

# J2EE Content

- Prerequisites
- Introduction to Advanced Java or J2EE
- JDBC
- Hibernate
- Servlet
- Git
- Spring IOC
- Spring MVC
- Spring BOOT

## Prerequisites

- Core Java
  - Class, variables, constructors and methods
  - Static and non-static
  - Method calling
  - Access Modifiers
  - Encapsulation
  - Inheritance
  - Abstract class
  - Interface
  - File Handling-Basic
  - Exception Handling-Basic
  - Stream API
- SQL
  - Basic SQL queries.
  - RDBMS
  - Constraints
- General
  - File Extensions
  - Naming Conventions
  - Package Structure
  - Html Tables, Forms and basic CSS

# Introduction to J2EE

## ➤ Application

- What is application
- Types of application
  - ✓ Stand Alone Applications
  - ✓ Web Applications
  - ✓ Client – Server Applications

## ➤ Java SE and Java EE

- What is Java Standard Edition
- What is Java Enterprise Edition
- Difference between Java SE and Java EE
- Why J2EE
- Contents of Advanced Java

# JDBC

## ➤ Introduction to Data

- What is Data
- Why we need to store Data
- Forms of storing Data

## ➤ Database

- What is Database
- Why database
- What is RDBMS

## ➤ API

- What is API
- Examples for API

## ➤ Introduction to JDBC

- What is JDBC
- Why JDBC
- Basic Components of JDBC

## ➤ JDBC Architecture

- What is JDBC API
- What is JDBC DriverManager
- What are JDBC Drivers

## ➤ JDBC Drivers

- Types of JDBC Drivers
- Advantages and Disadvantages of JDBC driver types

## ➤ Steps to Achieve Connection with Database

- Import Packages
- Load and Register Drivers
  - ✓ Ways of registering driver
- Establishing connection with Database
  - ✓ Ways of obtaining connection
- Create statements
  - ✓ Statement
  - ✓ Prepared Statement
  - ✓ Callable Statement
- Execute Query
  - ✓ execute ()
  - ✓ executeUpdate ()
  - ✓ executeQuery ()
- Fetch Result
  - ✓ Result set
  - ✓ next ()
- Close Connection

## ➤ Batch processing

- What is Batch Processing
- Advantages of Batch Processing
- How to do batch processing

## ➤ Project

- School App
- Food Order App

# Hibernate

## ➤ Drawbacks of JDBC

## ➤ Frameworks

- What are frameworks
- Why Frameworks
- Example for Frameworks

## ➤ Introduction to Hibernate

- What is hibernate
- Why Hibernate
- What is Persistence Logic
- What is ORM and ORM Tool
- What is JPA
- Hibernate with JPA

## ➤ Hibernate life cycle

- Transient state
- Persistent state
- Detached state
- Removed state

## ➤ How to obtain connection in hibernate

- EntityManagerFactory
- EntityManager
  - ✓ persist ()
  - ✓ merge ()
  - ✓ remove ()
  - ✓ find ()
- EntityTransaction
  - ✓ begin ()
  - ✓ commit ()

## ➤ Annotations

- @Entity
- @Id
- @Column
  - ✓ Unique
  - ✓ Nullable

## ➤ Mapping

- Uni-directional mapping
- Bi-directional mapping
- @OneToOne
- @OneToMany
- @ManyToOne
- @ManyToMany
- @JoinColumn
- mapped by
- cascading

## ➤ Caching

- First level
- Second level

## ➤ Generated value

## ➤ Fetch Types

- Eager fetch
- Lazy fetch

## ➤ Project

- School App
- Food Order App
- Hospital App

## ➤ Introduction to Servlet

- Server architecture
- Server
- URL
- What is Servlet
- Why Servlet
- Web App work flow

## ➤ Deployment Descriptor

- web.xml
  - ✓ Tags Used

## ➤ Servlet lifecycle

- init ()
- service ()
- destroy ()

## ➤ Servlet interface

- Methods of Servlet interface
- GenericServlet
  - ✓ Methods of GenericServlet
  - ✓ ServletRequest, ServletResponse
- HttpServlet
  - ✓ Methods of HttpServlet
  - ✓ Difference between doGet() and doPost()
  - ✓ HttpServletRequest, HttpServletResponse
- Difference between Servlet, GenericServlet and HttpServlet
- getParameter(), getWriter(), PrintWriter class, getRequestDispatcher()
- ServletException

## ➤ Ways of creating servlet class

- Implementing Servlet Interface
- Extending Generic Servlet
- Extending Http Servlet

## ➤ Request Dispatcher

- forward ()
- include ()

## ➤ Send Redirect

- Why and how used

## ➤ Annotations

- Why annotation

- @WebServlet

## ➤ Session tracking

- ✓ Why
- ✓ Cookies
- ✓ Http session
- ✓ URL rewriting
- ✓ Hidden forms

## ➤ JSP

- JSP lifecycle
- 3 different tags
- JSP Directives tag lib, page

## ➤ Project

- Food App
- Hospital App
- Hotel App

## ➤ Introduction to Spring

- Why Spring
- What is Spring
- Spring Contents

## ➤ Spring Core Introduction

- EJB Container drawbacks
- IOC Containers

## ➤ Bean Factory

- XmlBeanFactory
- ApplicationContext
  - ✓ ClasspathXmlApplicationContext
  - ✓ FilesystemXmlApplicationContext
  - ✓ AnnotationConfigApplicationContext

## ➤ Enterprise java bean and POJO

## ➤ Dependency Injection

- Dependency Injection in Xml
  - ✓ Constructor Dependency Injection
  - ✓ Methods Dependency Injection
  - ✓ Variable Dependency Injection
- Dependency Injection using annotations
  - ✓ @Component
  - ✓ @Autowired
  - ✓ @Value

## ➤ Model and View

- ModelAndView class
- addObject()

## ➤ Spring MVC Working

- Front Controller
- Handler Mapping
- Controller
- View Resolver
- View
- @ComponentScan, @Configuration
- @Bean

## ➤ Spring Boot

- Spring initializers
- Spring Boot starters



- REST API
- Post Man
  - ✓ JSON Objects

### ➤ Annotations in spring boot

- @SpringBootApplication
- @Bean
- @RestController
- @Service
- @Repository
- @Configuration
- @Autowired
- @PostMapping
- @GetMapping
- @DeleteMapping
- @PutMapping
- @RequestBody
- @PathVariable
- @RequestParam
- @EnableSwagger2
- @Controller

### ➤ Status code-Basic

- Some of the most used http status codes

### ➤ Exception handling in spring boot

- @ControllerAdvice
- @ExceptionHandler

### ➤ Spring mail

### ➤ Response Structure

### ➤ Response Entity

### ➤ Swagger

## GIT

### ➤ Git Initialization

- Git add and commit
- Create git repository and branches in global repository
- Git pull and push and how to handle conflicts
- How to work using git