JAVA SEM END LAB

1. A)

Write a Java program to implement the Stack operations. Create an interface called as DataStructure. Write a Stack class which will implement the DataStructure interface.

DataStructure.java //Create Interface

```
public interface DataStructure {
   void push(int ele);
   int pop();
   boolean isempty();
   boolean isfull();
   }
```

q1a.java

```
import java.util.*;

class stack implements DataStructure{

	int array[];
	int stacktop;
	int n;

	stack(int n){
		array=new int[n];
		stacktop=-1;
		this.n=n;
	}

	public void push(int ele){
		if(isfull()){
			System.out.println("STACK IS FULL");
		}
		else{
			array[++stacktop]=ele;
		}
	}

	public int pop(){
		if(isempty()){return -1;}
		return array[stacktop--];
	}

	public boolean isempty(){
		if(stacktop==-1){
			return true;
		}
		return false;
	}

	public boolean isfull(){
		if(stacktop>=n-1){return true;}return false;
	}
```

```
}

class q1a{
	public static void main(String args[]){
		Scanner input=new Scanner(System.in);
		System.out.println("Enter the size of stack");
		int n=input.nextInt();
		stack s=new stack(n);
		while(true)
		{
			System.out.println("1:push,2:pop,3:exit Enter choice: ");
			choice=input.nextInt();
			switch(choice)
			{
				case 1:
					System.out.println("Enter element");
					int ele=input.nextInt();
					s.push(ele);
					break;
				case 2:
					s.pop();
					break;
				case 3:
					System.exit(0);
			}
		}
	}
}
```

1. B)

Write a JAVA-JDBC program to create the table named **Department** with the attributes

Dept_ID, Name, Year_Established, Head_Name, No_of_Employees. (i) Find the number employees in a CSE department. (ii) List Name, Dept_ID of all the departments which are established in the year 2010.

q1b.java //Build, configure build, libraries, external jar, sql connector

```
package test;

import java.sql.*;
public class q1b {

	public static void main(String[] args) {

		Statement st,st2;
		ResultSet rs,rs2;
		Connection con;
		String driver="com.mysql.cj.jdbc.Driver";
		String url="jdbc:mysql://localhost:3306/";
		String dbname="Department";
		String username="root";
		String password="";
		try{
			Class.forName(driver);
```

```
                    con=DriverManager.getConnection(url+dbname,username,password);
                    String q1="select No_of_Employees from Department where
Name='CSE'";
                    st=con.createStatement();
                    rs=st.executeQuery(q1);
                    while(rs.next())
                    {
                           int no=rs.getInt("No_of_Employees");
                           System.out.println("No of employees = "+no);

                    }
                    st2=con.createStatement();
                    String q2="select Name,Dept_id from Department where
Year_Established =2010";
                    rs2=st2.executeQuery(q2);
                    while(rs2.next())
                    {
                           String name=rs2.getString("Name");
                           int did=rs2.getInt("Dept_id");
                           System.out.println("Name : "+name+" Department id:
"+did);

                    }
                    st.close();
                    st2.close();
                    con.close();
             }
             catch(Exception e)
             {
                    e.printStackTrace();
             }
      }
}
```

2. A)

Write a Java program to maintain the student details like USN, Dept_Names, 3 Subject grades and SGPAin student package and keep the staff details such as Staff_ID, Staff_Name, Designation and subjectshandled in a staff package. In main class use these two packages details for Staff and Student classes to display the student and staff information as requested by the user.

Create student package, Student class

Student.java

```
package student;

public class Student {

      int USN;
      String DeptName;
      float m1,m2,m3;
      double sgpa;

      public Student()
      {
      }
```

```
	public void student_getval(int usn,String d,float m1,float m2,float
m3,double sgpa)
	{
		this.USN=usn;
		this.DeptName=d;
		this.m1=m1;
		this.m2=m2;
		this.m3=m3;
		this.sgpa=sgpa;
	}

	public void student_disp()
	{
		System.out.println("USN : "+USN+"DEPT : "+DeptName+" M1,M2,M3 :
"+m1+","+m2+","+m3+" sgpa: "+sgpa);
	}

}
```

Create faculty package, Faculty class

Faculty.java

```
package faculty;

public class Faculty {

	int staffid;
	String staffname;
	String design;
	int nosubj;

	public Faculty()
	{
	}

	public void faculty_getval(int staffid,String name,String desig,int subj)
	{
		this.staffid=staffid;
		this.staffname=name;
		this.design=desig;
		this.nosubj=subj;
	}

	public void faculty_disp()
	{
		System.out.println("STAFF ID : "+staffid+"Staffname : "+staffname+"
designation: "+design+" no of subjects taught : "+nosubj);
	}

	}
```

q2a.java //Default package, import the package and class created

```
import student.Student;
import faculty.Faculty;
```

```
public class q2a {

	public static void main(String[] args) {

	Student s1=new Student();
	s1.student_getval(1234,"Pooja", 99, 99, 100, 9.9);
	s1.student_disp();
	Faculty f1=new Faculty();
	f1.faculty_getval(23, "xyz", "proffessor", 5);
	f1.faculty_disp();

		}

	}
```

2. B)

Write a Java Servlet program that loads area and phone no. of police station of that area from a database. It takes area or phone number as input and prints the corresponding fields. (Note: Create police_station table with appropriate fields)

Index.html //Dynamic Web Project, tomcat + connector

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<form action="servlet1" method="post">
<fieldset>
<input  type="radio" name="n" value=1 checked>Area<br>
<input type="radio" name="n" value=2>Ph.no<br>
<input type="text" name="val">Enter area/phno<br>
</fieldset>
<button type="submit">Go</button><br>
</form>
</body>
	</html>
```

Servlet1.java

```
import java.io.*;
import java.sql.*;
import javax.servlet.*;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.*;
/**
 * Servlet implementation class servlet1
 */
@WebServlet("/servlet1")
public class servlet1 extends HttpServlet {
	private static final long serialVersionUID = 1L;

    /**
     * @see HttpServlet#HttpServlet()
     */
```

```
    public servlet1() {
        super();
        // TODO Auto-generated constructor stub
    }

