

Syllabus of Java Course in Bangalore

Core Java Syllabus (Total Duration-35hrs) Module 1: Introduction (Duration-0.5hr)

 Java Why? What? How? When? Where?

Different Java Versions.

How Java is different from other Technologies

# Module 2: Introduction To Java Programming Environment (Duration-1hr)

 How to Install & set Path.

A Simple Java Program

Compiling & executing Java Program

Phases of Java Program

Analysis of a Java Program

Understanding Syntax and Semantic Error,

Runtime Exception

Name of a Java Source File

Platform Independency

Java Technology (JDK, JRE, JVM, JIT)

Features of Java

Text Editors

Consoles

# Module 3: Fundamentals of Java Programming (Duration-1hr)

 Naming convention of Java language

Comments

Statements

Blocks (Static, Non-static/instance)

Identifiers

Keywords

Literals

Primitive Data Types, Range

Reference (User defined) Data type

Variables (Primitive, Reference)

Type Casting, Default Value

Operators

Program/Interview questions

# Module 4: Control Structures (Duration-1hr)

 Working with Control Structures

Types of Control Structures

þÿ D e c i s i o n C o n t r o l S t r u c t u r e ( i f , i f

þÿ R e p e t i t i o n C o n t r o l S t r u c t u r e ( d o

Program/Interview questions

# Module 5: Input Fundamentals And Datatypes In Java (Duration-2hrs)

 Java program inputs from Keyboard

Methods of Keyboard inputs

Scanner, Buffered Reader

Problem Solving

Java Array

What is Array

Array Declaration in java vs C and C++.

Instantiation of an Array

String vs character array.Accessing Array

Elements, Default Value, for-each loop, varargs

þÿ L e n g t h o f a n A r r a y ( W h a t i s A r r a y

Increasing, Decreasing the Size and Copy of an Array

Multi-Dimensional Arrays

Program/Interview questions

Program/Interview questions Difference between C and C++ with Java

Application Compilation and Run

Interview related Question and Answer

# Module 6: Object Oriented Programming (Oops Concepts In Deep) (Duration-4hrs)

 Procedural Vs Object Oriented Program

Different type of Program Procedural Vs Object Oriented.

Top Down Vs Bottom Up Approach

Introduction to Object Oriented

Abstraction, Encapsulation, Inheritance,

Polymorphism.

Introduction to Classes and Objects

Custom Class Definition

Instance and Static Variables

Different ways to create Object Instance

þÿ I n s t a n c e V a r i a b l e a n d i t s r o l e i n

Constructors, types of Constructor,

Constructor Rule, Constructor Overloading

þÿ S t a t i c V a r i a b l e a n d i t s u s e .

Methods and their behavior.

Constructor vs Methods

Constructors

þÿ t h i s K e y w o r d

Java Access Modifiers (and Specifiers)

Programming Interview related Question and Answer

Call by value, Call by reference

# Module 7: Command-Line Arguments (Duration-1hr)

 What is a Command-Line Argument?

Java Application with Command-Line Arguments

Conversion of Command-Line Arguments

Passing Command-Line Arguments

Using methods (Static , Non Static)

# Module 8: Integrated Development Environment (Duration-0.5hr)

 Using various Editors

Program Compilation, Execution in Editor

Using Eclipse IDE

Project Set Up

Source File Generation

Application Compilation and Run

# Module 9: Inner Class (Duration-1hr)

 First View of Inner Class

Outer Class Access

Types of Inner Class

# Module 10: Inheritance (Duration-2hrs)

 Complete concepts of Inheritance

Sub-Classes

Object Classes

Constructor Calling Chain

þÿ T h e u s e o f s u p e r K e y w o r d

þÿ T h e u s e o f p r i v a t e k e y w o r d i n h e r

Reference Casting

# Module 11: Abstract Classes and Inheritance (Duration-2hrs)

 Introduction to Abstract Methods

Abstract Classes and Interface

Interface as a Type

Interface v/s Abstract Class

Interface Definition

Interface Implementation

þÿ M u l t i p l e I n t e r f a c e s þÿ I n t e r f a c e s I n h e r i t

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| I | m | p | l | e | m | e | n t | a | t | i | o |
| a n c | e |  |  |  |  |  |  |  |  |  |  |

