



DIGITIZE LEARN

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Learn JAVA

Object-Oriented Programming (OOPS) concepts:

- Programming Languages
- Object Oriented Programming
- Classes & Objects
- Pillars Of Object Oriented Programming
- OOPS concepts and terminology
- Encapsulation & Examples
- Abstraction & Examples
- Inheritance
- Advantages of OOPS
- Fundamentals of OOPS

Core Java Programming Introduction of Java:

- What is Java?
- Execution Model Of Java
- Bytecode
- How to Get Java?
- A First Java Program
- Compiling and Interpreting Applications
- The JDK Directory Structure
- Using Eclipse

Data types and Variables:

- What are data types?
- Primitive Datatypes & Declarations
- Variables & Types
- Numeric & Character Literals
- String formatting and Parsing
- String Literals
- Arrays, Non-Primitive Datatypes
- Casting & Type Casting
- Widening & Narrowing Conversions
- The Dot Operator

Methods:

- What are Methods?
- Method Structure
- Declaration Of Methods
- Calling Of Methods
- Defining Methods
- Method Parameters Scope
- Why static methods?

Operators and Expressions:

- Expressions
- Assignment Operator
- Arithmetic Operators
- Relational Operators
- Logical Operators
- Increment and Decrement Operators
- Operate-Assign Operators (+=, etc.)
- The Conditional Operator
- Operator Precedence

- The Cast Operator

Control Flow Statements:

- What are Control Flow Statements?
- Conditional (if) Statements
- Adding an else if
- Conditional (switch) Statements

While and do-while Loops:

- for Loops
- A for Loop Diagram
- Enhanced for Loop
- The continue Statement
- The break Statement

Object-Oriented Programming:

- Concept & Syntax Of Class
- Concept & Syntax Of Methods
- Fields and Methods
- Constructors & Destructors
- Encapsulation
- Access Specifiers
- Access Control

Objects and Classes:

- Defining a Class
- Creating an Object
- Accessing Class Members
- Instance Data and Class Data
- Defining Methods
- Constructors
- Access Modifiers

Using Java Objects:

- StringBuilder and StringBuffer
- Methods and Messages
- Parameter Passing
- Comparing and Identifying Objects

Inheritance & Polymorphism:

- Inheritance in Java
- Why use Inheritance?
- Types Of Inheritance
 - Single Inheritance
 - Multi-level Inheritance
 - Hierarchical Inheritance
 - Hybrid Inheritance
- Method Overloading
- Run-time Polymorphism
- Method Overriding
- Polymorphism in Java
- Types Of Polymorphism
- super keyword
- The Object Class & Methods

Java Files and I/O:

- What is a Stream?
- Reading and Writing to Files (only txt files)
- Input and Output Stream
- Manipulating input data
- Reading Lines
- Opening & Closing Streams
- Predefined Streams
- File handling Classes & Methods

- Using Reader & Writer classes

Interfaces and Abstract Classes:

- What is an Interface
- Defining Interfaces
- Separating Interface and Implementation
- Implementing and Extending Interfaces
- Abstract Classes

Packages:

- What is a Package?
- Advantages of using a Package
- Types Of Packages
- Naming Convention
- Steps For Creating Packages
- The import Statement
- Static Imports
- CLASSPATH and Import
- Defining Packages
- Package Scope

Lambda Built-in Functional Interfaces:

- Lambda Notation
- Lambda Syntax
- Lambda Expression
- java.util.function package
- Use primitive versions of functional interface
- Use binary versions of functional interface
- Use the UnaryOperator interface

Exception Handling:

- Exceptions Overview

- Exception Keywords
- Catching Exceptions
- The finally Block
- Exception Methods
- Declaring Exceptions
- Defining and Throwing Exceptions
- Errors and Runtime Exceptions
- Assertions

Collection Framework:

- The Collections Framework
- The Set Interface
- Set Interface Methods
- Set Implementation Classes
- The List Interface
- List Implementation Classes
- The Map Interfaces
- Map Implementation Classes
- Utility classes
- Generics in Java
- Primitive wrapper classes

Inner Classes:

- Nested Classes
- Anonymous Inner Classes
- Local Nested Classes
- Static Nested Classes
- Member Classes
- Instance Initializers

Threads:

- Non-Threaded Applications

- Introduction to Threads
- Threaded Applications
- Creating threads
- Lifecycle Of A Thread
- Phases of Thread life cycle
- Runnable Interface
- Priority Of Threads
- Coordinating Threads
- Thread Interruption
- Thread Groups

Swing:

