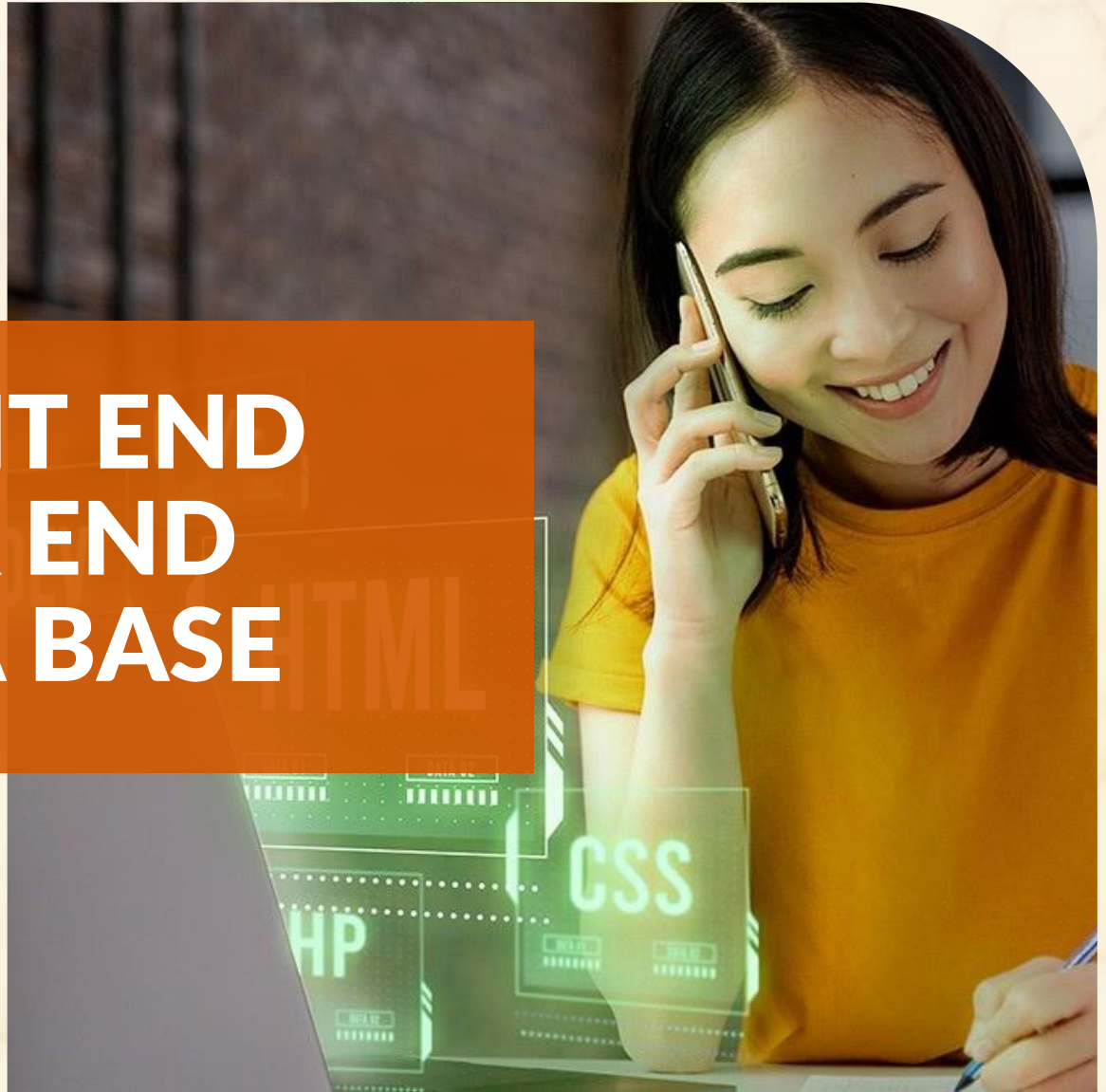


# FRONT END BACK END DATA BASE



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A large graphic consisting of a circle with a blue-to-green gradient, partially overlapping the text "FRONT END".

