IT 222: Java Programming – II

Credits: 3
Lecture Hours: 48

Course Objectives:

This course aims to develop students with knowledge with advanced features of java. Basic knowledge of programming in Java is expected from students. This course should be associated with laboratory experiments to augment the concepts taught in the class.

Course Description

The Applet Class, Even handling, Introducing the AWT, Using AWT controls, Layout Managers, and Menus, Introducing Swing, Enterprise Application Architectures, JDBC, XML and Java, Servlet Programming, JSP Programming

Course Details

Unit 1: The Applet Class **LH 3**

- Two types of applets
- Applet basics
- An applet skeleton
- The HTML applet tag
- Passing parameters to applets

Unit 2: Even handling **LH 6**

- Two event handling mechanisms
- The delegation event model: events, event sources, event listeners
- The KeyEvent class: MouseEvent Class, TextEvent class, WindowEvent class
- Sources of Events
- Event Listener Interfaces
  - ActionListener, KeyListener, MouseListener, WindowListener, ContainerListenenr
- Using Delegation event model
  - Handling mouse events, handling keyboard events
- Adapter classes, inner classes

Unit 3: Introducing the AWT: **LH 3**

- AWT classes
- Window fundamentals: component, container, panel, window, frame, console
- Working with frame windows: setting windows dimensions, hiding and showing and closing windows
- Creating a frame window in an applet

Unit 4: Using AWT controls, Layout Managers, and Menus **LH 6**

- Control Fundaments: adding and removing controls, responding to controls,
- Labels, buttons, checkboxes, choice, lists, scroll bars, textfield, textarea,
- Understanding Layout managers: FlowLayout, BorderLayout, GridLayout, CardLayout, GridBadLayout
- Menus Bars and Menus, Dialog boxes, FileDialog boxes

Unit 5: Introducing Swing **LH 5**

- The origins of swing, swing is built on the AWT
- Two Key Swing Features
- The MVC connection
- Components and containers

Unit 6: Exploring Swing: **LH 2**

- JLabel and ImageIcon, JTextField, JButtons, JToggleButton, checkboxes, radio buttons, JTabbedPane, JList, JComboBox, JTable,

After completion of above two units program with following should be developed:

- ✓ User Interface with form validation feature,
- ✓ User interface with different look and feel

Unit 7: Enterprise Application Architectures **LH 2**

- 2-Tier Architecture, 3- Tier
- Enterprise Archiecture
  - J2EE Application Servers

Unit 8: JDBC **LH 7**

- Introduction
- Database Basics
  - Structured Query Langauge
    - Creating a Table – Inserting, Updating, Deleting records
    - JDBC-ODBC bridge
    - Reading Data
    - PreparedStatement, connection pooling

After completion of above two units programs like following should be developed:

- ✓ Program with User Interface and backend to store data, retrieve required data, manipulate/delete mentioned data
- ✓ Simple programs like record keeping system (employee records, student records etc) with manipulation and search facilities should be developed

Unit 9: XML and Java **LH 2**

- What is XML? What is an XML Document? Why XML?
- Document Type Definition
- XML Schema
- XML parsing – SAX and DOM

Unit 10: Servlet Programming **LH 6**

- HTTP
  - GET, POST Request
  - Server Side of the Web Application
    - Web Container, Structure of a web application
    - Servlet Technology- Servlet
    - Deployment Descriptor
    - Steps for writing a servlet, servlet initialization, reading HTML form data,
    - Session Management - Creating session, Storing data in session, reading the data from session
    - Request dispatching – The forward() method, the include() method

Unit 11: JSP programming **LH 6**

- JSP Basics, JSP Directives Declarations
- Implicit Objects
- Java Beans in JSP – jsp:useBEan, jsp:setProperty, jsp:getProperty

After completion of above two units

- ✓ **Web based applications should be developed**
- ✓ **Programs like online data entry form, with search and manipulation capability**

References:

Kosuri Phani, Java & J2EE Made Easy, Lulu Publications; 1 edition (September 25, 2012)