How to create object of Interface

# Module 12: Polymorphism (Duration-1hr)

 Introduction to Polymorphism

Types of Polymorphism

Overloading Methods

Overriding Methods

Hiding Methods

Final Class and Method

Polymorphic Behavior in Java

Benefits of Polymorphism

þÿ I s - A v s H a s - A

Association Vs Aggregation

Interview related Question and Answer.

# Module 13: Package (Duration-2hrs)

 Package and Class path and its use

First look into Packages

Benefits of Packages

Package Creation and Use

First look into Class path

Class path Setting

Class Import

Package Import

Role of public, protected, default and private w.r.t package

Namespace Management

Package vs. Header File

Creating and Using the Sub Package

Sources and Class Files Management

# Module 14: Using Predefined Package & Other Classes (Duration-2hrs)

 Java.lang Hierarchy

Object class and using toString(), equals(),hashCode(), clone(), finalize() etc

Using Runtime Class, Process Class to play music, video from Java Program

Primitives and Wrapper Class

Math Class

String, StringBuffer, StringBuilder Class

String Constant Pool

Various usage and methods of String,StringBuffer, StringBuilder

Wrapper Classes

System Class using gc(), exit(), etc.

# Module 15: New Concepts In Package (Duration-1hr)

Auto boxing and Auto unboxing

Static import.

Instance of operator.

Enum and its use in Java

Working with jar

# Module 16: Garbage Collection (Duration-0.5hr)

 Garbage Collection Introduction

Advantages of Garbage Collection

Garbage Collection Procedure

Java API

Interview related Question and Answer

# Module 17: Exception Handling (Duration-2hrs)

 Introduction to Exceptions

Effects of Exceptions

Exception Handling Mechanism

Try, catch, finally blocks

Rules of Exception Handling

Exception class Hierarchy, Checked &

Unchecked Exception

Throw & throws keyword

Custom Exception Class

Chained Exception.

Resource handling & multiple exception class

Interview related Question and Answer.

# Module 18: Multithreading (Duration-3hrs)

 Introduction

Advantages

Creating a Thread by inheriting from Thread class

Run() and start() method.

Constructor of Thread Class

Various Method of Thread Class

Runnable Interface Implementation

Thread Group

Thread States and Priorities

Synchronization method, block

Class & Object Level Lock

Deadlock & its Prevention

Inter thread Synchronization

Life Cycle of Thread

Deprecated methods : stop(), suspend(),resume(), etc

Interview related Question and Answer

# Module 19: Input and Output Streams (Duration-3hrs)

 Java I/O Stream

þÿ I / O S t r e a m I n t r o d u c t i o n

Types of Streams

Stream Class Hierarchy

Using File Class

Copy and Paste the content of a file

Byte Streams vs Character Streams

Text File vs Binary File

Character Reading from Keyboard by Input Stream Reader

Reading a Line/String from Keyboard by Buffered Reader

Standard I/O Streams Using Data Streams to read/write

primitive data

PrintStream vs PrintWriter Using StreamTokenizer and RandomAccessFile

Interview related Question and Answer

# Module 20: Serialization (Duration-0.5hr)

 Introduction to Serialization

Using Object Streams to read/write object

Transient Keyword

Serialization Process

Deserialization Process

Interview related Question and Answer

# Module 21: Collection Framework (Duration-3hrs)

 Generics(Templates)

What is generic

Creating User defined Generic classes

The java.util package

Collection

What is Collection Framework

List, Set & Map interfaces

Using Vector, Array List, Stack,

Linked List, etc.