# FRONT END

# HTML-5

## A

## Introduction

- What is HTML5?
- Types of Browsers
- Types of Search Engines?
- What is Web site?
- What web page?
- Simple HTML skeleton program
- Comments in Java
- HTML5 Meta Tags
- HTML Basic Tags.
- HTML Colours
- Phrase Tags in Html5
- HTML Images
- HTML Hyperlinks
- List in HTML
- HTML Tables
- Block Elements Vs Inline Elements
- HTML forms
- GET vs POST methodology
- HTML data list Tag
- Frames
- <iframe>tag
- HTML Audio
- HTML Video
- Graphics in HTML
- HTML Layouts

## B

## Editor

- Notepad
- Notepad+

# CSS-3

## A Introduction

- What is CSS?
- CSS background property
- Types of CSS?
- CSS borders
- CSS margins
- CSS paddings
- CSS ID selector
- CSS Class selector
- CSS Height and Width CSS overflow property
- CSS border-radius property
- CSS box-shadow property
- CSS float property
- CSS List property
- CSS tables
- CSS transform property
- CSS display property
- Bootstrap sizing
- CSS position property

## B CSS Design Work

- CSS Design 1
- CSS Design 2
- CSS Design 3

## C Editors

- Task 1
- Task 2
- Task 3

# JAVASCRIPT

## **A** Introduction

- Java vs JavaScript
- .Java vs JavaScript
- Features of JavaScript
- Types of JavaScript
- Output statements in JavaScript
- JavaScript Engine
- JavaScript Comments
- JavaScript variables
- JavaScript LOOPS
- JavaScript Functions
- BOM (Browser Object Model)
- DOM (Document Object Model)
- JavaScript Date objects
- JavaScript Form Validation
- JavaScript Events
- JavaScript Regular Expression

## **B** Editor

- VSC (Visual Studio Code)

## **C** Task

- Task 1
- Task 2
- Task 3

# BOOTSTRAP-4

## A Introduction

- What is Bootstrap
- Advantages of Bootstrap
- Bootstrap colors
- Bootstrap borders
- Bootstrap backgrounds
- Bootstrap border-radius
- Bootstrap spacing
- CSS transition property
- Bootstrap Margin
- Bootstrap Containers
- Bootstrap Grid System
- Bootstrap Tables Bootstrap Images
- Bootstrap Jumbotron
- Bootstrap Alerts
- Bootstrap Progress Bar
- Bootstrap Pagination
- Bootstrap List Groups
- Bootstrap Collapse plugin
- Bootstrap Glyphicons
- Bootstrap navbar.
- Bootstrap Form layouts
- Bootstrap Carousel

## B Designs

- Designs 1
- Designs 2
- Designs 3

# REACT/REACTJS

- 1 React Introduction
- 2 Advantages of React
- 3 JSX Introduction
- 4 Expressions in JSX
- 5 JSX elements
- 6 React virtual DOM
- 7 First application development in react
- 8 React project structure explanation
- 9 React Fragment
- 10 Components in React
- 11 Function component vs Class component
- 12 Props
- 13 State
- 14 Composing component
- 15 CSS in React
- 16 Type checking in props
- 17 ReactJS vs React Native
- 18 ReactJS vs AngularJS
- 19 Event Handling in React
- 20 Update state using event handling
- 21 Phases of components in react
- 22 Life cycle methods in react
- 23 Hooks introduction
- 24 Predefined hooks
- 25 Custom hooks
- 26 React Router
- 27 Lists in React
- 28 Key in React
- 29 Assets in React
- 30 Bootstrap in React
- 31 React Forms
- 32 Axios
- 33 ReactJS + NodeJS + MYSQL database integration
- 34 React Redux

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# BACK END

# CORE JAVA

- 1 Introduction To Java
- 2 Java History
- 3 Why Java
- 4 Features of Java
- 5 Environment Setup
- 6 Hello World Application
- 7 Java Program Internal
- 8 JDK, JRE, JVM
- 9 JVM-Java Virtual Machin
- 10 Class, Objects, Data Types
- 11 Variables
- 12 Type Casting
- 13 Operators
- 14 Java Comments
- 15 Object Oriented Programming Concepts
  - Abstraction
  - Encapsulation
  - Polymorphism
  - Inheritance

- 16 Java Coding Standards
- 17 Package, Name Package - Creating package, naming package
- 18 Java Keywords
- 19 Access Specifiers Public, Private, Protected, Default
- 20 Static Concept Block, Variable, Method, Class
- 21 Scanner Class
- 22 Control Statement If, If else, Nested if-else and Switch Case
- 23 Java Break Statement
- 24 Java Continue Statement
- 25 Flow Statement-for, while, do. While
- 26 Constructor- Default, Parameterized
- 27 Inheritance
- 28 Extends, super and this keyword
- 29 Method Overloading, Method Overriding
- 30 Interface
- 31 Abstract Class

