

UI FULL STACK DEVELOPMENT

Basic User Interface (UI):

1. Fundamentals of Web Technology

- Network
- Internet
- Web Browsers
- Web Servers
- Web
- Webpage
- Website
- Http
- Https
- Web Development

2. HTML

- Introduction
 - W3C
 - Editors
 - Tag
 - Empty Tag
 - Container Tag
 - Attributes & Parameters
 - Doctypes: DTD
 - Structure Of HTML
 - Basic Tags
 - html
 - head
 - title
 - body
 - Tag vs Element
 - Headings

- Formatting Tags
- Paragraph tag
- Pre tag
- abbr tag
- List
 - Ordered List
 - Unordered List
 - Nested List
 - Description List
- Iframe
- hr
- table
- JPG / PNG / GIF
- Image tag
 - File Paths
- Links
 - Image Link
 - Text Link
 - Email Link
- Quotation
- Citation
- Comments
- Colors
- Computer Code
- Entities
- Symbols
- Emojis
- Charset
- URL Encode
- Meta Tags
- Form tags

- Style Guide
- Deprecated tags
 - center
 - font
 - basefont
 - s
 - strike
 - u
 - applet
 - isindex
 - acronym
 - frame
 - frameset
 - noframes
 - embed
 - marquee
 - big
 - dir
 - spacer
 - tt
- Deprecated Attributes
 - align - caption, iframe, img, input, legend, table, hr, div, h1, h2, h3, h4, h5, h6, p, td, th, and tr.
 - hspace - img
 - vspace - img
 - width - hr, table, td, th, pre, img.
 - height - table, td, th, pre, img.
 - background - body
 - bgcolor - table, tr, td, th and body.
 - rules - table
 - border - table, img

- cellpadding - table
- cellspacing - table
- size - hr
- type - li, ol and ul
- noshade - hr
- char
- charoff
- color, face - font
- marginwidth, marginheight - iframe, body
- nowrap - td,th
- size - font,hr
- start - ol
- valign - td, th, tr

3. XHTML

- XHTML
- Differences between HTML and XHTML

4. CSS

- Introduction
- Syntax
- Types of StyleSheets
 - Internal StyleSheets
 - External StyleSheets
 - Inline StyleSheets
 - Compound StyleSheet
- !important
- Types of Selectors
 - Simple
 - Universal
 - Element
 - Class
 - Element.class

- Id
 - Element.id
 - Grouping
 - Combinators
 - Descendant
 - Child
 - Adjacent
 - General
 - Pseudo-class(Links)
 - Pseudo-elements
 - Attribute
- Block & Inline
 - inline-block
 - Div's & Span tags
 - display
 - Visibility
 - Units
 - Box Model
 - Border
 - border
 - border-color
 - border-style
 - border-width
 - border-bottom
 - border-bottom-color
 - border-bottom-style
 - border-bottom-width
 - border-left
 - border-left-color
 - border-left-style
 - border-left-width

- border-right
 - border-right-color
 - border-right-style
 - border-right-width
 - border-top
 - border-top-color
 - border-top-style
 - border-top-width
- outline
 - outline-style
 - outline-width
 - outline-color
- margin
 - margin-bottom
 - margin-left
 - margin-right
 - margin-top
- padding
 - padding-bottom
 - padding-left
 - padding-right
 - padding-top
- Font
 - font-family
 - color
 - font-size
 - Set Font Size With Pixels
 - Set Font Size With em
 - font-style
 - font-variant
 - font-weight

- font
- Text
 - Color
 - letter-spacing
 - Word-spacing
 - line-height
 - text-align
 - text-align-last
 - text-decoration
 - text-decoration-line
 - text-decoration-color
 - text-decoration-style
 - text-decoration-thickness
 - text-indent
 - text-transform
 - vertical-align
 - White-space
 - Direction
 - unicode-bidi
- Background
 - background-color
 - background-image
 - background-repeat
 - background-attachment
 - background-position
 - background
- Image Sprites
- Comments
- Icons
- Images
- opacity