Using Collections class for sorting

Using Hashtable, Hash Map, Tree Map,

SortedMap, LinkedHashMap etc.

Iterator, Enumerator.

Using Queue, Deque, SortedQue, etc.

Using HashSet, TreeSet, LinkedHashSet etc

Using Random class

Using Properties in a Java Program

Using user defined class for DataStructure

Using Date and Formatting Date class.

Interview related Question and Answer

# Module 22: Java 8/9/10 Features (Duration-1hr)

Advanced Java Syllabus (Total Duration-30hrs) Module 1: JDBC (Duration-3hrs)

 Introduction to JDBC

Databases and Drivers

Types of Driver

Loading a driver class file

Establishing the Connection to different

Database with different Driver

Executing SQL queries by ResultSet,Statements , PreparedStatment interface.

Using CallableStatement

Transaction Management & BatchUpdate

Programs/Interview related Question and Answer

# Module 2: JSP (Duration-5hrs) Basics Of Jsp

 Life cycle of JSP

JSP API

þÿ J S P i n E c l i p s e a n d o t h e r I D E s

Programs/Interview related Question and Answer.

# Scripting Elements

 scriptlet tag

expression tag

declaration tag

Programs/Interview related Question and Answer.

# Implicit Objects

 out

request

response

config

application

session

pageContext

page

exception

Programs/Interview related Question and Answer.

# Directive Elements

 page directive

include directive

taglib directive

Programs/Interview related Question and Answer.

# Exception Handling Action Elements

 jsp:forward

jsp:include

Bean class

jsp:useBean

jsp:setProperty & jsp:getProperty

Displaying applet in JSP

# Expression Language

 What is expression and how to use it

Define expression and use over the service flow

The way to be achieve same in JSP

# Mvc In Jsp

 MVC pattern

Working flow implementation of MVC

CRUD operation using MVC

Design a real time web application using MVC

# JSTL

 Discussion on the tag library

How to implement and use

# Custom Tags

 Custom Tag : What and Why?

Custom Tag API?

Custom Tag Example

Attributes

Iteration

Custom URI

# Module 3: Servlet ( Duration-7hrs)

 Basics of Servlet

Servlet: What and Why?

Basics of Web

Servlet API

Servlet Interface

GenericServlet

HttpServlet

Servlet Life Cycle

Working with Apache Tomcat Server

Steps to create a servlet in Tomcat

How servlet works?

servlet in Myeclipse

servlet in Eclipse

servlet in Netbeans

# Servlet request

Servlet Request methods

Registration example with DB

# Servlet Collaboration

 Request Dispatcher

send Redirect

# Servlet Configure

 Servlet Configure methods

Servlet Configure example

# Servlet Context

 Servlet Context methods

Servlet Context example

# Session Tracking

 Cookies

Hidden Form Field

URL Rewriting

HttpSession

# Module 4: Concurrent and implementation of collection (Duration-2hrs)

 Implemenation of ArrayList

Implemenation of LinkedList

Implemenation of HashMap

Implementation of Queue/PriorityQueue/Deque

# Module 5: Advanced Multi-Threading (Duration-3hrs)

 Implemenation of Executor pool service and working mechanism with real time

Big file(Single , multiple ) processing using multiple thread

Implemenation to achieve thread class and runnable interface

# Module 6: Javamail Api (Duration-2hrs)

 Sending Email

Sending email through Gmail server

Receiving Email

Sending HTML content

# Module 7: Design Pattern (Duration-2hrs)

 Singleton

DAO

DTO

MVC

Front Controller

Factory Method

Abstract

etc

# Module 8: Junit (Duration-1hr)

 JUnit: What and Why?

Annotations used in JUnit

Assert class

Test Cases

# Module 9: Maven (Duration-1hr)

 Maven: What and Why?

Ant Vs Maven

How to install Maven?

Maven Repository

Understanding pom.xml

Maven Example

Maven Web App Example

Maven using Eclipse

Module 10: Project Guidance (Duration-4hrs)