**Java Induction Contents (10days)**

**Day - 1**

* Introduction to Java

Java is a Object Oriented Programming Language initially developed by Sun Microsystem (June 1991 – released in 1995 by James Gosling )and later acquired by Oracle.

1. JDK Alpha and Beta (1995)
2. JDK 1.0 (23rd Jan, 1996)
3. JDK 1.1 (19th Feb, 1997)
4. J2SE 1.2 (8th Dec, 1998)
5. J2SE 1.3 (8th May, 2000)
6. J2SE 1.4 (6th Feb, 2002)
7. J2SE 5.0 (30th Sep, 2004)
8. Java SE 6 (11th Dec, 2006)
9. Java SE 7 (28th July, 2011)
10. Java SE 8 (18th March, 2014)

JAVA Features

1. Simple
2. Object-Oriented
3. Platform independent
4. Secured
5. Robust
6. Architecture neutral
7. Portable
8. Dynamic
9. Interpreted
10. High Performance
11. Multithreaded
12. Distributed

* Statements
* A Java statement is the smallest unit that is a complete instruction.
* Statements must end with a semi-colon.
* Statements generally contain expressions (expressions have a value)
* One of the simplest is the Assignment Statement.

**Types of Java Statement**

* Control Statement
* Assignment Statement

 In this section we will discuss about control statements. Click here for additional information on assignment statement.

**Control Statements**

* Conditional execution
* Looping
* Flow Control Statement

**Types of Conditional Execution**

* If Statement
* If – Else statement
* If- Else-if statement
* Switch Statement

**Types of Looping Statement**

* [For Loop](http://javabeginnerstutorial.com/uncategorized/for-loop-statements-in-java/)
* [While Loop](http://javabeginnerstutorial.com/core-java-tutorial/while-loop-statements-in-java/)
* [Do  – While Loop](http://javabeginnerstutorial.com/core-java-tutorial/do-while-loop-in-java/)

**Types of Flow Control Statement**

* Return Statement
* Continue Statement
* Break Statement
* Stack and Heap
* Access Specifiers Constructors and Methods
* Objects as method Argument
* Exercises on Access Specifiers Constructors & Methods
* Exercises on Language Fundamentals & Operators
* Inheritance
* Interfaces
* Language fundamentals and Operators
* OOPS
  + Beginning with Object-Oriented concepts
  + Classes & Objects
  + Encapsulation and Abstraction
  + Inheritance and Polymorphism
* Exercises

**Day-2**

* Java Arrays
* Strings String Buffer and its functions
* Wrapper classes
* Exercises on Wrapper Classes
* Exercises on String String Buffer & Functions
* Exception Handling
* Exercises on Exception Handling
* String, StringBuffer, StringBuilder-functions
* Exercises

**Day-3**

* Collections and Util package
* Generics
* Thread (Java Concurrency API, Executor Service and basics)
* Exercises

**Day-4**

* JDBC
* Garbage Collection
* Overview of Annotation
* IOStreams
* I/O operations in JAVA
* Exercises

**Day-5**

* Introduction to OOAD
  + Aggregation (is a relation)
  + Composition (Has a relation)
  + Design Patterns (GOF)
  + UML diagrams
    - Introduction to UML
    - Use Case
    - Class Diagrams
    - Sequence Diagrams
    - Activity Diagrams
    - Component Diagrams
    - Deployment and State Diagrams
* Exercises

**Day-6**

**Introductory session to J2EE**

**HTTP basics**

**Servlets**

* Introduction to servlets, Life cycle
* Servlet Context and Config
* Servlets - Session Management
* Session Handling
* Exercises – use JBoss for all exercises

**Day-7**

* Servlet chaining
* Filtering
* Exercises

**Day-8**

**HTML basics**

**JSP**

* JSP - Basics
* JSP - Elements
* JSP - Elements
* JSP - Implicit Objects & Forms
* JSP - Directives
* JSP - Beans & Action
* JSP - Custom Tags
* JSP – JSTL
* Exercise

**Day-9**

* EJB 3.0 for 0.5 days
  + Session beans
  + Transaction attributes
  + Annotations
* Introduction to JPA, Spring and JSF
* Transactions
* Integration of Spring, JPA, JSF
* Exercises

**Day-10**

* JMS and Web services
* Hibernate
* Unit Testing-Junit
* Unit Testing - Junit Server Side/Coverage
* Unit Testing exercises

**Day 11**

**Introduction to Web Api**

* Web API Design
* What are Web APIs?
* The API Ecosystem
* Resource-based Architecture
* Introducing REST
* Hypermedia
* What kind of API to use

**Designing your Web API**

* Why Version your API
* Is there a right way?
* Examples of Versioning
* Versioning in the URI Path
* Versioning with a URI Parameter
* Versioning with Content Negotiation
* Versioning with Request Headers
* Which to Choose?
* Versioning Resources

**Angular JS**

Introduction to Angular

* The Challenge With SPAs
* Architecture of Angular JS
* Demo Hello World in Angular JS

Controllers and Markup

* Controllers and Scope
* Demo Controllers
* Demo Handling Events
* Built – in Directives
* Expressions
* Filters
* Built – in Filters
* Writing Custom Filters
* Two way Binding
* Validation

Routing

* Introduction to Routing
* Adding A Route
* Creating Default Route
* Single Page Applications

Template

* Static Template
* Angular Templates
* Event Handlers

**Database design and SQL fundaments (2 Days)**

**Day 12**

RDBMS (Oracle/SQL SERVER)

* List the Oracle Database 11g & SQL SERVER 2012 Main Features
* Describe Relational and Object Relational Database Designs
* Define the term Data Models
* Normalization
* Describe different means of Sorting Data
* Show how Multiple Tables can be related
* Describe how SQL Communicates to the Database

Anatomy of SQL Server & Oracle

* Data Files
* Primary
* Secondary
* Log File
* System Databases
* System Procedures
* T-SQL Tools and SQL Server Management Studio
* Understanding Database Architecture
* Understanding Database Engine and its Functions
* Creating Database Objects with T-SQL DDL
* Database
* Tables
* Constraints

Development with T-SQL

* About Varchar(max)
* Querying
* DML
* Joins
* Sub queries
* Grouping
* Cube/Rollup
* Pivot
* Table Expressions
* Database Snapshot
* Views
* Synonyms
* Indexes

**Day 13**

Development with T-SQL/PL -SQL

* Stored Procedures
* Error Handling
* Functions
* Triggers