

**Subject : 3160707- Advanced Java Programming**

Lab	Practical
<b>Java basics</b>	
1.	1. Write a program to create circle class with area function to find area of circle.
	2. Define time class with hour and minute. Also define addition method to add two time objects.
	3. Write a program that illustrates interface inheritance. Interface P is extended by P1 and P2. Interface P12 inherits from both P1 and P2. Each interface declares one constant and one method. Class B implements P12. Instantiate B and invoke each of its methods. Each method displays one of the constants.
	4. Write a java program which increment the counter for each object created and class contain one displaycounter() method to display counter value.
	5. The abstract vegetable class has three subclasses named Potato, Brinjal and Tomato. Write a java program that demonstrates how to establish this class hierarchy. Declare one instance variable of type String that indicates the color of a vegetable. Create and display instances of these objects. Override the toString() method of object to return a string with the name of vegetable and its color.
<b>Java Networking</b>	
2.	1. Write a TCP and UDP program for one-way communication.
	2. Write a TCP and UDP program for chat application.
	H1. Write a TCP client and server program to do the following: client> java client localhost/IP Port <enter> Enter text: Welcome to Gujarat Technological UNIVERSITY <enter> Response from server: ytisrevinu LACIGOLONHCEt TARAJUG TO EMOCLEw
	H2. Write a TCP Client-Server program to get the Date & Time details from Server on the Client request.
	H3. Write a client-server program using TCP or UDP where the client sends 10 numbers and server responds with the numbers in sorted order.
	H4. Write a client server program using TCP where client sends a string and server checks whether that string is palindrome or not and responds with appropriate message.
<b>JDBC</b>	
3.	1. Create JDBC program which contains following functions: <ul style="list-style-type: none"> <li>i. Connect</li> <li>ii. Create Table</li> <li>iii. Insert Records into respective table</li> <li>iv. Update records of particular table of database</li> <li>v. Display records</li> <li>vi. Delete Records from table.</li> </ul>
	2. Write a program to insert student records to database using Prepared Statement.

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4.	1.	Write a JDBC program for Callable Statement to retrieve percentage of student from procedure {get percentage} based on student Enrollment number. (Also create a procedure { get percentage } which will calculate students percentage from table Result (Enro_no, Name, Subjec1, Subject2, Subject3) where Enr_no : IN Parameter and Percentage : OUT Parameter).
	2.	Write a servlet program to implement Hit Counter.
<b>Servlet API</b>		
5.	1.	Write a servlet program for <ol style="list-style-type: none"> <li>Registration Servlet to get the values from registration.html</li> <li>Write a Login servlet. Take input username and password from html file login.html and authenticate the user. Write the web.xml.</li> </ol>
	2.	Write servlet which displayed following information of client. <ol style="list-style-type: none"> <li>Client Browser</li> <li>Client IP address</li> <li>Client Port No</li> <li>Server Port No</li> <li>Local Port No</li> <li>Method used by client for form submission</li> <li>Query String name and values</li> </ol>
6.	1.	Design a form to input details of an employee and submit the data to a servlet. Write code for servlet that will save the entered details as a new record in database table Employee with fields (EmpId, EName, Email, Age).
	2.	Create login form and perform state management using Cookies, HttpSession and URL Rewriting.
7.	1.	Write a Java Servlet to print BE Semester Mark sheet of entered enrolment number and semester no. by student using JDBC.
	2.	Implement Authentication filter using filter API.
<b>JSP</b>		
8.	1.	Write line(s) of code in JSP for following. <ol style="list-style-type: none"> <li>Session read and write</li> <li>URL rewriting sending and retrieving parameter(s)</li> <li>URL redirection</li> <li>Print “hello world” as output</li> <li>Include the other JSP file statically</li> <li>Expression to display date as output</li> <li>Method of setting the JSP parameters to use in JSTL</li> </ol>
	2.	Write a login.jsp page to get the login information from user and authenticate user with the database with JSTL SQL tags.
9.	1.	Write a servlet that redirect requests alternatively to JSP Pages named Odd and Even.

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	2.	Develop JSP page to display student information with subjects for particular semester from database.
<b>Hibernate</b>		
10.	1.	Develop program to get all students data from database using hibernate. Write necessary xml files.
<b>JSF and Spring MVC</b>		
11.	1.	Design a web page that takes the Username from user and if it is a valid username prints "Welcome Username". Use JSF to implement.
	2.	Write an application to keep record and retrieve record of student. The record includes student id, Enrollment number, semester, SPI. Use MVC architecture.