

# Core Java Syllabus

## Core Java

### Week-1

#### Basics of Java

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- ✓ Java - What, Where and Why?
- ✓ History and Features of Java
- ✓ Internals of Java Program
- ✓ Difference between JDK, JRE and JVM
- ✓ Internal Details of JVM
- ✓ Variable and Data Type
- ✓ Unicode System
- ✓ Naming Convention

#### OOPS Concepts

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- ✓ Advantage of OOPs
- ✓ Object and Class
- ✓ Method Overloading
- ✓ Constructor
- ✓ static variable, method and block
- ✓ this keyword
- ✓ Inheritance (IS-A)
- ✓ Aggregation and Composition (HAS-A)
- ✓ Method Overriding
- ✓ Covariant Return Type
- ✓ super keyword
- ✓ Instance Initializer block
- ✓ final keyword

- ✓ Runtime Polymorphism
- ✓ static and Dynamic binding
- ✓ Abstract class and Interface
- ✓ Downcasting with instanceof operator
- ✓ Package and Access Modifiers
- ✓ Encapsulation
- ✓ Object class
- ✓ Object Cloning
- ✓ Java Array
- ✓ Call By Value and Call By Reference
- ✓ strictfp keyword
- ✓ Creating API Document

## Week-2

### String Handling

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- ✓ String : What and Why?
- ✓ Immutable String
- ✓ String Comparison
- ✓ String Concatenation
- ✓ Substring
- ✓ Methods of String class
- ✓ StringBuffer class
- ✓ StringBuilder class
- ✓ Creating Immutable class
- ✓ toString method
- ✓ StringTokenizer class

### Exception Handling

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- ✓ Exception Handling : What and Why?
- ✓ try and catch block
- ✓ Multiple catch block
- ✓ Nested try
- ✓ finally block
- ✓ throw keyword

- ✓ Exception Propagation
- ✓ throws keyword
- ✓ Exception Handling with Method Overriding
- ✓ Custom Exception

## Week-3

### Nested Classes

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- ✓ Nested Class : What and Why?
- ✓ Member Inner class
- ✓ Anonymous Inner class
- ✓ Local Inner class
- ✓ static nested class
- ✓ Nested Interface

### Multithreading

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- ✓ Multithreading : What and Why?
- ✓ Life Cycle of a Thread
- ✓ Creating Thread
- ✓ Thread Scheduler
- ✓ Sleeping a thread
- ✓ Joining a thread
- ✓ Thread Priority
- ✓ Daemon Thread
- ✓ Thread Pooling
- ✓ Thread Group
- ✓ ShutdownHook
- ✓ Performing multiple task by multiple thread
- ✓ Garbage Collection
- ✓ Runnable class

### Synchronization

- ✓ Synchronization : What and Why?
- ✓ synchronized method
- ✓ synchronized block
- ✓ static synchronization
- ✓
- ✓
- ✓

Deadlock  
Inter-thread Communication  
Interrupting Thread

## Week-4

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### Input and output

- ✓ FileOutputStream & FileInputStream
- ✓ ByteArrayOutputStream
- ✓ SequenceInputStream
- ✓ BufferedOutputStream & BufferedInputStream
- ✓ FileWriter & FileReader
- ✓ CharArrayWriter
- ✓ Input from keyboard by InputStreamReader
- ✓ Input from keyboard by Console
- ✓ Input from keyboard by Scanner
- ✓ PrintStream class
- ✓ PrintWriter class
- ✓ Compressing and Uncompressing File
- ✓ Reading and Writing data simultaneously
- ✓ DataInputStream and DataOutputStream
- ✓ StreamTokenizer class

### Serialization

- ✓ Serialization & Deserialization
- ✓ Serialization with IS-A and Has-A  
transient keyword

### Networking

- ✓ Socket Programming
- ✓ URL class
- ✓ Displaying data of a web page
- ✓ InetAddress class
- ✓ DatagramSocket and DatagramPacket
- ✓ Two way communication

## Week-5

### AWT and Event Handling

- ✓ AWT Controls
- ✓ Event Handling by 3 ways
- ✓ Event classes and Listener Interfaces
- ✓ Adapter classes
- ✓ Creating Games and Applications

### Swing

- ✓ Basics of Swing
- ✓ JButton class
- ✓ JRadioButton class
- ✓ JTextArea class
- ✓ JComboBox class
- ✓ JTable class
- ✓ JColorChooser class
- ✓ JProgressBar class
- ✓ JSlider class
- ✓ Digital Watch
- ✓ Graphics in swing
- ✓ Displaying Image
- ✓ Edit Menu for Notepad
- ✓ Open Dialog Box
- ✓ Creating Notepad
- ✓ Creating Games and applications

## Week-6

### LayoutManagers

- ✓ BorderLayout
- ✓ GridLayout
- ✓ FlowLayout
- ✓ BorderLayout
- ✓ CardLayout

### Applet

- ✓ Life Cycle of Applet
- ✓ Graphics in Applet
- ✓ Displaying image in Applet
- ✓ Animation in Applet
- ✓ EventHandling in Applet
- ✓ JApplet class
- ✓ Painting in Applet
- ✓ Digital Clock in Applet
- ✓ Analog Clock in Applet
- ✓ Parameter in Applet
- ✓ Applet Communication
- ✓ Creating Games