       /**
        * @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse
response)
        */
       protected void doGet(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
              response.setContentType("text/html");
              PrintWriter out=response.getWriter();
              String driver="com.mysql.jdbc.Driver";
              String url="jdbc:mysql://localhost:3306/";
              String dbname="plice_station";
              String username="root";
              String password="";
              Statement s1;
              ResultSet rs1;
              Connection con;
              String ap=request.getParameter("val");
              int n=Integer.parseInt(request.getParameter("n"));

              try{

                     Class.forName(driver);
                     con=DriverManager.getConnection(url+dbname,username,password);
                     String query1="select area,phno from plice_station";
                     s1=con.createStatement();
                     rs1=s1.executeQuery(query1);

                     switch(n)
                     {
                     case 1:
                            int c=0;
                            while(rs1.next())
                            {
                                   if(rs1.getString("area").equals(ap))
                                   {
                                          out.println();
                                          out.println(rs1.getString(1));
                                          out.println(rs1.getString(2));
                                          c=1;
                                   }
                            }
                            if(c==0)
                                   out.println("NOT FOUND ");

                            break;

                     case 2:
                            int c1=0;
                            while(rs1.next())
                            {
                                   if(rs1.getString("phno").equals(ap))
                                   {
                                          out.println();
                                          out.println(rs1.getString(1));
```

```
                                        out.println(rs1.getString(2));
                                        c1=1;
                                }
                        }
                        if(c1==0)
                                out.println("NOT FOUND");

                        break;


                }
        }
        catch(Exception e)
        {
                out.println(e);
        }

    }

    /**
     * @see HttpServlet#doPost(HttpServletRequest request, HttpServletResponse
response)
     */
    protected void doPost(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
        // TODO Auto-generated method stub
        doGet(request, response);
    }

}
```

3. A)

Write a Java program to read details of anEmployee. If the employee name is entered as a number, a **NameNotCorrect** user defined exception must be thrown. If the employee age is greater than 50, an **AgeLimitException** must be thrown. If the details are entered correctly, then create the object and print the details.

q3a.java

```
import java.util.Scanner;

class NameNotCorrect extends Exception{
    private static final long serialVersionUID = -8926676391842626697L;
    public String toString()
    {
        return("Name Not Correct");
    }
}
class AgeLimitException extends Exception{
    private static final long serialVersionUID = -5905555464719582453L;
    public String toString()
    {
        return("Age Limit Exception");
    }
}
class emp{
    int age;
```

```
	String name;
	emp(String name,int age)
	{
		this.name=name;
		this.age=age;
	}
}
public class q3a{
	public static void main(String Args[])
	{
		Scanner input=new Scanner(System.in);
		System.out.println("ËNTER NAME :");
		String name=input.next();
		System.out.println("ËNTER AGE :");
		int age=input.nextInt();
		int k=1, c=1;
		try{
			try{
				int s=Integer.parseInt(name);
			}
			catch(Exception e)
			{
				k=0;
			}
			if(k==1)
			{
				throw new NameNotCorrect();
			}
		}
		catch(NameNotCorrect e)
		{
			c=0;
			e.printStackTrace();
		}

		try{
			if(age>50)
				throw new AgeLimitException();

		}
		catch(AgeLimitException e)
		{
			c=0;
			e.printStackTrace();
		}
		if(c==1)
		{
			emp obj=new emp(name,age);
			System.out.println("Object created ");
			System.out.println("Name: "+obj.name);
			System.out.println("Age: "+obj.age);
		}
		else
			System.out.println("Object not created ");
	}

   }
```

3. B)

Write a Java Servlet program with a function called **initials()** that takes input representing a full name and returns the initials of the name in all capital letters.

Example: If Input is Robert B. Qwerty then Output should be RBQ.

Index.html

```
<!DOCTYPE html>
<html>
	<head>
	<meta charset="ISO-8859-1">
	<title>Insert title here</title>
	</head>
	<body>
	<form action="servlet2" method="post">
	<input type="text" name="name">Enter the name<br>
	<button type="submit">Go</button><br>
	</form>
	</body>

</html>
```

Servlet3.java

```
import java.io.*;
import javax.servlet.*;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.*;
/**
 * Servlet implementation class servlet1
 */
@WebServlet("/servlet2")
public class servlet2 extends HttpServlet {
	private static final long serialVersionUID = 1L;

	/**
	 * @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse
response)
	 */

	public String Initials(String s)
	{
		String ini=Character.toString(s.charAt(0));
		for(int i=1;i<s.length()-2;i++)
		{
			char c=s.charAt(i);
			char d=s.charAt(i+1);
			if((c==' ')&&(d!=' '))
			{
				ini+=Character.toString(s.charAt(i+1));
			}

		}
		return ini;
	}
	protected void doGet(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
		response.setContentType("text/html");
```

```
            PrintWriter out=response.getWriter();

            String name=request.getParameter("name");
            String ini=Initials(name);
            out.println();
            out.println(ini);

      }

      /**
       * @see HttpServlet#doPost(HttpServletRequest request, HttpServletResponse
response)
       */
      protected void doPost(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
            // TODO Auto-generated method stub
            doGet(request, response);
      }


   }
```

4. A)

Write Java program to create an applet with text box. User must type a string in text box first. If "P" key is pressed, check whether the given string is **palindrome** or not and the result must be displayed on the status bar.

q4a.java

```
import java.applet.*;
import java.awt.*;
import java.awt.event.*;

public class q4a extends Applet implements KeyListener{

      private static final long serialVersionUID = 1L;

      TextField tf=new TextField();
      String msg="";
      public void init()
      {

            add(new Label("Enter the string"));
            add(tf);
            tf.addKeyListener(this);

      }

      public boolean palin(String s)
      {
            int i,j;
            for(i=0,j=s.length()-1;i<j;i++,j--)
            {
                  if(s.charAt(i)!=s.charAt(j))
                        return false;
            }
            return true;
      }
      public void keyPressed(KeyEvent e) {
```

```
            String inp=tf.getText();
            if(e.getKeyChar()=='p'){
            if(palin(inp)){
                  showStatus("It is a palindrome");
                  msg="It is a palindrome";
            }
            else {
                  showStatus("It is not a palindrome");
                  msg="It is not a palindrome";
            }
            }
            repaint();

      }

      @Override
      public void keyReleased(KeyEvent arg0) {
            showStatus("Released");
      }

      @Override
      public void keyTyped(KeyEvent e) {
      }

      public void paint(Graphics g)
      {
            g.drawString(msg,50,50);
      }

