JAVA Full Stack

Introduction to WEB

- What is Web?
- Web Features?
- W3C and W3C Members
- Introduction to What WG

Core HTML

- Introduction
- Parts in HTML Document
- Version Information
- Head Section
- Meta Information
- Favicons
- Body Section
- HTML FORMS
- Anchors, Images

Advance HTML5

- Introduction
- HTML5 HISTORY
- Why HTML5?
- New Features and Groups
- Structure of HTML5 Document
- Power of HTML5 and Features
- Semantics and Block Level Elements
- HTML5 Forms
- HTML5 Multimedia
- HTML5 Graphics

Core CSS

- Introduction
- CSS Basics
- CSS Introduction
- CSS Syntax
- CSS Versions
- CSS Id & Class
- CSS Styling
- Styling Backgrounds
- Styling Text
- Styling Fonts
- CSS Borders

Advance CSS

- Introduction
- CSS3 Modules
- Selectors
- Box Model
- Backgrounds and Borders
- Text Effects
- 2D/3D Transformations
- Core &Adanced Animations
- Multiple Column Layout
- User Interface

JAVASCRIPT (ES-5 and ES-6)

- Basic JavaScript
- DOM and BOM
- Intervals and Objects
- Prototype ,Hoisting and Closure
- Let , Const , Arrow , Class and Inheritance
- Map, Filter , Reduce , Template Literals
- forEach, for-in, for-of loop.

Typescript

- Why Typescript
- Basic Types
- Class and Interfaces
- Modules

INTRODUCTION TO REACT JS

- What is React JS?
- What is SPA?
- DOM vs Virtual DOM
- Advantages and Disadvantages
- Key Features

ENVIRONMENTAL SETUP

- Node | NPM
- Installation of CLI
- Setup Project
- Directory Structure
- Code Editors
- How React JS Application Boot

BASIC FEATURES OF REACT JS

- React Concepts
- JSX and TSX
- Render Elements
- Function and Class Components
- Props and State
- Handling Events
- Dynamic Data Rendering
- Property Binding

KEY FEATURES OF REACT JS

- Conditional Rendering
- List and Keys
- Forms Handling
- Forms Validations

COMPONENT LIFECYCLE HOOK

- Understanding component lifecycle
- All Lifecycle Hooks

EVENT HANDLING REACT
- Understanding React Event System
- Passing arguments to event Handlers

NETWORK CALL
- Fetch
- Axios

CUSTOM SERVICES
- Introduction to Services
- Building a Service

LOCAL DATA STORAGE
- Local Storage
- Session Storage
- Cookies

ROUTING WITH REACT ROUTER
- Setting up React Router
- Configuring route with Route Component
- Making routes dynamic with Route Params
- Working with nested routes
- Link and NavLink
- Redirect Routes

UI COMPONENTS
- Angular Material
- PrimeNG

INTRODUCTION TO REDUX
- Why Redux
- Install and setup
- Store ,Reducer , actions
- Dispatcher
- High order Components
- mapStateToProps and mapDispatchToProps usage

ADVANCE REDUX
- Async Actions
- Middleware
- Redux Thunk and Redux Saga

React Hooks
- Why We Need Hooks.
- Different Types Of Hooks
- Using State And Effect Hooks
- Usereducer , Useref Etc.
- Custom Hooks
- Rules Of Hooks

Third Party Modules
- Social Login
- Pagination
- Search
- Filter
- JWT Token
- File Upload
- Many More

Rest Js Testing
- Jest with Enzyme

Develop a CRUD Application in React Js
React JS Application Deployment
- Build Application and Deployment

INTRODUCTION TO JAVA

- Why Java was Developed
- Application Areas of Java
- History of Java
- Platform Independency in Java
- USP of Java: Java Features
- Sun-Oracle Deal
- Different Java Platforms
- Difference between JDK,JRE,JVM
- Java Versions
- JVM Architecture
- Installing Java on Windows
- Understanding Path Variable: Why Set Path

CREATING FIRST JAVA PROGRAM

- Understanding Text Editors to Write Programs
- How to compile java file
- Byte Code and class file
- How to run class file

JAVA LANGUAGE FUNDAMENTALS

- Identifiers
- Keywords
- Variables
- Literals
- Data Types
- Operators
- Comments
- Looping Statements
- Condition Statements
- Type Casting

OOP IMPLEMENTATION (PIE)

- Why OOP
- OOP Concepts with Real life examples
- Class& it's Syntax
- Object& it's Syntax
- Reference Variable
- Constructors
- Instance(Non-Static)& Static Variables
- Instance(Non-Static) & Static Methods
- this Keyword and it's usages
- Object & Static Initializers(Anonymous Blocks)
- Inheritance& it's Syntax
- Types of Inheritance
- Object Class as Root of Java Class Hierarchy
- Variable Hiding
- Method Hiding
- Method Overriding
- Method Overloading
- Super keyword and it's usages
- Final keyword and it's usages
- Constructor Chaining