- 32 Abstract Class vs Interface
- 33 Garbage Collection
- 34 Marker Interface
- 35 Serialization
- 36 Transient
- 37 Java instance of
- 38 Instance initializer block
- 39 Volatile Keyword in Java
- 40 Exception Handling
- 41 Exception Handling- try, catch, throw, throws, finally
- 42 String Concept
  - String Basics
  - String Methods
- 43 String Buffer
- 44 String Builder
- 45 Custom Immutable Class
- 46 Java - Arrays

47

## Collection Framework

- Collection Basics
- Iterator Interface
- Methods of Collection Interface

### 1.List

A.Array List

B.LinkedList

C.Vector

D.Stack

### 2.Set

A.Hash

B.Tree

C.Tree Set

### 3.Map

A.Hash

B.Tree

C.Tree Map

D.Hash table

48

## Collection Framework Advance Concepts

1. Comparable Interface
2. Comparator Interface
3. Collections class
4. Differentiate Comparable and Comparator

49 Java Unum

50 Date Concept

51 File Handling Concept

- File Handling Basics
- Create Folder
- Create File.txt. pdf. lax. docs, etc.
- Write File
- Read File
- Delete File

52 Thread

- Concept, Lifecycle
- Extends Thread
- Implement Runnable Interface
- Thread Priorities
- Thread Methods

53 Multithreading

54 Thread Synchronization

- Synchronization
- Object Locking
- Inter Thread Communication

55

## JDK 1.8.0 New Features with Hands-on

1. Lambda Expression
2. Functional Interface
3. Default Method in Interface
4. Static Method in Interface
5. Method References
6. Date Time API
7. Stream API in details All Advanced concepts as per Industry Practices]
8. Collectors
9. For each Loop
10. String Joiner Class
11. Parallel Sort
12. Optional Class

56

## Java Mail API- Real-time Live Implementation

# J2EE

## JDBC

- 1 JDBC introduction

---
- 2 JDBC Architecture

---
- 3 Types of JDBC Drivers

---
- 4 Database Overview

---
- 5 JDBC Basics

---
- 6 Java Application Using JDBC Connectivity

---
- 7 Handling SQL Exceptions

---
- 8 DB Connectivity Steps

---
- 9 Driver Manager

---
- 10 MySQL

---
- 11 Create Table, Insert, Update, Delete, Truncate

---
- 12 Result Set

---
- 13 Connection

---
- 14 Statement

---
- 15 Prepared Statement

- 16 Callable Statement

---
- 17 Database Metadata interface

---
- 18 Transaction Management

---
- 19 Store Image in SQL

---
- 20 Read Image in SQL

---
- 21 SQL Queries using Slog

---
- 22 JDBC CRUD Application

---

## **SERVLETS**

- 1 Servlet Basics
    - 1. Need of Server Side Programming
    - 2. Servlet life Cycle Methods
      - init()
      - Service ()
      - do Get ()
      - do Post ()
      - Destroy ()
-

- 2 Servlet Hello World Application

---
- 3 Web.xml Structure

---
- 4 Servlet Directives- include (), forward (), sendRedirect()
- 5 HttpServletRequest, HttpServletResponse in Servlet
- 6 Servlet and JDBC Integration

---

## JSP

- 1 JSP Basics

---
- 2 Creating dynamic Web content with JSP

---
- 3 Script let
  - Declaration

---
- 4 Servlet, JSP, MySQL-JDBC, Apache Tomcat Login Application

---
- 5 Servlet, JSP, MySQL- JDBC, Apache Tomcat using User Sign Up | Sign In

---
- 6 Servlet, JSP, MySQL- JDBC, Apache Tomcat using Custom CRUD Application with JDKAdvanced features

---

# FRAMEWORKS

## SPRING BOOT & MICRO SERVICES COURSE CONTENT

### SPRING BOOT

- What is Spring Framework
- What is Spring Boot
- Differences between Spring & Spring Boot
- Spring Boot Overview
- Pros & Cons of Spring Boot
- Approaches to create Spring Boot Application
  - a. Spring Initializer ([start.spring.io](http://start.spring.io))
  - b. Spring Starter Wizard in STS IDE
- Introduction to Spring Boot Starters
  - a) spring Boot Parent Starter
  - b) Spring-boot-starter
  - c) Spring-boot-starter-web
  - d) Spring-boot-starter-web flux
  - e) Spring-boot-devotees
  - f) Spring-boot-starter-data-jpg
  - g) Spring-boot-starter-mail
  - h) Spring-boot-actuator
  - i) Spring-boot-starter-test etc
- What is Start Class in Spring Boot
- @Spring Boot Application annotation internals
- Spring Application. run(..) method internals