}
```

4. B)

Develop a JSP application that has the following pages. The index page **register.html** contains 2 text boxes for entering username and password. Provide a button "Register". Once the Register button is clicked the page should be redirected to welcome.jsp. In welcome.jsp validate username and password and display welcome message for a valid user.**(Use Sessions)**

Index.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<form action="welcome.jsp" method="post">
<fieldset>
<input type="text" name="username">username<br>
<input type="password" name="password">password<br>
</fieldset>
<button type="submit" >Register</button>
</form>

</body>
</html>
```

Welcome.jsp

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
<title>Welcome</title>
</head>
<body>
<%
String st=request.getParameter("username");
String pwd=request.getParameter("password");
if(st.equals("admin")&&pwd.equals("admin123"))
{
	out.println("welcome "+st);
	HttpSession s=request.getSession();
	s.setAttribute("username",st);
	request.getRequestDispatcher("sessioncheck.jsp").forward(request,response);
}
else
{
	out.println("Cannot login wrong username or password");
}
%>
</body>
</html>
```

Sessioncheck.jsp

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
<title>session check</title>
</head>
<body>
<%
HttpSession s=request.getSession(false);
if(s!=null)
{
	String st=(String)s.getAttribute("username");
	out.print("Welocome to sessioncheck :"+ st);
}
else
	out.println("no session objecct created ");
%>
</body>
</html>
```

5. A)

Write a Java multithreaded program to display prime numbers between 1-100 using thread1 and 101-200 using thread2 using a synchronized displayPrime(int n) function. Demonstrate the usage of synchronized function and synchronized blocks..

q5a.java

```
class Prime
```

```
{
  void displayPrime(int n)
  {
       if(n<=1)
       return;
       else if(n==2||n==3)
     System.out.println(n);
       else if(n%2==0)
       return;
     else
     {
       int i;
       boolean p=true;

       for(i=3;i<n;i+=2)
       if(n%i==0)
       {
        p=false;
        break;
       }

       if(p)
       System.out.println(n);
     }
  }
}

class Thread1 extends Thread
{
  Prime p;
  Thread1(Prime p)
  {
      this.p=p;
  }
  public void run()
  {
      synchronized(p)
      {
      int i;

      System.out.println("Thread 1: Prime Nos 1-100");
    for(i=1;i<=100;++i)
    p.displayPrime(i);
       }
  }
}

class Thread2 extends Thread
{
   Prime p;
   Thread2(Prime p)
   {
        this.p=p;
   }
   public void run()
   {
         synchronized(p)
         {
        int i;
```

```
          System.out.println("Thread 2: Prime Nos 101-200");
          for(i=101;i<=200;++i)
          p.displayPrime(i);
        }
   }
}

public class q5a
{
  public static void main(String args[])
  {
       Prime p=new Prime();

       Thread1 t1=new Thread1(p);
       Thread t2=new Thread2(p);

       t1.start();
       t2.start();

       try
       {
         t1.join();
         t2.join();
       }
       catch(InterruptedException e)
       {
         System.out.println("Error");
       }
  }
       }
```

5. B)

Write a JSP that takes the user's name and age from a form. Echo back the name and age along with a message stating the price of movie tickets.

- The price is determined by the age passed to the JSP.
- If the age is greater than 62, the movie ticket price is Rs. 50.
- If the user is less than 10 years old, the price is Rs. 30.
- For everyone else, the price is Rs. 80.

Index.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<form action="movie.jsp" method="post">
<fieldset>
<input type="text" name="user">Name<br>
<input type="text" name="age">Age<br>
</fieldset>
<button type="submit">Go</button>
</form>
</body>
```

```
</html>
```

Movie.jsp

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
<title>Movie Price</title>
</head>
<body>
<%
String s=request.getParameter("user");
int age=Integer.parseInt(request.getParameter("age"));
out.println("Name :"+s);
out.println("Age :"+age);
if(age<10)
      out.println("Price : Rs 30.00");
else if(age>62)
      out.println("Price : Rs 50.00");
else
      out.println("Price : Rs 80.00");

%>

</body>
</html>
```

6. A)

Write a Java program to prompt the user to enter his/her age and the CGPA. The user application for a job will be rejected either if his age is greater than 25 years or his CGPA is less than 8. Declare two nested try-throw-catch blocks; one to handle the **AgeOutOfRangeException** and the other to handle the **LowCGpaException**. If the user enters acceptable age and CGPA, display the message "Your application is accepted and is under study".

Q6a.java

```
import java.util.*;

class AgeOutOfRangeException extends Exception
{
      private static final long serialVersionUID = 1L;

      public String toString()
      {
            return ("Age is greater than 25 exception");
      }

}

class LowCgpaException extends Exception
{
      private static final long serialVersionUID = 1L;

      public String toString()
      {
            return ("CGPA is below 8 exception");
```

```
	}
}


public class q6a {

	public static void main(String[] args) {
		Scanner input=new Scanner(System.in);
		System.out.println("Enter age :");
		int age=input.nextInt();
		System.out.println("Enter CGPA :");
		float cgpa=input.nextFloat();

		try{
			if(age>25)
			{
				throw new AgeOutOfRangeException();
			}
			try
			{
				if(cgpa<8)
				{
					throw new LowCgpaException();
				}
				System.out.println("Application accepted ");
			}
			catch(LowCgpaException e)
			{
				System.out.println(e);
			}
		}

		catch(AgeOutOfRangeException e)
		{
			System.out.println(e);
		}
	}
}
```

6. B)
Write a Java Servlet program to insert Employee details like Emp_ID, Employee_Name, Address, Date_of_Birth in Employee table using JDBC and display the details in table format.