- FORMS
- Links
 - a:link
 - a:visited
 - a:hover
 - a:active
- cursor
- Lists
 - list-style
 - list-style-type
 - list-style-position
 - list-style-image
- Tables
 - border
 - border-collapse
 - width
 - height
 - text-align
 - vertical-align
 - padding
- Dimension
 - height
 - width
 - max-height
 - min-height
 - max-width
 - min-width
- Positioning
 - bottom
 - clip
 - left

- overflow
- absolute
- fixed
- relative
- static
- right
- top
- z-index
- sticky
- float & clear
- Counters
- Specificity
- Math functions
- Navigation (Menu) Bar
- Dropdown Navigation Bar
- Module-wise Project 1: HTML & CSS

5. CSS 3,4

- Introduction to CSS3
- What's New in CSS3 and CSS4
- border-image
- box-shadow
- text-shadow
- border-radius
- Image Reflection
- background
 - background-clip
 - background-origin
 - background-size
 - Multiple Background Images
- Color Keywords
- Gradients

- Linear Gradients
 - Radial Gradients
 - Conic Gradients
- text effects
 - word-wrap
 - text-overflow
 - word-break
 - writing-mode
- Web fonts
- Google fonts
- 2D Transforms
- 3D Transforms
- RGBA
- Box Sizing
- Transitions
- Animations
- Style Images
- object-fit
- object-position
- Masking
- Multiple Columns
- User Interface
- Variables
- Box-sizing
- Flex
- Media Queries
- Orientation
- favicon
- Grid
- Module-wise Project 2: HTML5 & CSS3 Responsive Project with Floats
- Module-wise Project 3: HTML5 & CSS3,4 Responsive Project with Flexbox

- Content will be updated as per latest updates

6. Basic & Advanced Javascript

- Introduction to JavaScript
- Syntax
- Statements
- Types of Scripts
 - Internal
 - External
 - Inline
- Write / WriteIn
- innerHTML
- innerText
- textContent
- console
- Print
- Popup Boxes
 - alert
 - confirm
 - prompt
- Naming Conventions
 - Lower Camel Case
 - Upper Camel Case
 - Snake Case
 - Kebab Case
 - Screaming Snake Case
 - Train Case
 - Flat Case
 - Upper Flat Case
 - Title Case
 - Sentence Case
 - Toggle Case

- Comments
- Variables
- Hoisting
- Operators
 - Arithmetic
 - Assignment
 - String
 - Type
 - Comparison
 - Logical
- Conditional Statements
 - if
 - if...else
 - if...else if...else
 - Switch
- Loops
 - while
 - do...while
 - for
 - for...in
 - for...of (ES6)
 - Break
 - Continue
- Functions
 - User-defined
 - Syntax
 - Parameters and Arguments
 - Returning Values
 - Self-Invoked
- Functions
 - Declaration

- Expression
- Self-Invoked
- this
 - call
 - apply
 - bind
- Closures
- Local and Global Variables
- Recursive Functions
- Built-in Functions
 - Global
 - Number
 - String
 - Array
 - Math
 - Date
 - JSON
 - Utility
- Events
 - Introduction
 - Mouse Events
 - Keyboard Events
 - Form Events
 - Document Events
 - Window Events
 - Event Bubbling
- Page Redirection
- Timing Events
 - setTimeout
 - setInterval
- Built-in Objects

- Introduction
- Arrays
- Array Properties and Methods
- Number
- Strings
- Math
- Date
- Boolean
- Regexp
- Exception Handling (Errors)
 - try
 - catch
 - throw
 - finally
 - Fetch
 - Error Object Properties
 - JSON (JavaScript Object Notation)
- Object
 - Creating a JavaScript Object
 - JavaScript Keyword new
 - Properties
 - Adding Methods to an Object
 - Nesting
 - Display
 - Using an Object Constructor
 - Prototypes
 - Getter / Setter
 - Protection
- Debugging
 - console
 - developer tools

- debugger
 - try...catch
 - breakpoints
 - Network
- DOM (Document Object Model)
 - Introduction
 - Methods
 - Document
 - Elements
 - HTML
 - Forms
 - CSS
 - Animations
 - Events
 - EventListener
 - Navigation
 - Nodes
 - Collections
 - Node Lists
- Browser BOM
 - Window
 - Screen
 - Location
 - History
 - Navigator
 - Popup
 - Timing
 - Cookies
- Execution Context and Call Stack
- Form Validations
 - Basics of Form Validation

