"Education for knowledge, science and culture"
- Shikshanmaharshi Dr. Bapuji Salunkhe
Shri Swami Vivekanand Shikshan Sanstha"s
VIVEKANAND COLLEGE (AUTONOMOUS), KOLHAPUR
B. Sc. Part – III (Computer science Entire) CBCS Syllabus with effect from June, 2020
Semester - VI Computer Science DSE-1305F
Advanced Java and Data warehousing and mining
Theory: 72 Hours (90 Lectures) credits -6

Course outcomes

On successful completion of the course, the students will be able to,

1. Create a full set of UI Widgets using Abstract Windowing Toolkit (AWT) & Swings
2. Learn to access database through Java programs, using Java Data Base Connectivity (JDBC).
3. Create dynamic web pages using Servlets
4. Create dynamic web pages using JSP.
5. To understand Data Warehousing, Working of data warehouse, Data Warehouse applications.
6. To understand types of data Warehouse, Difference between Data Warehouse (OLAP) and Operational Database (OLTP).
7. To understand and explain concept of data mining, Process of knowledge discovery in databases (KDD)
8. To Explain Data Objects and Attribute Types.
9. To Understand Data Preprocessing and Data Quality.
10. To explain major tasks in Data Preprocessing.
11. To understand market basket analysis and explain Apriori algorithm.
12. To understand concept of Classification
13. To understand regression analysis, Concept of clustering and explain K-means Clustering algorithm

Section –I

Unit 1: User Interface Components with AWT and Swing [19]

- Awt-What is AWT ? classes hierarchy, windows fundamentals Frame Windows Event Classes
- Mouse Event Class, Action Event Class, Window Event Class, Event Listner Interface: Mouse Listener, Action Listener, Window Listener and Key Listner
- AWT Controls: Labels, Text Field, Push buttons .
- Layout Managers (Flow Layout, Border Layout, Grid Layout, Card Layout)

- Swing- What is Swing? Difference between AWT and Swing., The MVC Architecture and Components – JFrame, JButton, JLabel, JText, JTextArea, JCheckBox and JRadioButton, JList, JComboBox, JMenu ,JtabbedPane , JScrollBar , Dialogs (Message, confirmation, input)

Unit 2: JDBC **[7]**

- What is JDBC ? Steps for connectivity between Java program and database.
- Type of drivers,
- Simple program-database operations like creating tables, CRUD(Create, Read, Update, Delete) operations using SQL

Unit 3: Servlet **[10]**

- Introduction of servlet: How servelet work, model diagram
- Uses of servlet, Life cycle of servlet, Servlet API: packages- javax. servlet and javax. servlet.http
- Session Tracking Mechanisms, HttpSession, Cookies, URL-Rewriting, Hidden-Form Fields

Unit 4: JSP **[10]**

- Introduction, Jsp LifeCycle, Jsp Implicit Objects & Scopes, Jsp Directives- 1.page 2.include 3.taglib
- Jsp Scripting Elements - 1.declaratives 2.scriptlets 3.expressions
- Simple application using JSP.
- Difference between JSP and Servlet

Section- II

Unit 1: Introduction to data warehousing **[10]**

- What is Data Warehousing?
- How Data warehouse works?
- Why a Data Warehouse is Separated from Operational Databases
- Data Warehouse Applications
- Types of Data Warehouse
- Difference between Data Warehouse (OLAP) and Operational Database(OLTP)

Unit II: Introduction to data mining **[10]**

- What is data mining?
- Process of knowledge discovery in databases (KDD)
- Getting to Know Your Data
- Data Objects and Attribute Types,
- Business Applications, Scientific Applications Using Data Mining.

Unit III: Data preprocessing and association rule mining [10]

- Data Preprocessing: An Overview
- Data Quality: Why Preprocess the Data?
- Major Tasks in Data Preprocessing, Data Cleaning , Data integration, Data Transformation , Data reduction, Data Discretization,
- Association Rule Mining, Market basket analysis,

Unit IV: Classification, prediction and clustering [15]

- Classification, Classification vs Prediction, Issues related to Classification and Prediction
- Decision tree
- Prediction
- Regression analysis
- Overview of Cluster analysis.
- Web Mining: Introduction, Terminologies, Categories of Web Mining, Applications of Web Mining,

Practical Program List

1. Program on Swing
2. Program on AWT
3. Program on Database Connection
4. Program on cookie and Session
5. Program on Servlet
6. Simple application using JSP.

References:

1. Complete reference Java by Herbert Schildt(5th edition)
2. Java 2 programming black books, Steven Horlzner
3. Programming with Java , A primer ,Forth edition , By E. Balagurusamy
4. Jiawei Han and Micheline Kamber, " Data Mining Concepts and Techniques", Morgan Kaufmann Publishers, USA, 2006.
5. Berson,"DataWarehousing, Data Mining and OLAP", Tata McGraw Hill Ltd, New Delhi, 2004.
6. Pang-Ning Tan, Michael Steinbach, Vipin Kumar, Introduction to Data Mining, , Pearson Education
7. Arun K Pujari,"Data mining techniques", Oxford University Press, London, 2003.
8. Dunham M H,"Data mining: Introductory and Advanced Topics". Pearson Education, New Delhi, 2003
9. Mehmed Kantardzic," Data Mining Concepts, Methods and Algorithms", John Wiley and Sons, USA, 2003.
10. Soman K. P., DiwakarShyam, Ajay V., Insight into Data mining: Theory and Practice, PHI,2006