Index.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<form action="servlet6" method="post">
<fieldset>
<input type="text" name="empid">Emp ID<br>
<input type="text" name="empname">Emp Name<br>
<input type="text" name="address">Address<br>
<input type="text" name="dob">DOB<br>
</fieldset>
<button type="submit">Go</button>
```

```
</form>
</body>
</html>
```

Servlet6.java

```
import java.io.*;
import java.sql.*;
import javax.servlet.*;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.*;
/**
 * Servlet implementation class servlet1
 */
@WebServlet("/servlet6")
public class servlet6 extends HttpServlet {
	private static final long serialVersionUID = 1L;

    /**
     * Default constructor.
     */
    public servlet6() {
        // TODO Auto-generated constructor stub
    }

	/**
	 * @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse
response)
	 */
	protected void doGet(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
		response.setContentType("text/html");
		PrintWriter out=response.getWriter();
		String driver="com.mysql.jdbc.Driver";
		String url="jdbc:mysql://localhost:3306/";
		String dbname="emp";
		String username="root";
		String password="";
		Connection con;
		PreparedStatement pst;
		Statement st1;
		ResultSet rs1;
		boolean rs;
		String empid=request.getParameter("empid");
		String empname=request.getParameter("empname");
		String address=request.getParameter("address");
		String dob=request.getParameter("dob");

		try{
			Class.forName(driver);
			con=DriverManager.getConnection(url+dbname,username,password);
			String qry1="insert into emp values(?,?,?,?)";
			pst=con.prepareStatement(qry1);
			pst.setString(1, empid);
			pst.setString(2, empname);
			pst.setString(3, address);
			pst.setString(4, dob);
			rs=pst.execute();
			out.print("Inserted successfully");
```

```
                    String query2="select * from emp";
                    st1=con.createStatement();
                    rs1=st1.executeQuery(query2);

      out.println("<table><tr><th>EMPID</th><th>EMPNAME</th><th>ADDRESS</th><th>D
OB</th></tr>");
                    while(rs1.next())
                    {
                          String empid1=rs1.getString(1);
                          String empname1=rs1.getString(2);
                          String address1=rs1.getString(3);
                          String dob1=rs1.getString(4);

      out.println("<tr><td>"+empid1+"</td><td>"+empname1+"</td><td>"+address1+"</
td><td>"+dob1+"</td></tr>");

                    }
                    out.println("</table>");

             }
             catch(Exception e)
             {
                    out.print(e);
             }
      }

      /**
       * @see HttpServlet#doPost(HttpServletRequest request, HttpServletResponse
response)
       */
      protected void doPost(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
             // TODO Auto-generated method stub
             doGet(request, response);
      }

}
```

7. A)

Write a Java program to create a super class "**Record**" to store the names and ranks of 10 students. Define a sub class **Rank** to find the highest rank along with the name. The details of both classes are given below

Class Name :Record Data Members: name[ ], rank[ ] (store names and respective ranks in an array) Member functions: Record(): Constructor to initialize data members void readValues(): To store names and ranks void display(): Displays the names and the corresponding ranks

Class name : Rank Data Members: index(integer to store the index of the topmost rank) Member functions: Rank() : constructor to invoke the base class constructor and to initialize index to 0. void highest() : finds the index location of the topmost rank and stores it in index **without sorting the array** void display() : displays the name and ranks along with the name having the topmost rank.

q7a.java

```
import java.util.Scanner;

class Record{
      Scanner input=new Scanner(System.in);
      String[] name=new String[3];
```

```
	int[] rnk=new int[3];
	public Record()
	{
		for(int i=0;i<3;i++)
		{
			name[i]="";
			rnk[i]=0;
		}
	}

	void readvalues()
	{
		for(int i=0;i<3;i++)
		{
			System.out.println("ENTER FOR :"+(i+1));
			rnk[i]=input.nextInt();
			name[i]=input.next();
		}
	}

	void display()
	{
		for(int i=0;i<3;i++)
		{
			System.out.println("Rank : "+rnk[i]);
			System.out.println("Name : "+name[i]);
		}
	}
}

class Rank extends Record{
	int index;
	Rank()
	{
		super();
		index=0;

	}
	void highest()
	{
		int min=rnk[0];
		for(int i=1;i<3;i++)
		{
			if(min>rnk[i])
			{
				min=rnk[i];
				index=i;
			}

		}
	}
	void display()
	{
		super.display();
		System.out.println("Topmost Rank : "+rnk[index]);
		System.out.println("Rank holder Name : "+name[index]);

	}
}
```

```
public class q7a {
	public static void main(String Args[]){
		Rank r1=new Rank();
		r1.readvalues();
		r1.highest();
		r1.display();
	}
}
```

7. B)

Write a JSP program to create a form with Book_No, Title, Author, Publication, Price and a Submit button. Using JSP-Database connectivity, get the data from the form and insert the records into the database. Retrieve the book details for the particular title and display the details.

Index.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<form action="book.jsp" method="post">
<fieldset>
<input type="text" name="bookno">bookno<br>
<input type="text" name="title">title<br>
<input type="text" name="author">author<br>
<input type="text" name="publication">publication<br>
<input type="text" name="price">price<br>
</fieldset>
<button type="">Go</button>
</form>
</body>
</html>
```

Book.jsp

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<%@page import="java.sql.*" %>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<%
String bookno=request.getParameter("bookno");
String title=request.getParameter("title");
String author=request.getParameter("author");
String publication=request.getParameter("publication");
String price=request.getParameter("price");
String driver="com.mysql.jdbc.Driver";
String url="jdbc:mysql://localhost:3306/";
String dbname="book";
String username="root";
```

```
String password="";
String query="insert into book values(?,?,?,?,?)";
try{
Class.forName(driver);
Connection con=DriverManager.getConnection(url+dbname,username,password);
PreparedStatement pst=con.prepareStatement(query);
pst.setString(1, bookno);
pst.setString(2, title);
pst.setString(3, author);
pst.setString(4, publication);
pst.setString(5, price);
boolean rs=pst.execute();
out.println("INSERTED SUCCESSFULLY ");
request.getRequestDispatcher("book1.jsp").forward(request,response);
}
catch(Exception e)
{
	out.println(e);
}
%>
</body>
</html>
```

Book1.jsp

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<%@page import="java.sql.*" %>
<%
String title=request.getParameter("title");
String driver="com.mysql.jdbc.Driver";
String url="jdbc:mysql://localhost:3306/";
String dbname="book";
String username="root";
String password="";
String query="select * from book where title='"+title+"'";
try{
Class.forName(driver);
Connection con=DriverManager.getConnection(url+dbname,username,password);
Statement st=con.createStatement();
ResultSet rs=st.executeQuery(query);
while(rs.next())
{
	out.println("BookID:"+rs.getString(1));
	out.println("Title :"+rs.getString(2));
	out.println("Author :"+rs.getString(3));
	out.println("Publication :"+rs.getString(4));
	out.println("Price :"+rs.getString(5));
}
}
catch(Exception e)
{
```

```
        out.println(e);
}
%>
</body>
</html>
```

8. A)

Write a Java program to implement the following :

Consider a restaurant that has one chef and one waitperson. The waitperson must wait for the chef to prepare a meal. When the chef has a meal ready, the chef notifies the waitperson, who then gets the meal and goes back to waiting. The chef represents the producer, and the waitperson represents the consumer.