- Validating Radio Buttons
- Validating Checkboxes
- Validating Select Menus
- Validating Text & Textareas
- Validating Through Regular Expressions: Alphabetical, Alphanumeric, Email, Date, Image, Password, Phone, Zip Code, and so on
- Module-wise Project 5: JavaScript Project

7. Async / Await

- Callbacks
- Asynchronous
- Promises
- Async / Await

8. Ajax

- Introduction
- XMLHttpRequest
- Request
- Response
- JSON
- REST API
- GET
- POST
- PUT
- DELETE

9. JSON

- Introduction
- Syntax
- JSON vs XML
- Datatypes
- parse
- stringify
- Object

- Arrays
- Server
- Html
- JSON vs JSONP

10. HTML 5

- What is HTML5
- Overview of HTML5
- Browser Support
- W3C and Web Hypertext Application Technology Working Group (WHATWG) Specifications
- Overview of Updated New Features
- HTML5 Syntax
 - The DOCTYPE
 - Character Encoding
 - The <script> tag
 - The <link> tag
 - HTML5 Document
- Forms
 - email
 - url
 - tel
 - number
 - range
 - date
 - time
 - datetime
 - datetime-local
 - month
 - week
 - color
- Form Elements
 - datalist

- output
- progress
- meter
- fieldset
- New Attributes for <form>
 - autocomplete
 - novalidate
 - target
 - formaction
 - formenctype
 - formmethod
 - formnovalidate
 - formtarget
 - accept-charset
- New Attributes for <input>
 - autocomplete
 - autofocus
 - form
 - list
 - min and max
 - multiple
 - pattern (regexp)
 - placeholder
 - readonly
 - required
 - step
 - size
 - maxLength
 - inputmode
 - formaction
 - formenctype

- formmethod
 - formnovalidate
 - formtarget
- Multimedia Elements
 - Media
 - audio
 - video
 - youtube
- Types of Elements
 - Semantic Elements
 - Structural Elements
- HTML5 New Elements
 - article
 - section
 - header
 - footer
 - nav
 - aside
 - main
 - figcaption
 - figure
 - time
 - mark
 - details
 - summary
 - progress
 - output
 - address
 - dialog
 - template
 - slot

- wbr
 - hgroup
- Migration from HTML4 to HTML5
 - HTML5 Browser Support
 - HTML5 Elements as Block Elements
 - Adding New Elements to HTML
 - Problem with Internet Explorer
 - Complete Shiv Solution
 - HTML5 Skeleton
- HTML5 Deprecated Tags
 - center
 - font
 - basefont
 - s
 - strike
 - u
 - applet
 - isindex
 - acronym
 - frame
 - frameset
 - noframes
 - embed
 - marquee
 - big
 - dir
 - spacer
 - tt
- HTML5 Deprecated Attributes
 - align - caption, iframe, img, input, legend, table, hr, div, h1, h2, h3, h4, h5, h6, p, td, th, and tr.

- hspace - img
- vspace - img
- width - hr, table, td, th, pre, img.
- height - table, td, th, pre, img.
- background - body
- bgcolor - table, tr, td, th and body.
- rules - table
- border - table, img
- cellpadding - table
- cellspacing - table
- size - hr
- type - li, ol and ul
- noshade - hr
- char
- charoff
- color, face - font
- marginwidth, marginheight - iframe, body
- nowrap - td, th
- size - font, hr
- start - ol
- valign - td, th, tr
- Web Storage
 - Local Storage
 - Session Storage
- Web SQL
- Web Workers
- MathML
- Drag and Drop API
- Canvas Overview
 - Lines
 - Curves

- font
- Image
- Paths
- Shapes
- Color, Gradients
- SVG
 - What is SVG?
 - SVG Advantages
 - Differences Between SVG and Canvas
 - Rectangle
 - Circle
 - Ellipse
 - Line
 - Polygon

