identify the applications and benefits of Bootstrap **Demonstrate bootstrap usage with starter template **Demonstrate bootstrap usage with starter template **Demonstrate usage with starter template **Demonstrate creation of navigation bar* **Demonstrate creation of navigation bar* **Demonstrate creation of navigation bar* **Demonstrate collapsing navigation items **Demonstrate varies badge component **Demonstrate using badge component **Demons | | | | Demonstrate formatting of HTML elements |
| Web UI JavaScript - Intro., Functions, DOM Web UI JavaScript - Variables, Operators, Forms Web UI Bootstrap - Intro, Grid System, Nav Bar Web UI Bootstrap - Intro, Grid System, Nav Bar Web UI Bootstrap - Nav Items, Chrome Dev Tools, Badge, List Web UI Bootstrap - Nav Items, Chrome Dev Tools, Badge, List Web UI Bootstrap - Operators Bootstrap - Operators Developer Tools Demonstrate controlled party (cons in web page design Demonstrate using badge component Demonstrate using third party (cons in web page design Demonstrate displaying a card with image, title and body Demonstrate using third party date picker in web page Demonstrate displaying for melements with RWD Demonstrate displaying for melements with RWD Demonstrate using third party date picker in web page Demonstrate using page Application (SPA) Demonstrate using page of JavaScript Objects Demonstrate usage of JavaScript Objects Demonstra | | | | |
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| Use document object to read form values | | | | |
| • Demonstrate string manipulation using built inmethods • Use method isNaN() to check if form value entered is a number or not • Use conditional statements, relational operators and logical operators to validate • form field values • Use alerts to display messages • Use form object to submit the form • Identify the applications and benefits of Bootstrap • Demonstrate to storate pusage with starter template • Demonstrate torstrap usage with starter template • Demonstrate creation of navigation bar • Demonstrate creation of navigation bar items • Demonstrate costation of navigation bar items • Demonstrate collapsing navigation items • Demonstrate using badge component • Demonstrate using badge component • Demonstrate displaying a lat of items • Demonstrate displaying a card with image, title and body • Demonstrate displaying is for dards with RWD • Demonstrate displaying form elements with RWD • Demonstrate displaying form elements with RWD • Demonstrate customizing bootstrap styles • Explain the characteristics of a single Page Application (SPA) • Describe the Single Page Application (SPA) • Demonstrate usage of JavaScript Object Notation (JSON) • Explain the need and benefits of Angular | | | | |
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| 9 Web UI Bootstrap - Cards 9 Web UI Bootstrap - Cards 10 Web UI Bootstrap - Date Picker, Form Elements, Style Customization 11 SPA Angular - Intro, Benefits • Demonstrate usage of JavaScript Object Notation (JSON) | | Web UI | Bootstrap - Intro, Grid System, Nav Bar | Identify the applications and benefits of Bootstrap |
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| Explain the characteristics of a Single Page Application (SPA) Describe the Single Page Application Lifecycle Demonstrate usage of JavaScript objects SPA Angular - Intro, Benefits Demonstrate usage of JavaScript Object Notation (JSON) Explain the need and benefits of Angular | | | | 1 , 3 |
| Describe the Single Page Application Lifecycle Demonstrate usage of JavaScript objects SPA Angular - Intro, Benefits Demonstrate usage of JavaScript Object Notation (JSON) Explain the need and benefits of Angular | 11 | SPA | Angular - Intro, Benefits | |
| SPA Angular - Intro, Benefits Demonstrate usage of JavaScript Object Notation (JSON) Explain the need and benefits of Angular | | | | |
| • Explain the need and benefits of Angular | | | | Demonstrate usage of JavaScript objects |
| | | | | Demonstrate usage of JavaScript Object Notation (JSON) |
| Describe the difference between AngularJS and Angular | | | | Explain the need and benefits of Angular |
| · · | | | | Describe the difference between AngularJS and Angular |