Q8a.java

```
class T
{
  boolean flag=true;
  int n;
  synchronized void put(int n)
  {
       while(!flag)
       {
         try
         {
              Thread.sleep(1000);
              wait();
         }
         catch(InterruptedException e)
         {

         }
       }
       System.out.println("Put:"+n);
       this.n=n;
       flag=false;
       notify();
  }

  synchronized void get()
  {
       while(flag)
       {
         try
         {
              Thread.sleep(1000);
              wait();
         }
         catch(InterruptedException e)
         {

         }
       }
       System.out.println("Get:"+n);
       flag=true;
       notify();
  }
}
```

```
class Producer extends Thread
{
  T t;
  Producer(T t)
  {
       this.t=t;
  }
  public void run()
  {
       int i=0;
       while(true)
       t.put(++i);
  }
}

class Consumer extends Thread
{
  T t;
  Consumer(T t)
  {
       this.t=t;
  }
  public void run()
  {
       while(true)
       t.get();
  }
}

public class q8a
{
  public static void main(String args[])
  {
    T t=new T();
    Producer t1=new Producer(t);
    Consumer t2=new Consumer(t);

    t1.start();
    t2.start();

    try
    {
      t1.join();
      t2.join();
    }
    catch(InterruptedException e)
    {

    }
  }
       }
```

8. B)

Write a JSP program to accept the marks entered and display his/her grade to the browser. Department has set the grade for the subject Java as follows: Above 90=A, 80-89=B, 70-79=C, Below 70=FAIL.

Index.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<form action="marks.jsp" method="post">
<input type="number" name="marks">Enter the marks<br>
<button type="submit">Go</button>
</form>
</body></html>
```

Marks.jsp

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
<title>Marks</title>
</head>
<body>
<%
int s=Integer.parseInt(request.getParameter("marks"));
if (s>=90)
	out.println("A");
else if (s>=80)
	out.println("B");
else if (s>=70)
	out.println("C");
else
	out.println("Fail");
%>
</body>
</html>
```

9. A)

Write a Java program to create a class called Library with the following description:
Instance variables/data members: int Acc_Num: To store the accession number of the book String Title: To store the title of the book and the name of the author **Member Methods:** void input(): To input and store the accession number, title and author. void compute(): To accept the number of days late, calculate and display and fine charged at the rate of Rs.2 per day. void display(): To display the details in the following format: Accession Number, title , Author
Write a main method to create an object of the class and call the above member methods.

Q9a.java

```
import java.util.Scanner;

class Library
{
	int acc_num;
	String title, author;
	Scanner in = new Scanner(System.in);
```

```
	void input() {
		System.out.println("Enter Accession Number:");
		acc_num = in.nextInt();
		in.nextLine();
		System.out.println("Enter Title:");
		title = in.nextLine();
		System.out.println("Enter Author Name:");
		author = in.nextLine();
	}
	void compute() {
		System.out.println("Enter Number of days late:");
		int late = in.nextInt();
		int fine = late * 2;
		System.out.println("The fine is: " + fine + " rupees");
	}
	void display() {
		System.out.println("acc_num\ttitle\tauthor");
		System.out.println(acc_num + "\n" + title + "\t" + author);
	}
}

public class q9a {
	public static void main(String args[]) {
		Library L = new Library();
		L.input();
		L.compute();
		L.display();
	}
	}
```

9. B)

Write a JAVA-JDBC program to implement Banking Application using transaction management. Demonstrate Rollback and Savepoint concept.

q9b.java

```
package test;

import java.sql.*;
import java.util.Scanner;

public class q9b {

	public static void main(String[] args) {
		Scanner input=new Scanner(System.in);

	Connection con;
	String driver="com.mysql.cj.jdbc.Driver";
	String url="jdbc:mysql://localhost:3306/";
	String dbname="bank";
	String username="root";
	String password="";
	int bankid=0;
	String user=null;
	float bal=0;
	try{
		Class.forName(driver);
		con=DriverManager.getConnection(url+dbname,username,password);
		con.setAutoCommit(false);
```

```
            while(true)
            {
                  System.out.println("1.new banker 2.deposit 3.withdraw
4.rollback/commit 5.display ");
                  int ch=input.nextInt();
                  switch(ch)
                  {
                  case 1:
                        System.out.println("ENTER THE DETAILS :");
                        bankid=input.nextInt();
                        user=input.next();
                        bal=input.nextFloat();

                        String q1="insert into bank values(?,?,?)";
                        PreparedStatement pst=con.prepareStatement(q1);
                        pst.setString(2, user);
                        pst.setFloat(3, bal);
                        pst.setInt(1, bankid);
                        pst.execute();
                        System.out.println("INSERTED SUCCESFULLY ");
                        break;

                  case 2:
                        System.out.println("ENTER THE money to be deposited
:");

                        float d=(float)input.nextInt();
                        bal=bal+d;

                        String q2="update bank set bal=? where bankid=?";

                        PreparedStatement st=con.prepareStatement(q2);
                        st.setFloat(1, bal);
                        st.setInt(2, bankid);

                        boolean n=st.execute();

                        System.out.println("DEPOSITED SUCCESSFULLY "+ n);
                        break;

                  case 3:
                        System.out.println("ENTER THE money to be withdrawn
:");
                        float w=input.nextFloat();
                        System.out.println(bal);
                        bal=bal-w;
                        if(bal>0)
                        {
                        String q3="update bank set bal="+bal+"where
bankid="+bankid+"";
                        Statement st1=con.createStatement();
                        int n1=st1.executeUpdate(q3);
                        System.out.println("WITHDRAWN SUCCESSFULLY ");
                        }
                        else
                        {
                              System.out.println("WITHDRAWN UNSUCCESSFUL
balance too low ");
                        }
```

```
                        break;

                        case 4:
                               System.out.println("1.rollback() 2.commit()");
                               int ch1=input.nextInt();
                               if(ch1==1)
                               {
                                      con.rollback();
                               }
                               else if(ch1==2)
                               {
                                      con.commit();
                               }
                               break;

                        case 5:
                               System.out.println("The details are:");
                               Statement st3=con.createStatement();
                               ResultSet rs=st3.executeQuery("select * from bank
");
                               while(rs.next())
                               {
                                      System.out.println("Bank ID :" +
rs.getString(1));
                                      System.out.println("Bank USER NAME  :" +
rs.getString(2));
                                      System.out.println("Current Balance :" +
rs.getString(3));
                               }
                               break;


                        }
                 }
          }
          catch(Exception e)
          {
                 System.out.println(e);
          }


          }

          private static String string(float bal) {
                 // TODO Auto-generated method stub
                 return null;
          }

          }
```

