
CS – 19

Programming with JAVA

Unit : 1

History, Introduction & Language, Basics Classes and Objects

- History and Features of Java
- Java Editions
- JDK, JVM and JRE
- JDK Tools
- Compiling and Executing basic Java Program
- Java IDE (NetBeans and Eclipse)
- Data Type (Integer, Float, Character, Boolean)
- Java Tokens (Keyword, Literal, Identifier, Whitespace, Separators, Comments, Operators)
- Operators (Arithmetic, Relational, Boolean Logical, Bitwise Logical, Assignment, Unary, Shift, Special operators)
- Type Casting
- Decision Statements (if, switch)
- Looping Statements (for, while, Do-While)
- Jumping Statements (break, continue, return)
- Array (One Dim., Rectangular, Jagged)
- Command Line Argument Array
- OOP Concepts (Class, Object, Encapsulation, Inheritance, Polymorphism)
- Creating and using Class with members
- Constructor
- finalize () method
- Static and Non-Static Members
- Overloading (Constructor & Method)

Unit: 2

Inheritance, Java Packages

- Universal Class (Object Class)
- Access Specifiers (public, private, protected, default, private protected)
- Doing Inheritance
- Constructors in inheritance
- Method Overriding
- Interface
 - Defining Multiple Interface in a single program
 - Execution of interface in simple application
 - Perform the Hybrid Inheritance program using Interface.
- Nested and Inner Class
- Abstract and Final Class
- Normal import and Static Import

- Introduction to Java API Packages and imp. Classes
 - java.lang
 - java.util
 - java.io
 - java.net
 - java.awt
 - java.awt.event
 - java.applet
 - java.swing
- java.lang Package Classes
 - Math
 - Wrapper Classes
 - String
 - String Buffer
 - Number
 - Package
- java.util Package Classes
 - Random
 - Date
 - GregorianCalendar
 - Vector
 - HashTable
 - StringTokenizer
 - SimpleTimeZone
 - Stack
 - Scanner
- Creating and Using User Defined package and sub-package

Unit: 3**Exception Handling, Threading and Streams (Input and Output)**

- Introduction to exception handling
- try, catch, finally, throw, throws
- Creating user defined Exception class
- Thread and its Life Cycle (Thread States)
- Thread Class and its methods
- Synchronization in Multiple Threads (Multithreading)
- Deamon Thread, Non-Deamon Thread
- Introduction of Stream and its types
 - Input
 - Output
 - Character
 - Byte
- File and RandomAccessFile Class [Theory Concept only]
- StreamTokenizer Class
- Piped Streams Introduction only
- Bridge Classes :
 - InputStreamReader
 - OutputStreamWriter
 - Implementation of Text file handling program using Reader Class and Writer Class.

Unit: 4**Applets & Layout Managers****Applets**

- Introduction to Applet
- Applet Life Cycle
- Implement & Executing Applet with Parameters
 - Playing Audio Example
- Graphics class

Layout Managers

- FlowLayout
- BorderLayout

- CardLayout
- GridLayout
- GridBagLayout
- Introduction of
 - BorderLayout [Only Theory]
 - SpringLayout [Only Theory]
 - GroupLayout [Only Theory]
- Using NO LAYOUT Manager

Unit: 5

GUI using SWING Event Handling

- Introduction to AWT and Swing
- Difference Between AWT and Swing Components
- Swing Components
 - JFrame
 - JPanel
 - JLabel
 - JButton
 - JRadioButton
 - JCheckBox
 - JTextField
 - JPasswordField
 - JTextArea
 - JScrollBar
 - JComboBox
 - JList
 - JToggleButton
 - JTabbedPane
 - JSlider
 - JProgressBar
 - JTextPane
- Menus
 - JMenuBar
 - JMenu
 - JMenuItem
- Introduction to Event Handling
- Event Delegation Model
- Event Packages
 - AWT Event Package
 - Swing Event Package
- Event Classes
 - ActionEvent
 - ItemEvent
 - FocusEvent
 - MouseEvent
 - MouseWheelEvent
 - TextEvent
 - WindowEvent
- Listener Interfaces
 - ActionListener
 - ItemListener
 - FocusListener
 - KeyListener
 - MouseListener
 - MouseMotionListener
 - TextListener
 - WindowListener, etc
- Adaptor Classes
 - FocusAdaptor
 - KeyAdaptor
 - MouseAdaptor
 - MouseMotionAdaptor

	Class Room	Seminar	Expert Talk	Test	Total
No. Of Lecture	60	05	05	05	75

Reference Books:

- 1) Java: A Beginner's Guide – Jul 2014 by Herbert Schildt
- 2) Java Programming (Oracle Press) by Poornachandra Sarang
- 3) Java The Complete Reference, 8th Edition –by Herbert Schildt
- 4) Ivor Horton's "Beginning Java 2" JDK 5 Edition, Wiley Computer Publishing.
- 5) Ken Arnold, James Gosling, David Holmes, "The Java Programming Language", Addison-Wesley Pearson Education.
- 6) Cay Horstmann, "Big Java", Wiley Computer publishing (2nd edition – 2006).
- 7) James Gosling, Bill Joy, Guy Steele, Gilad Bracha, "The Java Language Specifications", Addison-Wesley Pearson Education (3rd edition) Download at <http://docs.oracle.com/javase/specs/>

Reference Website

- <https://www.tutorialspoint.com/java/>
- <https://www.w3schools.com/java/>
- <https://www.javatpoint.com/java-tutorial>
- <https://www.guru99.com/java-tutorial.html>