

# ADVANCE JAVA SYLLABUS



## 1. Advance topic

- ✓ Runtime and Process Class
- ✓ Cloning And Assertion
- ✓ Java Compiler Class & Variable Length arguments
- ✓ Creating Executable Jar
- ✓ Ten Parts of Bytecode
- ✓ Wrapper Classes
- ✓ Generics
- ✓ Enum
- ✓ Annotation
- ✓ Lambda Expressions

## 2. Advance Threading

- ✓ ReentrantLock
- ✓ CountdownLatch
- ✓ CyclicBarrier
- ✓ Semaphore
- ✓ Thread Pools
- ✓ Callable Interface
- ✓ Blocking Queue
- ✓ ConcurrentLinkedQueue
- ✓ Exchanger
- ✓ Phaser
- ✓ ThreadFactory
- ✓ ThreadLocal
- ✓ Volatile Keyword
- ✓ Atomic

## 3. Java Platform Module System

- ✓ Need of Module



✓ Implementation of Module

## 4. Collection

✓ Need of Collection

✓ Collection, Iterator, Enumeration Interface

✓ List Interface

- ArrayList
- Vector
- LinkedList
- Stack
- CopyOnwriteArrayList

✓ Map Interface

- HashMap
- LinkedHashMap
- Hashtable
- TreeMap
- NavigableMap
- ConcurrentHashMap
- IdentityHashMap
- WeakHaspMap
- Properties

✓ Set Interface

- HashSet
- LinkedHashSet
- CopyonWriteArraySet
- TreeSet
- NavigableSet

✓ Queue Interface

- PriorityQueue
- ArrayQueue

✓ Collection Class

✓ Array Class

## 5. Date API

✓ Java . Until Package

- Data Class
- GregorianCalendar Class
- Calendar Class
- Timezone Class



- SimpleTimezone Class

#### ✓ Java . Time package

- LocalDate
- LocalTime
- Month
- MonthDay
- Year
- YearMonth
- DayOfWeek
- ZonedDateTime
- ZoneId

#### ✓ Formatting Date

- DateFormat
- SimpleDateFormat
- DateTimeFormatter

## 6. Java DataBase Connectivity

#### ✓ Need of JDBC

#### ✓ Drivers in JDBC

#### ✓ Steps For Implementing JDBC

#### ✓ DriverManager Class

#### ✓ CRUD Operations with Oracle

#### ✓ CRUD Operations With MySQL

#### ✓ ResultSet Type

#### ✓ Fetch Size

#### ✓ Rowset

- JDBCRowSet
- CachedRowSet
- WebRowSet
- JoinRowSet
- FilteredRowSet

#### ✓ PreparedStatement

#### ✓ CallableStatement

#### ✓ Batch Updates

#### ✓ MetaData

- ResultSetMetaData
- DatabaseMetaData
- RowsetMetaData
- ParameterMetaData



- ✓ Transaction
- ✓ BlobClob
- ✓ DateTime
- ✓ Inserting Image,XML In DataBaseSequence

## 7. J2EE

- ✓ Need of J2EE
- ✓ J2EE Technologies
- ✓ Architecture Style of Application
  - Two-Tier Architecture
  - Three-Tier Architecture
  - N-Tier Architecture
- ✓ J2EE Containers
  - Web Container
  - EJB Container
- ✓ J2EE Servers
  - Web Server
  - Application Server
- ✓ J2ee Clients
  - Web Clients
  - EJB Clients
- ✓ Different Approaches for Server Side Programming
  - Common Gateway Interface(CGI)
  - Server Side Java Script
  - Active Server Pages
  - Applets Of Java
  - Servlet
- ✓ Methods of HTTP Protocol
  - GET Method
  - Post Method
  - Other Methods
  - Request And Response Headers

## 8. Servlet

- ✓ Need of Servlet
- ✓ Directory Structure of Web Component
- ✓ Three Ways of creating a Servlet
- ✓ Steps for Implementing Servlet
- ✓ Creating First Servlet Using Servlet Interface



- ✓ Seven ways of calling a Servlet
- ✓ Life cycle of Servlet
  - First Request of Servlet
  - Frequent Request of Same Servlet
- ✓ Creating Servlet using GenericServlet class
- ✓ Creating Servlet using HttpServlet Class
- ✓ ServletConfig, ServletContext Interface
- ✓ Servlet Collaboration
  - SendRedirect Method
  - RequestDispatcher Interface
- ✓ Setting Attributes
- ✓ Handling Request headers
- ✓ File upload, Download and Refreshing Servlet
- ✓ HTTP status Codes
- ✓ AsyncContext interface
- ✓ Session tracking
  - Need of Session Tracking
  - Using Cookie
  - URL Rewriting
  - Hidden from Field
- ✓ Cookies
- ✓ Listeners
  - Need of Listeners
  - Implementation of Listener
  - Listener with Annotation
- ✓ Filters
  - Need of Filters
  - Implementation of Filter
  - Login Filter
  - One Filter Multiple Servlet
  - Initparam with Filter
  - Filter with Annotation
- ✓ I18n
- ✓ Pagination
- ✓ Connecting Pool
- ✓ Non-Blocking I/O
- ✓ Multipart Annotation
- ✓ Inject Annotation