10. A)

Write java program to create a package called **AdvMath**, which has two classes. In main class use this packageto display the result as requested by the user.
i. To calculate y = sin(x)+cos(x)+tan(x)
ii. To print Pythagorean triplets

Create package advMaths

Create calc.java

```
package advMaths;

public class calc {
	double x;
	public calc(int x)
	{
		this.x=x*0.01745;
	}
	public double cal()
	{
		double y=Math.sin(x)+Math.cos(x)+Math.tan(x);
		return y;
	}
}
```

Create triplet.java

```
package advMaths;

public class triplet {
	public triplet()
	{

	}
	public void tri(int limit)
	{
		int a=0,b=0,c=0;
		int m=2,n;
		while(c<limit)
		{
			for(n=1;n<m;++n)
			{
				a=m*m-n*n;
				b=2*m*n;
				c=m*m+n*n;
				if(c>limit)
					break;
				System.out.print("a :"+a+",	");
				System.out.print("b :"+b+",	");
				System.out.println("c :"+c);
			}
			m++;
		}
	}
}
```

Q10a.java

```
import advMaths.calc;
import advMaths.triplet;

public class q10a {

	public static void main(String Args[])
	{
		calc c1=new calc(120);
		triplet t1=new triplet();
		double y=c1.cal();
```

```
            System.out.println("y :"+y);
            t1.tri(20);
      }
}
```

10. B)
Write a Java Servlet program to accept the details of client as client Name, Password and Pan_ID. Write a cookie which stores Pan_ID. If the cookie is present print "Welcome Back" with client name. Otherwise print "Welcome".

Index.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<form action="servlet10" method="post">
<fieldset>
<input type="text" name="name">NAME<br>
<input type="password" name="pwd">PASSWORD<br>
<input type="text" name="panid">PANID<br>
</fieldset>
<button type="submit">Go</button>
</form>
</body>
</html>
```

Servlet10.java

```
import java.io.*;
import javax.servlet.*;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.*;
/**
 * Servlet implementation class servlet1
 */
@WebServlet("/servlet10")
public class servlet10 extends HttpServlet {
      private static final long serialVersionUID = 1L;

    /**
     * @see HttpServlet#HttpServlet()
     */
    public servlet10() {
        super();
        // TODO Auto-generated constructor stub
    }

      /**
       * @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse
response)
       */
      protected void doGet(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
            response.setContentType("text/html");
            PrintWriter out=response.getWriter();
            String user=request.getParameter("name");
            String pan=request.getParameter("panid");
```

```
            Cookie ck=new Cookie("user",user);
            Cookie ck1=new Cookie("pan",pan);
            response.addCookie(ck);
            response.addCookie(ck1);
            request.getRequestDispatcher("servlet10b").forward(request,
response);

      }

      /**
       * @see HttpServlet#doPost(HttpServletRequest request, HttpServletResponse
response)
       */
      protected void doPost(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
            // TODO Auto-generated method stub
            doGet(request, response);
      }

}
```

Servlet10b.java

```
import java.io.*;
import javax.servlet.*;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.*;
/**
 * Servlet implementation class servlet2
 */
@WebServlet("/servlet10b")
public class servlet10b extends HttpServlet {
      private static final long serialVersionUID = 1L;

    /**
     * @see HttpServlet#HttpServlet()
     */
    public servlet10b() {
        super();
        // TODO Auto-generated constructor stub
    }

      /**
       * @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse
response)
       */
      protected void doGet(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
            String val="";
            response.setContentType("text/html");
            PrintWriter out=response.getWriter();
            Cookie[]  ck=request.getCookies();
            val=ck[0].getValue();
            if (ck != null) {
 for (Cookie cookie : ck) {
   if (cookie.getName().equals("pan")) {
      out.println("Welcome Back "+val);
      break;
    }
  }
```

```
}
```

```
	}

	/**
	 * @see HttpServlet#doPost(HttpServletRequest request, HttpServletResponse
response)
	 */
	protected void doPost(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
		// TODO Auto-generated method stub
		doGet(request, response);
	}

}
```

11. A)

Write a java program to accept a string. Convert the string to uppercase. Count and output the number of double letter sequences that exist in the string.
Sample Input: “SHE WAS FEEDING THE LITTLE RABBIT WITH AN APPLE
Sample Output: 4

Q11a.java

```
import java.util.Scanner;

public class q11a {

	public static void main(String[] args) {
	Scanner input=new Scanner(System.in);
	int count=0;
	System.out.println("ENTER THE STRING :");
	String s =input.nextLine();
	s=s.toUpperCase();
	s=s.replaceAll(" ","");
	for(int i=0;i<s.length()-1;i++)
	{
		char c=s.charAt(i);
		char d=s.charAt(i+1);
		if(c==d)
			count++;

	}
	System.out.println("COUNT:"+count);
	}

}
```

11. B) Write a servlet program that uses JDBC to display the subjects allotted for the faculty.Subjects Table should have Sub_ID, Sub_Name, Faculty_ID as the fields. Update subject details for a faculty and display how many rows are updated.

Servlet11.java

```
import java.io.*;
import java.sql.*;
```

```
import java.util.*;
import javax.servlet.*;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.*;
/**
 * Servlet implementation class servlet1
 */
@WebServlet("/servlet11")
public class servlet11 extends HttpServlet {
	private static final long serialVersionUID = 1L;

    /**
     * @see HttpServlet#HttpServlet()
     */
    public servlet11() {
        super();
        // TODO Auto-generated constructor stub
    }

	/**
	 * @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse
response)
	 */
	protected void doGet(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
		// TODO Auto-generated method stub
		response.getWriter().append("Served at:
").append(request.getContextPath());

		response.setContentType("text/html");
		PrintWriter out=response.getWriter();
		Scanner input=new Scanner(System.in);