- Auto Configuration in Spring Boot
- IOC container
- Dependency Injection
  - a) Setter Injection
  - b) Constructor Injection
  - c) Field Injection
- Stereotype Annotations
  - a) @Component
  - b) @Service
  - c) @Repository
  - d) @Controller
- Base Package Naming convention.
- Component Scanning
- Auto wiring
  - a) by Type
  - b) byname
  - c) constructor
  - d) none
- @Qualifier annotation
- @Primary annotation
- Introduction to @Configuration annotation
- Details of @Bean annotation
- Bean Life Cycle
- Bean Scopes
- Banner in Spring Boot
- Standalone application development in Spring Boot
- Standalone application with layered architecture
- Runner in Spring Boot
  - a) Application Runner
  - b) Command Line Runner

# SPRING DATA JPA

- What is Persistence Layer
- Best practises to follow in persistence layer
- ORM Basics
- Spring Data JPA Introduction
- Differences between Spring ORM and Spring Data
- Curd Repository introduction
- Curd Repository methods for DB operations
  - a) save () method
  - b) save All () method
  - c) find Rid () method
  - d) find Byld () method
  - e) findAllById () method
  - f) find All () method
  - g) deleteByld () method
  - h) deleteAllByld () method
  - i) count ()
  - j) delete () method
  - k) existsByld ()
- Custom findByXXX method syntax
- Custom Queries Execution in Data JPA
- Jpg Repository introduction
- Jpa Repository methods for DB operations
- Sorting Using Data JPA Methods

- Custom findByXXX method syntax
- Custom Queries Execution in Data JPA
- Jpg Repository introduction
- Jpa Repository methods for DB operations
- Sorting Using Data JPA Methods

## SPRING WEB MVC

- Spring Web MVC Introduction
- Spring Web MVC Advantages
- Spring MVC Architecture
- Introduction to Front Controller
- Controllers
- Handler Mappers
- View Resolvers
- Web Application development using Spring Boot
- Embedded HTTP Servers Introduction
  - a) Embedded Tomcat Server
  - b) Embedded Jetty Server
- Web Application Deployment in External Server
- Making Jetty as Default server
- Sending Data from Ulu to Controller
  - a) Query Pram
  - b) Path Pram
- Sending Data from Controller to Ul
  - a) Model
  - b) Model and View

- @Request Body annotation
- @Response Body annotation
- Form Based application development using Spring Boot
- Thyme leaf Introduction
- Web Application with Thyme leaf
- Sending Email using Spring Boot
- Exception Handling in Spring Boot Web Application
- Spring Boot Actuators
  - a) Health
  - b) Info
  - c) Heap dump
  - d) Thread dump
  - e) Beans
  - f) Httptrace
  - g) Mappings
  - h) Shutdown etc.

## SPRING REST

- Distributed Applications
- Distributed Technologies
- SOAP vs REST
- RESTful Services Introduction
- REST principles
- One Time operations

- Run Time Operations
  - a) Marshalling
  - b) Un Marshalling
- JAX-B Introduction
- JAX-B Architecture
- Applications development with JAX-B
- JSON Introduction
- XML vs JSON
- JACKSON API
- Converting Java object to JSON and vice versa using Jackson API
- GSON API
- Converting Java Object to JSON and Vice Versa using GSON API
- HTTP Protocol Details
- HTTP Methods
  - a) GET
  - b) POST
  - c) PUT
  - d) DELETE
- HTTP Status Codes
- @Rest Controller
- @Request Body
- @Response Body
- @Request PARAM

- @Path Variable
- REST API Development using Spring Boot
- POSTMAN
- REST Security
  - a) HTTP Basic Auth
  - b) JWT
  - c) OAuth2.0
- Apache Kafka with Spring Boot
- Redis Cache Integration with Spring Boot MICRO SERVICES
- Micro services Introduction
- Micro Services Advantages
- Micro Services Dis-Advantages
- Micro Services case study
- Identifying Micro services boundaries
- Micro services Architecture
- Micro services Development
  - a) API-1
  - b) API-2
- Micro services Integration with Angular TOOLS
- Maven
- Log4J
- Junit
- Jenkins Deployment
- Docker
- POSTMAN
- Swagger