- Upcasting and Downcasting
- Static &Dynamic Binding
- Run Time Polymorphism
- Abstract Keyword(Abstract classes and methods)
- Understanding Interfaces
- Implementation of Encapsulation
- Association with Implementation

PACKAGES

- Understanding Packages
- Setting Class path
- Reading Input from Keyboard
- Access Modifiers
- With in Package & Outside Package Implements

NESTED TYPES

- Static Nested Class
- Non-static Nested Class
- Local Class
- Anonymous Class
- Nested Interface

ARRAYS

- General Definition of Array
- Advantages from Array
- Arrays in Java
- 1-d Arrays
- 2-d Arrays
- Jagged Arrays
- Array of reference type
- Operations on Arrays
- User Define Array & Object Tpye

COMMAND LINE ARGUMENTS AND WRAPPER CLASSES

- How to read command line arguments
- Wrapper Classes
- Parsing of Numeric Strings
- String representation of Primitives

EXCEPTION HANDLING

- Types of Runtime Errors
- Understanding Exceptions
- Exception Class Hierarchy
- Try & Catch Blocks
- Patterns of Catch Block
- Nested Try statements
- Throw, throws and finally
- Creating Custom Exceptions
- Checked & Unchecked Exceptions
- Assertion

WORKING WITH STRINGS

- What is String
- String Class
- Creating String Object
- Operations on String
- String Buffer Class and it's Methods
- Difference between String and StringBuffer class
- String Builder Class and it's Methods
- Difference between StringBuffer and StringBuilder

SWING

- Introduction to AWT
- Introduction to Swing Components
- Look And Feel of Swing Components
- MVC Architecture of Swing Components

- Working with Image
- Advance Swing Components
  - JOptionPane,JTree,JTable,JTabbedPane
  - JfileChooser,JcolorChooser
- Menu Components
  - JMenu
  - JMenuItem
  - JMenubar

MULTITHREADED PROGRAMMING

- Multitasking: Why Concurrent Execution
- Multiprocessing v/s Multithreading
- Main Thread (Default Java Thread)
- Creating Child Threads and understanding context switching
- Thread States
- Thread Group
- Thread Synchronization: Methods and Blocks
- Inter-Thread communication
- Daemon Threads
- Deadlock

I/O STREAMS

- What is I/O
- Why Need Streams
- Byte Streams and Character Streams
- Read/Write operations with file
- Scanner Class
- Object Serialization& Deserialization
- Transient keyword
- File Class and it's Methods

SOCKET PROGRAMMING

- Understanding Fundamentals of a Network
- Socket and ServerSocket Classes
- InetAddress Class
- DatagramSocket and DatagramPacket Classes
- URL,URLConnection,HttpURLConnection Classes

REFLECTION

- Understanding the Need Of Reflection
- Getting information about class's modifiers, fields, methods, constructors and super classes
- Finding out constant and method declaration belong to an interface
- Creating an instance of the class whose name is not known until runtime
- Getting and setting values of an object's field if field name is unknown until runtime
- Invoking a method on an object if the method is unknown until runtime
- Invoking Private Methods

EXTENDED & UTILITY CONCEPTS

- Generics
- Lambda Expression
- Annotations
- Object Cloning
- Vargs
- Static-import
- Enum
- Static, Default and Private Methods of Interface
- Var Type
- Java Modules
- Stream API

COLLECTIONS FRAMEWORK

- What is Collection?
- What is Framework?
- Collections Framework
- Core Interfaces
- Collection, List, Queue,Deque
- Set,NavigableSet, SortedSet
- Map,NavigableMap, SortedMap
- Core Classes
- ArrayList, LinkedList,PriorityQueue,ArrayDeque
- HashSet,LinkedHasSet,TreeSet,
- HashMap,IdentityHashMap,WeakHashMap,LinkedHashMap,Tree Map
- Accessing a Collection via an Iterator
- Accessing List via ListIterator
- Accessing a Collection via for each loop
- Working with User Defined Objects
- The Comparator and Comparable Interfaces
- The Legacy classes and Interfaces.
- Enumeration, Vector ,Stack
- Hashtable, Properties

DATE & TIME API

- java.util.Date
- java.util.Calender
- java.sql.Date

SYSTEM PROPERTIES & INTERNATIONALIZATION (I18N)

- Understanding Locale
- Resource Bundle
- Usage of properties file
- Fetching text from Resource Bundle
- Displaying the text in HINDI
- Displaying date in Hindi