		Connection con;
		String driver="com.mysql.jdbc.Driver";
		String url="jdbc:mysql://localhost:3306/";
		String dbname="fac";
		String username="root";
		String password="";
		try{
			Class.forName(driver);
			con=DriverManager.getConnection(url+dbname,username,password);
			String q1="select * from fac";
			Statement st=con.createStatement();
			ResultSet rs=st.executeQuery(q1);
			while(rs.next())
			{
			   out.println(rs.getInt(1));
			   out.println(rs.getString(2));
			    out.println(rs.getInt(3));
			}
			String sub="java";
			int id=1;
			String q2="update fac set subName='"+sub+"' where
subID="+id+"";
			Statement st1=con.createStatement();
			int rs1=st1.executeUpdate(q2);
			out.println(rs1);
```

```
	}
		catch(Exception e)
		{
			out.println(e);


		}
	}

	/**
	 * @see HttpServlet#doPost(HttpServletRequest request, HttpServletResponse
response)
	 */
	protected void doPost(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
		// TODO Auto-generated method stub
		doGet(request, response);
	}

}
```

12. A)

Write a java program to create five threads with different priorities. Send two threads of highest priority to sleep state. Change the name of the main thread and it should be the last thread to exit. Check the aliveness of the threads.

Q12a.java

```
class T1 extends Thread
{
  public void run()
  {
       System.out.println("Thread 1 running");
  }
}

class T2 extends Thread
{
   public void run()
   {
        System.out.println("Thread 2 running");
   }
}

class T3 extends Thread
{
	public void run()
	 {
		System.out.println("Thread 3 running");
	 }
}

class T4 extends Thread
{
	public void run()
	 {
		System.out.println("Thread 4 running");
	 }
}
```

```
class T5 extends Thread
{
        public void run()
         {
              System.out.println("Thread 5 running");
         }
}

public class q12a
{
  public static void main(String args[])
  {
       T1 t1=new T1();
       T2 t2=new T2();
       T3 t3=new T3();
       T4 t4=new T4();
       T5 t5=new T5();

       t1.setPriority(10);
       t2.setPriority(9);
       t3.setPriority(8);
       t4.setPriority(7);
       t5.setPriority(6);

       Thread t=Thread.currentThread();
       t.setName("Parent");

       System.out.println(t);
       System.out.println(t1);
       System.out.println(t2);
       System.out.println(t3);
       System.out.println(t4);
       System.out.println(t5);

       t1.start();
       t2.start();
       t3.start();
       t4.start();
       t5.start();

try{
              t1.sleep(2000);
              t2.sleep(2000);
    }
Catch(Exception ex){}


       System.out.println(t.isAlive());
       System.out.println(t1.isAlive());
       System.out.println(t2.isAlive());
       System.out.println(t3.isAlive());
       System.out.println(t4.isAlive());
       System.out.println(t5.isAlive());
       try
       {
         t1.join();
         t2.join();
         t3.join();
         t4.join();
```

```
            t5.join();
          }
          catch(InterruptedException e)
          {

          }
      System.out.println("Main ends");
        }
      }
```

12. B)

Write a JSP program to create a HTML form with Username, Age, Marks and Submit button. The program should get values from HTML form and display message like "Eligible for SEE" along with the message the page includes counter.jsp, which counts the number of visitor visited the page.

Index.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
<form action="eligible.jsp" method="post">
<fieldset>
<input type="text" name="name">name<br>
<input type="text" name="age">age<br>
<input type="text" name="marks">marks<br>
</fieldset>
<button type="submit">Go</button>
</form>
</body>
</html>
```

Eligible.jsp

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
<title>eligible</title>
</head>
<body>
<%
String name=request.getParameter("name");
int age=Integer.parseInt(request.getParameter("age"));
double marks=Double.parseDouble(request.getParameter("marks"));
if(age>18)
{
      out.println("ELIGIBLE TO SEE ");
      RequestDispatcher rd=request.getRequestDispatcher("counter.jsp");
rd.include(request,response);

}
else
{
```

```
	out.println("NOT ELIGIBLE ");
}
%>
</body>
</html>
```

Counter.jsp

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
<title>counter</title>
</head>
<body>
<%@ page import = "java.io.*,java.util.*" %>
<%
Integer count=(Integer)application.getAttribute("hitCounter");
if(count==null||count==0)
{
	out.println("Welcome ");
	count=1;
}
else
{
	out.println("Welcome BACCCCKKK ");
	++count;
	out.println("TOTAL :  "+count);
}
application.setAttribute("hitCounter",count);
out.println("TOTAL VISITS:  "+count);
%>
</body>
</html>
```

13. A)

Write a java program to implement an abstract class **Reservation** and two classes **ReserveTrain** and **ReserveBus**. Define the Reservation abstract class with following characteristics.
Method **reserve()** which takes integer value seats and typeOfSeat as parameters and returns boolean type. Method **getAvailableSeats()** which return a number of seat remaining.

Q13a.java

```
import java.util.*;

abstract class Reservation{
	public abstract boolean reserve(int s, char t);
	public abstract int getSeats();
}

class bus extends Reservation{
	int first = 20;
	int second = 20;
	public boolean reserve(int s, char t) {
		if(t=='f') {
			if(s<=first)
```

```
                        first -= s;
                else
                        return(false);
            }
            else {
                if(s<=second)
                        second -= s;
                else
                        return(false);
            }
            return(true);
        }
        public int getSeats() {
            return (first+second);
        }
}

class train extends Reservation{
        int first = 20;
        int second = 20;
        public boolean reserve(int s, char t) {
            if(t=='f') {
                if(s<=first)
                        first -= s;
                else
                        return(false);
            }
            else {
                if(s<=second)
                        second -= s;
                else
                        return(false);
            }
            return(true);
        }
        public int getSeats() {
            return (first+second);
        }
}

public class q13a {
public static void main(String[] args) {
        train t = new train();
        System.out.println(t.reserve(5,'s'));
        System.out.println(t.getSeats());
        System.out.println(t.reserve(10,'s'));
        System.out.println(t.getSeats());
        System.out.println(t.reserve(6,'s'));
        System.out.println(t.getSeats());
}
}
```

13. B)

Write a "**SetCookies**" Servlet class to create six cookies. Three cookies to have the default expiration date, meaning that they should exist only until the user next restarts the browser. The other three cookies to use setMaxAge() to stipulate that they should exist for the next hour, regardless of whether the user restarts the browser or reboots the computer to initiate a new browsing session.