| | | | List key features of ECMAScript6 (ES6) Explain the need and benefits of TypeScript |
|----|------|--|--|
| | | | Demonstrate compilation and execution of a typescript file |
| 12 | SPA | Angular - TypeScript | |
| | | | Demonstrate defining objects using data types, interfaces and classes |
| | | | Interpret how to implement functions and for of in TypeScript |
| | | | Demonstrate creation of angular application |
| 13 | SPA | Angular - Displaying Data, Karma | Demonstrate displaying data using interpolation, nglf and ngFor |
| | | 6 | 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 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 |
| 10 | 3171 | /ingular Service, /iden Gadra | 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 |
| 20 | JrA | Aliguiai - Frotiactor, builu aliu Deploy | 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 |
| 22 | Java | Reywords, Operators, conditional statements | Demonstrate getting user input from keyboard |
| | | | Use conditional statements |
| | | String, Arrays, Loops | Demonstrate creation and usage of String |
| 23 | Java | | Demonstrate creation and manipulation of Arrays |
| | | | Use loops to execute block of statements |
| | Java | Methods, Class, Object, static | Write reusable / modular methods Describe Charles & Objects |
| 24 | | | Describe Class & Objects |
| I | | | 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 is business as wises A between alleges. |
| | | · · · · · · · · · · · · · · · · · · · | Demonstrate inheritance using Abstract class Demonstrate inheritance using laterafees. |
| 27 | Java | Interface, Object methods | Demonstrate Inheritence using Interface Demonstrate usage of Object class |
| | | | Demonstrate usage of Object class Demonstrate usage of packages |
| | | | Explain usage of Access Modifiers |
| 20 | | | Explain the need and benefit of custom exception |
| 28 | Java | Package, Modifier, Exceptions | Explain Unchecked Exceptions |
| | | | Demonstrate creation and usage of custom exception |
| | | | Explain Collections Framework |
| 29 | Java | Collections - Introduction, List | Demonstrate usage of List |
| | | | Demonstrate usage of Map |
| 30 | Java | Collections - Map, Set | Demonstrate usage of Map Demonstrate usage of Set |
| | | | Demonstrate reading and writing a text file |
| 31 | Java | File Handling, Date API | Demonstrate managing date and time |
| | | | Zemenet ata manaping date and time |

| 32 | Java | Annotations, Threads, GC, JUnit | Explain Annotations Explain how memory management works in Java Explain Multi-Threading Demonstrate implementation of JUnit |
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| 33 | Spring REST | Maven - Build, Deploy, Life Cycle and POM | Explain the need and benefits of Maven Setup maven for command line 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 |
| 34 | Spring REST | Spring Core - Intro, Spring Boot, XML Config, Logging | 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 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 |
| 36 | Spring REST | Spring REST - HTTP Intro, GET, Service Layer | Explain in detail about HTTP Request and Response Explain the need and benefits of RESTful Web Services 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 |
| 40 | Spring REST | Spring REST - Performance testing with Jmeter | Demonstrate executing performance testing of a restful web service using Jmeter |
| 41 | Spring REST | Spring REST - Spring Security and JWT | Demonstrate implementation of JWT Authentication for RESTful Web Service using Spring Security Demonstrate integration of RESTful Web Service with front end technologies |
| 42 | SQL | Introduction, CREATE, INSERT, UPDATE, DELETE Statements | Describe DBMS and its types Define SQL and its purpose Describe 3 datatypes stored in database Explain CREATE statement with unique and not null constraints Write valid INSERT statement to add data into a table 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 |
| 43 | 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 |
| 44 | SQL | Arithmetic, Logical Operators and Functions | Use arithmetic operators to compute values from multiple columns Use logical operators to filter data based on single and multiple criteria Define SQL Built-in functions Use aggregate functions with GROUP BY and HAVING clause |
| 45 | SQL | Normalization, INNER JOIN | Explain Normalization and its forms Create table with referential integrity Write valid SELECT statement with INNERJOIN Write valid SELECT statement with OUTER JOIN |
| 46 | Spring Data JPA | ORM - Intro to ORM, Spring Data JPA & Hibernate | 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 |

| 47 | Spring Data JPA | Spring Data JPA - Query Methods, O/R Mapping | Demonstrate implementation of Query Methods feature of Spring Data JPA Demonstrate implementation of O/R Mapping |
|----|--------------------|--|--|
| 48 | Spring Data JPA | Spring Data JPA - HQL, Criteria Query | Demonstrate writing Hibernate Query Language and Native Query Explain the need and benefit of Criteria Query |
| 49 | Spring Data JPA | Spring Data JPA - Integration with REST API | Demonstrate implementation of RESTful Web Service integrated with Spring Data JPA |
| 50 | Spring Data JPA | Spring Data JPA - Mockito, Spring Security Integration, Frontend Integration | Demonstrate implementation of spring security integrated with repository to get user details Demonstrate implementation of isolated testing of service using Mockito Demonstrate code coverage report generation on unit test cases executed Demonstrate end to end integration with Angular, RESTful Web Services and Spring Data JPA |
| 51 | Spring Data JPA | Jenkins - Build project | Demonstrate setting up Jenkins to get code from GitLab and build the maven project |