# HIBERNATE

- Hibernate Introduction
- Basics
- Hibernate Architecture
- Hibernate Session
- Hibernate Session Factory
- Hibernate Configuration
- Hibernate Configuration Offline
- Hibernate with HBM
- Hibernate with Annotation
- Hibernate Validator
- Hibernate CRUD

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# DATA BASE

# INTRODUCTION TO SQL

- History and Features of SQL
- Types of SQL Commands
- Data Definition Language (DDL)
- Data Manipulation Language (DML)
- Data Query Language (DQL)
- Data Control Language (DCL)
- Transaction Control Language (TCL)
- Database
- Creating Database
- Altering Database
- Deleting Database
- Constrains
- Procedural Integrity Constraints
- Declarative Integrity Constraints
- Not Null, Unique, Default and Check constraints
- Primary Key and Referential integrity or foreign key constraints
- Data Types in TSQL
- Table
- Creating Table
- Deleting Table
- Altering Table

# DATA MANIPULATION LANGUAGE

- Insert
- Identity
- Creating A Table from Another Table
- Inserting Rows from One Table to Another
- Update
- Computed Columns
- Delete
- Truncate
- Differences Between Delete and Truncate

# DATA QUERY LANGUAGE (DQL.)

- Select
- Where clause
- Order by Clause
- Distinct Keyword
- Is null function Column aliases
- Predicates
- Between And
- In
- Like
- Is Null

## BUILT IN FUNCTIONS

- Scalar Functions
- Numeric Functions
- Character Functions
- Conversion Functions
- Date Functions
- Aggregate Functions
- Convenient Aggregate Functions
- Statistical Aggregate Functions
- Group by and Having Clauses
- Super Aggregates
- Over [partition by Clause
- Ranking Functions
- Common Table Expressions (CTE)

## TOP N CLAUSE

## SET OPERATORS

- Union
- Intersect
- Except
- Joins
- Inner Join
- Equip Join
- Natural

- Non-Equi Join
- Self-Join
- Outer Join
- Left Outer Join
- Right Outer Join
- Full Outer Join
- Cross Join

## SUB QUERIES

- Single Row Sub Queries
- Multi Row Sub Queries
- Any or Some
- Nested Sub Queries
- Co-Related Sub Queries
- Exists and Not Exists

### Indexes

- Clustered index
- NonClustered Indoor
- Create, Alter and Drop Indexes
- Using Indexes

## SECURITY

- Login Creation
- SQL Server Authenticated Login
- Windows Authenticated Login
- User Creation

- Granting Permissions
- Revoking Permissions
- Roles

## **VIEWS**

- Purpose of Views
- Creating, Altering and Dropping Indexes
- Simple and Complex Views
- Encryption and Schema Binding Options in creating views

## **TRANSACTION MANAGEMENT**

- Introduction
- Begin Transaction
- Commit Transaction
- Rollback Transaction.
- Save Transaction
- Role of Log File in Transaction Management
- Implicit Transactions

## **TSQL PROGRAMMING**

- Drawbacks of TSQL that leads to TSQL Programming
- introduction to TSQL. Programming
- Control statements in TSQL Programming
- Conditional Control Statements
- Case
- Looping Control Statements.
- While

## CURSORS

- Working with Cursors
- Types of Cursors
- Forward Only and Scroll Cursors
- Static, Dynamic and Keyset Cursors
- Local and Global Cursors

## STORED SUB PROGRAMS

- Advantages of Stored Sub Programs. Compared to Independent SQL Statements
- Stored Procedures
- Creating, Altering and Dropping
- Optional Parameters
- Input and Output Parameters
- Permissions on Stored Procedures
- User Defined Functions
- Creating, Altering and Dropping
- Types of User Defined Functions
- Scalar Functions
- Table Valued Functions
- Inline Table Valued Functions
- Multi Statement Table Valued Functions
- Permissions On User Defined Functions
- Purpose of Triggers

- Differences Between Stored Procedures and Laser
- Defined Functions and Triggers
- Creating, Altering and Dropping Triggers
- Magic Tables
- Instead of Triggers
- Exception Handling
- Implementing Exception Handling
- Adding and removing User Defined Error Messages to and from SQL Server Error Messages List
- Raising Exceptions Manual
- Word