Setcookies.java

```
import java.io.*;
import javax.servlet.*
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.*
/**
 * Servlet implementation class SetCookies
 */
@WebServlet("/setcookies")
public class setcookies extends HttpServlet {
	private static final long serialVersionUID = 1L;

    /**
     * @see HttpServlet#HttpServlet()
     */
    public setcookies() {
        super();
        // TODO Auto-generated constructor stub
    }

	/**
	 * @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse
response)
	 */
	protected void doGet(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
		response.setContentType("text/html");
			Cookie ck=new Cookie("Nck-"+1,"nval-"+1);
			response.addCookie(ck);
			ck=new Cookie("sck-"+2,"sval-"+2);
			ck.setMaxAge(3600);
			response.addCookie(ck);
	}

	/**
	 * @see HttpServlet#doPost(HttpServletRequest request, HttpServletResponse
response)
	 */
	protected void doPost(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
		// TODO Auto-generated method stub
		doGet(request, response);
	}


}
```

Getcookies.java

```
import java.io.IOException;
import java.io.PrintWriter;

import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.Cookie;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
```

```java
//import org.apache.tomcat.util.http.parser.Cookie;

/**
 * Servlet implementation class GetCookies
 */
@WebServlet("/getcookies")
public class getcookies extends HttpServlet {
	private static final long serialVersionUID = 1L;

    /**
     * @see HttpServlet#HttpServlet()
     */
    public getcookies() {
        super();
        // TODO Auto-generated constructor stub
    }

	/**
	 * @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse response)
	 */
	protected void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {
		// TODO Auto-generated method stub
		response.getWriter().append("Served at: ").append(request.getContextPath());
		PrintWriter out=response.getWriter();
		Cookie[] cookies=request.getCookies();
		String name="";
		String value="";
		response.setContentType("text/html");
		PrintWriter pw=response.getWriter();
		if(cookies==null)
		{
			pw.println("<tr><th colspan=2>no cookies<br>");
		}
		else
		{
		for(int i=0;i<cookies.length;i++)
		{
			name=cookies[i].getName();
			value=cookies[i].getValue();
			pw.println("<tr><td>"+name+"</td><td>value "+value+"</td></tr><br>");
		}
		}
}


	/**
	 * @see HttpServlet#doPost(HttpServletRequest request, HttpServletResponse response)
	 */
	protected void doPost(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {
		// TODO Auto-generated method stub
		doGet(request, response);
	}
```

```
}
```

14. A)

Write a java program to create an applet. When we drag the mouse, the path of the mouse pointer must be drawn as a rectangle.

Q14a.java

```
import java.applet.Applet;
import java.awt.*;
import java.awt.event.*;

public class q14a extends Applet implements MouseListener,MouseMotionListener {


	int x=0,y=0,width=0,height=0,startx=0,starty=0;
	public void init()
	{
		addMouseMotionListener(this);
		addMouseListener(this);
	}
	public void mouseDragged(MouseEvent me) {
		x=startx;
		y=starty;
		height=me.getX()-x;
		width=me.getY()-y;

		if(height<0)
		{
			x=me.getX();
			y=me.getY();
			height=Math.abs(height);

		}
		if(width<0)
		{
			x=me.getX();
			y=me.getY();
			width=Math.abs(width);

		}
		// TODO Auto-generated method stub
		repaint();
	}

	@Override
	public void mouseMoved(MouseEvent e) {
		// TODO Auto-generated method stub
	}

	@Override
	public void mouseClicked(MouseEvent e) {
		// TODO Auto-generated method stub
		showStatus("mouse clicked");
	}
```

```
	@Override
	public void mousePressed(MouseEvent me) {
		// TODO Auto-generated method stub
		startx=me.getX();
		starty=me.getY();
		showStatus("mouse pressed");

	}

	@Override
	public void mouseReleased(MouseEvent e) {
		// TODO Auto-generated method stub
		showStatus("mouse released");

	}
	public void paint(Graphics g)
	{
		g.drawRect(x,y,width,height);
	}
	@Override
	public void mouseEntered(MouseEvent arg0) {
		// TODO Auto-generated method stub
	}
	@Override
	public void mouseExited(MouseEvent arg0) {
		// TODO Auto-generated method stub
	}
}
```

14. B)

Write a JAVA-JDBC program that connects to the database **College** with **Student**table. Assume appropriate attributes for the Student table. Write a program to display the details of those Students who haveCGPAless than 9. Also update the Student table to change the CGPA of student named "John" from 8.50 to 9.4 using ***updatable result set***. Finally display the results and disconnect from the database.

Servlet13.java

```
import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.*;

import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

/**
 * Servlet implementation class servlet1
 */
@WebServlet("/servlet13")
public class servlet13 extends HttpServlet {
	private static final long serialVersionUID = 1L;

    /**
```

```
     * @see HttpServlet#HttpServlet()
     */
    public servlet13() {
        super();
        // TODO Auto-generated constructor stub
    }

      /**
       * @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse
response)
       */
      protected void doGet(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
            response.setContentType("text/html");
            PrintWriter out=response.getWriter();

            String driver="com.mysql.jdbc.Driver";
            String url="jdbc:mysql://localhost:3306/";
            String dbname="college";
            String user="root";
            String pass="";

            Connection con;
            try{

                  Class.forName(driver);
                  con=DriverManager.getConnection(url+dbname,user,pass);
                  String q1="select * from student where cgpa < 9";
                  Statement st=con.createStatement();
                  ResultSet rs=st.executeQuery(q1);
                  while(rs.next())
                  {

      out.println(rs.getString(1)+rs.getString(2)+rs.getString(3));
                  }

                  String q2="select studid,name,cgpa from student";
                  Statement
st1=con.createStatement(ResultSet.TYPE_SCROLL_SENSITIVE,ResultSet.CONCUR_UPDATABLE
);
                  ResultSet rs1=st1.executeQuery(q2);
                  while(rs1.next())
                  {
                        if(rs1.getString("name").equals("John"))
                        {
                  rs1.updateDouble("cgpa",9.4);
                  rs1.updateRow();
                  out.println("UPDATED");
                        }
                  }
            }

            catch(Exception e)
            {
                  out.print(e);
            }

      }
```

```
	/**
	 * @see HttpServlet#doPost(HttpServletRequest request, HttpServletResponse
response)
	 */
	protected void doPost(HttpServletRequest request, HttpServletResponse
response) throws ServletException, IOException {
		// TODO Auto-generated method stub
		doGet(request, response);
	}

}
```