- Introduction To Swing
- Swing Features
- Heirarchy Of Java Swing Classes
- Swing GUI Components
- Packages Used In Swing
- Swing Control Classes & Methods
- Using Swing API
- Swing API MVC Architecture
- AWT v/s Swing
- Event Handling In Swing
- Event Listener Interfaces

Applet:

- Introduction to Applet
- The Applet Heirarchy
- Life Cycle of an Applet
- Lifecycle Methods for Applet
- A "Hello World" Applet
- Applet Layout Manager
- Bounding Box Concept

- Relative Coordinate System

JDBC:

- Introduction To JDBC
- JDBC Architecture
- Types Of JDBC Drivers & Differences
- Common JDBC Components
- Importing Packages
- Registering JDBC Drivers
- Opening Connection
- Connecting a Java program to a Database
- Executing Query
- Statement Class & Objects
- Getting Information from Database
- Obtaining Result Set Information
- DML Operations through JDBC
- Cleaning up Environment

Agile Scrum Overview:

- Introduction To Agile Methodology
- Scrum & Its Characteristics
- Sprints In Scrum
- Overview of Scrum Artifacts & Ceremonies

Advanced Java

HTML, CSS & Javascript Overview:

- HTML Basics
- HTML Elements
- CSS Introduction
- CSS Syntax & Selectors

- Javascript Overview
- Bootstrap Overview

Java MVC Architecture:

- Three-tier architecture
- Introduction to MVC
- MVC Architecture
- Advantages of MVC
- Building pages with MVC

Servlets:

- What is a web application?
- What is a Servlet?
- Advantages of Servlet
- Servlet Class
- Servlet Lifecycle
- ServletContext Interface
- Advantages of ServletContext
- Session management
- Session Tracking Techniques
 - Cookies
 - Hidden field
 - URL Rewriting
 - HttpSession
- Building the first Servlet
- Deploying the Servlet
- Servlet Examples

JSP:

- Introduction of JSP
- JSP Architecture
- JSP Processing

- JSP Tag library
- Core Tags
- JSP Standard Tags
- JSP Page Life Cycle
- Creating the first Dynamic web page using JSP

Hibernate:

- Introduction to Hibernate
- Hibernate v/s JDBC
- What is Object Relational Mapping
- Hibernate Features
- Application Architecture
- Persistent Classes
- Object States
 - Transient State
 - Persistent State
 - Detached State
- Rules of Persistent Classes
- Mapping Collections
- Hibernate Mapping File Elements
- Types Of Mapping
 - One-to-one
 - One-to-many mapping
 - Many - one mapping
 - Many - to - many mapping
- Hibernate Query Language
 - Basic HQL Operations
 - Advantages of HQL
- Caching and Transactions
 - Types Of Cache
 - Hibernate Transaction Management
 - Transaction Interface In Hibernate

- Hibernate with Web Applications

Spring:

- Introduction of Spring Framework
 - Characteristics Of Spring
 - Spring Framework Architecture
 - Spring Framework Modules
 - Spring Platform Advantage
- Spring bean Wiring
 - Dependency Injection
 - IoC Containers
 - Spring Bean Lifecycle
 - Beans Auto Wiring
 - Autowiring Limitations
- Spring with database
 - Introduction to JDBC
 - Limitations of JDBC API
 - Spring JDBC Approaches
 - JdbcTemplate Class
 - JdbcTemplate Class Methods
 - Data Access Object (DAO)

Struts2:

- Introduction to Struts
 - What is a Web Framework
 - Limitations of JSP/Servlet Coding
 - MVC1 v/s MVC2
 - What is Struts
 - Invasive v/s Non invasive Frameworks
 - Modules in Struts 2
 - Request Processing Lifecycle
 - Struts1 v/s Struts2

- Advantages of Struts2
- Struts2 MVC Architecture
 - Actions Component
 - Results & Result Types
 - The Value Stack
- Action Classes
 - Introduction to Action Class
 - Characteristics Of Action Class
 - ActionSupport Class
 - Action Interface
- Handling Application Requests
 - Handling Form Data
 - Struts2 Form
 - JavaBean Class
 - Success Page
 - Configuring Struts2
- Deployment Descriptors
 - The web.xml file
 - The struts.xml file
 - The struts-config.xml file
 - The struts.properties file

SQL:

- Introduction to RDBMS
- Features of RDBMS
- Introduction to SQL
- Basic Terminologies
- PLSQL Data Types
- Primary Key v/s Foreign Key
- The Unique Constraint
- DDL Statements
- DML Statements

- Retrieving Records
- Normalization
- Functions in SQL
- Handling Null Values
- SQL Joins
 - Inner joins
 - Outer Joins
 - Right Joins

Java Project