# JAVA FULLSTACK SYLLABUS

## 1. Functions & Data Structures

- Recursion
- Lists and List Methods
- Tuples & Sequences
- Sets & Dictionaries

## 2. Object-Oriented Programming

- Classes & Objects in Python
- Attributes & Methods
- Inheritance & Polymorphism

## 3. Working with Python Standard Library

### *Developer Fundamentals*

1. Introduction to OS & Networks

- Overview of OS Concepts
- Networks & Internet
- Network Layer
- Application Layer
- Web Servers

## 2. Working with Command Line

- Files & File System
- Managing System Packages
- Environment Variables
- Network & SSH

## 3. Collaborating with Git

- VCS & Git Repositories
- Staging Area & Commits
- Working with Branches
- Issues & Pull Requests

## *Java Full Stack*

## 1. Java Fundamentals

- Data Types, Variables & Operators
- Reading Input & Formatting Output
- Conditions & Loops
- Arrays
- Java Collections

## 2. OOP with Java

- Classes & Objects
- Attributes & Methods (Instance, Static, Class)
- Abstraction
- Inheritance
- Public, Private, Protected Scopes
- Encapsulation
- Method Overloading & Overriding
- Interfaces
- Polymorphism
- Generics & Exceptions
- Multi threading
- Important Design Patterns

## 3. Backend with Spring Boot

- Overview of Spring Framework
- Building Java Projects with Maven/Gradle
- Building REST APIs with Spring Boot

- Consuming RESTful Web Services
- Working with Relational Data using JDBC
- JPA and Hibernate
- Uploading Files & Validating Form Inputs
- Writing Unit Tests
- Overview of Spring Batch
- Overview of Spring Integration
- Overview of Spring Cloud
- Overview of Spring AOP

## *Dynamic Web Applications*

1. Introduction to JavaScript

- Data Types
- Variables
- Basic Operators
- Conditionals
- Loops
- Functions
- Arrays
- Objects
- Control Flow
- Comments
- Math Function

## 2. DOM Manipulation

- The JavaScript Console
- Introduction to the DOM
- Defining the DOM
- Select and Manipulate
- Important Selector Methods
- Manipulating Style
- Manipulating Text and Content
- Manipulating Attributes

- Local Storage

## Course Project

Build a Todos Application using HTML5, CSS3, and JavaScript.

## 3. Forms

- The form element
- The label element
- The input element
- The option element
- The optgroup element
- The button element
- The select element
- The textarea element
- Form validations and Input
- Validations

## 4. Array Methods

- Adding & Removing Elements
- Push
- Unshift
- Splice
- Pop
- Shift
- Finding Elements
- Find
- indexOf
- Concat

## 5. Events, Fetch & Callbacks

- How to add Event Listeners
- Callbacks
- Schedulers

- SetTimeout
- ClearTimeout
- SetInterval
- ClearInterval
- Hypertext Transfer Protocol (HTTP)
- HTTP Requests using Fetch
- HTTP Responses
- Working with JSON data

## Course Project

Build a Wikipedia Search Application using HTML5, CSS3, JS.

## Intermediate JavaScript

1. Rest parameters and spread syntax

- Destructuring Arrays
- Destructuring Objects

## 2. More Objects

- Constructor Functions
- Factory Functions
- Constructor Method
- New keyword

## 3. Prototypes & ES6 Classes

- Built-in Constructor Functions
- Constructor Property
- Inheritance
- This in classes

## 4. This

- This in methods
- Window scop

- This in function declarations
- This in events

## 5. Asynchronous JS

- Async/Await
- Promises

## *Scope & Hoisting in JavaScript*

## 1. Array Methods

- Map
- Filter
- Reduce

## 2. String Manipulations

- Trim & split Methods
- ToUpperCase & ToLowerCase Methods
- Includes Method

## *Intermediate Responsive Web Design*

## 1. CSS Layouting

- CSS Flexbox
- Display
- Ex-wrap
- Ex-grow
- Ex-direction
- Ex- ow
- Ex-shrink
- Justify-content
- Align-content
- Order

- Align-items
- Align-self
- Sizing Elements
- Overflow
- Box Sizing
- Content Box
- Border Box

## 2. CSS Media Queries

- Media Query
- Media Types
- Media Features
- Width, min-width, max-width
- Orientation
- Height, min-height, max-height
- Combining Multiple Media Features in a single Media Query
- Logical Operators (and)
- Logical Operators (,)
- Logical Operators (not)

## *React JS - Getting started*

## 1. Introduction to React JS

- Why React?
- Stateful + Stateless components
- Hello World
- Introducing JSX
- Rendering Elements
- Components and Props
- State and Lifecycle
- Handling Events
- Conditional Rendering
- Lists and Keys

- Forms
- Composition vs Inheritance
- Thinking In React

## 2. CSS in JS

- Styled Components
- Emotion

## 3. Routing

- Query parameters
- Path parameters

## 4. Authentication and Authorization

## Course Project

Build an E-commerce application using React JS.