11. Bootstrap

- What is Bootstrap?
- Bootstrap History
- Why Use Bootstrap?
- What Does Bootstrap Include?
- HTML File
- Adding Bootstrap to Your Web Pages
- Downloading Bootstrap
- Bootstrap CDN
- Put Your HTML Elements Inside Containers
- Bootstrap Browser/Device Support
- Layout
 - Breakpoints
 - Containers
 - Grid
 - Columns
 - Gutters

- Utilities
 - Z-index
 - CSS Grid
- Content
 - Reboot
 - Typography
 - Images
 - Tables
 - Figures
- Forms
 - Overview
 - Form control
 - Select
 - Checks & radios
 - Range
 - Input group
 - Floating labels
 - Layout
 - Validation
- Components
 - Accordion
 - Alerts
 - Badge
 - Breadcrumb
 - Buttons
 - Button group
 - Card
 - Carousel
 - Close button
 - Collapse
 - Dropdowns

- List group
- Modal
- Navbar
- Navs & tabs
- Offcanvas
- Pagination
- Placeholders
- Popovers
- Progress
- Scrollspy
- Spinners
- Toasts
- Tooltips
- Helpers
 - Clearfix
 - Color & background
 - Colored links
 - Focus ring
 - Icon link
 - Position
 - Ratio
 - Stacks
 - Stretched link
 - Text truncation
 - Vertical rule
 - Visually hidden
- Utilities
 - API
 - Background
 - Borders
 - Colors

- Display
- Flex
- Float
- Interactions
- Link
- Object fit
- Opacity
- Overflow
- Position
- Shadows
- Sizing
- Spacing
- Text
- Vertical align
- Visibility
- Z-index
- Extend
 - Approach
 - Icons
- Module-wise Project 5: Bootstrap Responsive Project

Angular / 25. NgRx / 26. Jasmine

- **Introduction to angular**
 - What is angular?
 - Key features and advantages
 - Setting up the development environment
 - Creating your first angular application
- **Components and Templates**
 - Creating components
 - Templates and data binding
 - Interpolation and property binding
 - Event binding and two-way data binding

- angular directives
- **Dependency Injection and Services**
 - Understanding Dependency Injection (DI)
 - Creating and using services
 - Injecting services into components
 - Singleton services vs. multiple instances
- **Routing and Navigation**
 - Setting up routing in angular
 - Creating route configurations
 - Navigating between routes
 - Route parameters and data
 - Child routes and lazy loading
- **Forms and Validation**
 - Template-driven forms
 - Reactive forms with FormBuilder
 - Form validation and error handling
 - Custom form validators
- **HTTP and Observables**
 - Making HTTP requests with angular HttpClient
 - Handling HTTP responses with Observables
 - Using RxJS operators
 - Authentication and authorization
- **angular Modules and NgModules**
 - Creating and organizing modules
 - Feature modules and lazy loading
 - NgModule decorators and providers
- **Testing in angular**
 - Unit testing components and services
 - Testing with TestBed
 - Mocking dependencies
- **angular CLI and Project Structure**

- Using the angular CLI for project management
- Project structure and best practices
- Generating components, modules, and services
- **CRUD Operations with angular**
 - Creating a CRUD application
 - Implementing Create, Read, Update, Delete operations
 - Managing component state for data
 - Displaying data in tables and lists
- **User Authentication**
 - Implementing user registration
 - Storing user credentials securely
 - User login and session management
- **Authorization and Protected Routes**
 - Defining user roles and permissions
 - Authorizing access to certain routes and components
 - Creating protected routes with route guards
- **User Profile and Authentication State**
 - Displaying user information in the UI
 - Managing authentication state in NgRx
 - Updating user profiles and passwords
- **Logout Functionality**
 - Implementing a secure logout process
 - Clearing authentication tokens and user sessions
 - Redirecting users after logout
- **Role-Based Authorization**
 - Assigning roles to users
 - Configuring role-based access control (RBAC)
 - Restricting access to specific features and data
- **JWT (JSON Web Tokens) for Authentication**
 - Understanding JWT and its role in authentication
 - Generating and verifying JWT tokens