INTRODUCTION TO SQL(PROJECT BASED)

DATABASE PROGRAMMING USING JDBC

- Need Of JDBC
- JDBC Drivers
- Statement, PreparedStatement, CallableStatement
- Scrollable and Updatable ResultSet
- Batch Updates
- Transaction
- Metadata
- Connection Data Base
  - Oracle
  - My SQL
  - Mongo DB

JAVA EE(JAVA PLATFORM ENTERPRISE EDITION)

- Understanding the Concept of Java EE : JEE Specification
- Java EE Architecture
  - Single Tier
  - Two Tier
  - Three Tier
  - N-Tier
- Java EE Components
- Web Components
- Distributed(Business) Components
- Java EE Containers& Servers

- Web Container& Web Server(Apache Tomcat)
- EJB Container& Application Server(Weblogic,Glassfish,Websphere)
- Java EE Services
  - JNDI Service
  - Java Transaction Service
  - JAAS
  - JMS

JAVA SERVLET

- Introduction to web programming
- Role of Servlet in web programming
- Servlet Lifecycle
- Servlet with Annotations
  - @WebServlet
  - @WebInitParam
  - @WebListener
  - @WebFilter
  - @MultipartConfig
- Request Dispatching
- Parameters & Attributes and their differences
- ServletConfig and ServletContext
- File Uploading and Downloading
- Session Tracking&State Management
  - Cookie
  - Url Rewriting
  - Hidden Form Field
  - Session Object
- Events & Listeners
  - Dependency Injection
  - Refreshing Servlet
  - Filters

JAVA SERVER PAGES (JSP) & JSTL

- JSP Architecture
- JSP Elements
- JSP Objects
- Understanding JavaBeans
- Custom Tags
- Using tags of JSTL
- Expression Language

PROJECT CLASSES

- Front End Coding
- FORM DESIGNING
  - HTML
  - CSS
  - JAVA SCRIPT
  - BOOTSTRAP
- Back End Coding
- DATABASE DESIGNING
- Connecting forms to database
- Writing Business Logic
- Project Hosting

DESIGN PATTERN

- Why Design Patterns…?
- Front Controller
- Composite View
- Factory Pattern
- Singleton Pattern
- DAO Pattern

JAVA MAIL API
- Email System and Protocols
- Sending & Receiving Mails
- Handling Attachments

INTRODUCTION TO DISTRIBUTED PROGRAMMING
- RMI
- Web Services

INTRODUCTION TO RESTFULL SERVICES
- @PathParam
- @Path
- @FormParam
- @QueryParam
- @DefaultValue

OVERVIEW OF JPA FRAMEWORK

SPRING

SPRING
- What is Spring?
- Spring modules
- Understanding dependency Injection
- Applying aspect-oriented programming

MAVEN DEPLOYMENT
- Maven Configuration
- Converting Maven to Eclipse
- Various Maven Command

BASIC BEAN WIRING
- Containing your Bean
- Creating bean
- Injecting into bean properties
- Auto wiring
- Controlling bean creation
- Aspect Oriented Programming

HITTING THE DATABASE
- Learning spring's data Access Philosphy
- Configuring a data source
- Using JDBC with Spring
- Working with JDBC Templates
- Using Spring's DAO Support Classes for JDBC
- Integrating Hibernate with Spring
- Caching

HIBERNATE

INTRODUCTION TO ORM
- Need of ORM
- Problems using JDBC Directly
- ORM Implementation

INTRODUCTION TO HIBERNATE
- Hibernate Architecture
- Hibernate configuration
- Hibernate's Support for Other Technologies
- Installing Hibernate
- A “Hello world” stand alone application

CREATING PERSISTING CLASSES

- Mapping a basic Java Class
- Mapping a Class with Binary Data
- Mapping a Serializable Class
- Mapping a class with Data/ calendar attributes
- Mapping a Read-only class
- Mapping a class using Versioning /Timestamps

MAPPING INHERITENCE WITH JAVA CLASSES

- Table-Per –class Hierarchy Mapping
- Table-Per –subclass Hierarchy Mapping
- Table-Per –concrete-subclass Hierarchy Mapping
- Persistence interfaces

WORKING WITH COLLECTIONS

- Associations
- Lazy initialization
- Mapping Maps/Sorted Maps
- Mapping Sets/Sorted Sets
- Mapping lists
- Mapping Arrays
- Mapping a Bidirectional Association

HIBERNATE CACHING

- How caching improves performence
- First level lache
- Second level cache

SPRING BOOT

Introduction To Spring Boot
Spring Boot Annotation
Spring Boot & JDBCTemplete
Spring Boot & JPA Hibernate
Spring Boot Rest API
Spring Boot MVC
Spring Boot Security
Introduction to Micro Services