## 9. JSP

- ✓ Problem with Servlet
- ✓ Working of JSP
- ✓ API for JSP
- ✓ Life cycle of JSP
- ✓ Scripting Elements
  - Scriptlet tag
  - Expression Tag
  - Declaration Tag
  - Flow Control with JSP
- ✓ Implicit Objects
  - Out
  - Request
  - Response
  - Session
  - Application
  - Config
  - Exception
  - PageContext
  - page
- ✓ JSP Directive
  - Page Directive
  - Include Directive
  - Taglib Directive
- ✓ Standard Actions
  - jsp: include
  - jsp: forward
  - jsp: param
  - jsp: plugin
  - Java Bean Class
  - jsp: useBean
  - jsp: setProperty
  - jsp: getProperty
- ✓ Custom Tags
  - Concepts Of Custom Tag
  - API For Custom Tag
  - Files Required For Creating Custom Tag
  - Methods For Custom Tag



- Life Cycle Of Custom Tag
- Implementing Custom Tag
- Accessing Body Of Custom Tag
- Creating Own SqlTag
- ✓ Expression Language
  - EL Operators
  - EL Implicit Objects
- ✓ JSTL
  - JSTL Core Tags
  - JSTL Sql Tags
  - JSTL Formatting Tags
  - JSTL Functions
- ✓ File uploading & Downloading with JSP
- ✓ Handling Cookies via JSP

## 10. Ajax

- ✓ Need Of AJAX
- ✓ XMLHttpRequest object
- ✓ AJAX With Servlet
- ✓ AJAX With JSP
- ✓ AJAX With Database
- ✓ Checking Name in Database
- ✓ Checking Phone no. in Database
- ✓ Creating Dynamic Combo
- ✓ AJAX With XML
- ✓ Online Java Compiler With Ajax
- ✓ Pagination With Ajax

## 11. JSON

- ✓ JSON Introduction
- ✓ Converting Java Object Into JSON String
- ✓ Writing Java Object Into JSON File
- ✓ Reading JSON File Via Java
- ✓ JSONParser Example
- ✓ JSON With Servlet
- ✓ JSON With JSP

## 12. Mail API

- ✓ Java Mail Classes
- ✓ Sending Mail Via Console
- ✓ Sending Attachments



- ✓ Sending Mail Via Servlet

## 13. RMI

- ✓ Need Of RMI
- ✓ Working Of RMI
- ✓ Stub And Skeleton
- ✓ Marshaling And UnMarshaling
- ✓ Locating Remote Objects
- ✓ Methods Of Naming Class
- ✓ Steps For Implementing RMI
- ✓ RMI With Servlet

## 14. Web Services (JAX-WS)

- ✓ Need Of Web Service
- ✓ Components of Web Services
- ✓ How webservicework
- ✓ Steps For Implementing Web Service
- ✓ Hello World JAX-WS
- ✓ Adding Two Numbers
- ✓ Web Client Of JAX-WS
- ✓ Downloading File Via JAX-WS

## 15. Rest Full Services (JAX-RS)

- ✓ Introduction to JAX-RS
- ✓ JAX-RS Annotations
- ✓ Working Of JAX-RS
- ✓ Path Annotation
- ✓ PathParam Annotation
- ✓ QueryParam And Default Value Annotation
- ✓ FormParam Annotation
- ✓ HeaderParam Annotation
- ✓ File Upload With JAX-RS
- ✓ File Download With JAX-RS
- ✓ JSON With JAX-RS
- ✓ XML With JAX-RS
- ✓ Converting Java Object Into Xml Via JAX-RS
- ✓ JAX-RS With Maven
- ✓ Difference Between JAX-WS And JAX-RS

## 16. Java Message Service

- ✓ Need Of JMS



- ✓ Publish/Subscribe Messaging
- ✓ Point-to-Point Messaging
- ✓ Steps for Implementing JMS
- ✓ Sending Message Via Publish/Subscribe
- ✓ Sending Message Via Point-to-Point Messaging

## 17. XML

- ✓ Introduction To XML
- ✓ XML Syntax
- ✓ XML Elements
- ✓ Document Type Definition (DTD)
  - Internal Doctype Declaration
  - External Doctype Declaration
  - PCDATA And CDATA
  - Declaring An Element In DTD File
  - Creating XML
- ✓ DOM Parser
  - Working Of DOM Parser
  - Reading XML Via DOM Parser
  - Creating XML Via DOM Parser
  - Updating XML Via DOM Parser
- ✓ SAX Parser
  - Working Of SAX Parser
  - Reading XML Via SAX Parser
  - Converting XML Into Java Objects
- ✓ StAX Parser
  - Working Of StAX Parser
  - Reading XML Via StAX Parser

## 18. Design Patterns

- ✓ What Is Design Pattern
- ✓ Creational Patterns
  - Factory Pattern
  - Abstract Factory Pattern
  - Singleton Pattern
  - Builder Pattern
  - Prototype Pattern
- ✓ Structural Patterns
  - Adapter Pattern



- Bridge Pattern
- Composite Pattern
- Decorator Pattern
- Facade Pattern
- Flyweight Pattern
- Proxy Pattern

✓ Behavioural Patterns

- Chain of Responsibility Pattern
- Command Pattern
- Interpreter Pattern
- Decorator Pattern
- Iterator Pattern
- Mediator Pattern
- Memento Pattern
- Observer Pattern
- State Pattern
- Strategy Pattern
- Template Pattern
- Visitor Pattern

✓ J2EE Patterns

- DAO Pattern
- MVC Pattern
- Service Locator Pattern



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