- Using JWT for secure API authentication
- **NgRx State Management for Authentication and Authorization**
 - Managing user authentication state in NgRx
 - Updating user roles and permissions in the store
 - Dispatching actions for login, logout, and role changes
- **Secure API Calls**
 - Securing API endpoints with authentication checks
 - Passing authentication tokens with API requests
 - Handling unauthorized access errors

React with Hooks, Axios (JavaScript & TypeScript) & Material UI, 29. Redux, 30. Jest, 31. Next.js (React Framework)*****

- What is React?
- React vs Other Frontend Frameworks
- Introduction
- Library
- Collection of functions
- Difference between Functions and Utilities
- Classes
- Single-Page Application (SPA)
 - What is a SPA?
 - How SPAs Work
 - Initial Load
 - Dynamic Updates
 - Benefits of SPAs
- Why React?
 - Declarative UI
 - Component-based
 - Key Features of React
- React History
- React 19: New Features & Updates
 - React Compiler for Performance Optimizations

- New Hooks and Enhanced useState Hook
- React Actions API (Alternative to useEffect)
- New Suspense and Streaming Improvements
- New React Optimistic Updates API
- Refactor useEffect with React Actions
- Automatic React Server Components (RSC) Enhancements
- React Profiling and Debugging Updates
- DOM in React
 - HTML DOM Vs JavaScript DOM
 - Real (HTML / JS) DOM
 - Virtual DOM
 - Difference between Real DOM and Virtual DOM
- Setting Up the React Environment
 - npx and npm ecosystem
 - Setting up a React development environment (Node.js, npm, or Yarn)
 - Creating a React project (Vite / Next)
 - Understanding React Project Structure
 - Running a React App
 - Flow of execution
 - React's Strict Mode in Development
- JSX (JavaScript XML)
 - What is JSX?
 - Syntax
 - Using JavaScript inside JSX
 - JSX and Babel Compilation
 - Expressions in JSX
 - Handling attributes in JSX (class, htmlFor)
- Components in React
 - What are Components?
 - Functional component
 - Class Component

- Nested Components
- Components in Files
- Writing and Exporting Components
- Importing Components
- Props
 - What are Props?
 - Passing Props to Components
 - Default Props
 - Prop Types for Type Checking
 - Destructuring Props
 - Props vs State
- Event Handling
 - Introduction to Event Handling
 - Basic Event Handling in JSX
 - Passing Arguments to Event Handlers
 - Preventing Default Behavior
 - Stopping Event Bubbling & Event Capturing
- State Management in React
 - What is State?
 - Managing Local State with useState
 - Updating State Correctly
 - Handling Complex State Objects
 - State Immutability in React
- React Hooks (Deep Dive)
 - What are Hooks?
 - Rules of Hooks
 - Built-in Hooks:
 - useState
 - useEffect
 - useRef
 - useMemo

- useCallback
 - useReducer
 - useContext
 - useLayoutEffect
 - New Hooks in React 19
- React Router
 - Installing and Setting Up React Router
 - BrowserRouter, HashRouter, and MemoryRouter
 - Defining Routes with Route Component
 - Using Link and NavLink for Navigation
- Context API and Global State Management
 - Why Use Context API?
 - Creating a Context with createContext
 - Consuming Context with useContext
 - Updating Context Data
 - Context API vs Redux
- React Performance Optimization
 - Memoization with useMemo
 - Avoiding Unnecessary Re-renders with React.memo
 - useCallback for Optimizing Functions
 - New React 19 Optimistic UI Updates
- Redux & State Management (Advanced)
 - Understanding Redux
 - Setting Up Redux in a React Project
 - Redux Core Concepts:
 - Actions
 - Reducers
 - Store
 - Using useSelector & useDispatch
- React with Next.js
 - Introduction to Next.js

- Next.js vs React
- Server-side Rendering (SSR)
- Static Site Generation (SSG)
- Incremental Static Regeneration (ISR)
- React with TypeScript
 - Why Use TypeScript with React?
 - Setting Up TypeScript in React
 - Typing Props & State
 - Using TypeScript with Redux
- Deploying React Applications
 - Preparing for Production
 - Optimizing React App Performance
 - Deploying on AWS, GCP, Jenkins
 - CI/CD for React Applications