WEB TECHNOLOGIES LAB

MASTER OF COMPUTER APPLICATIONS (MCA)

FIRST YEAR, SEMESTER-II, PAPER-VII

LESSON WRITER

Dr. Vasantha Rudrarnalla
Faculty, Department of CS&E
Acharya Nagarjuna University

EDITOR

Dr. Neelima Guntupalli
Assistant Professor
Department of CS&E
Acharya Nagarjuna University

ACADEMIC ADVISOR

Dr. Kampa Lavanya
Assistant Professor
Department of CS&E
Acharya Nagarjuna University

DIRECTOR, I/c.

Prof. V. Venkateswarlu
M.A., M.P.S., M.S.W., M.Phil., Ph.D.

CENTRE FOR DISTANCE EDUCATION
ACHARYA NAGARJUNA UNIVERSITY
NAGARJUNA NAGAR 522 510

Ph: 0863-2346222, 2346208
0863- 2346259 (Study Material)
Website www.anucde.info
E-mail: anucdedirector@gmail.com

MCA : WEB TECHNOLOGIES LAB

First Edition : 2025

No. of Copies :

This book is exclusively prepared for the use of students of MASTER OF COMPUTER APPLICATIONS (MCA), Centre for Distance Education, Acharya Nagarjuna University and this book is meant for limited circulation only.

Published by:

Prof. V. VENKATESWARLU
Director, I/c
Centre for Distance Education,
Acharya Nagarjuna University

Printed at:

FOREWORD

Since its establishment in 1976, Acharya Nagarjuna University has been forging ahead in the path of progress and dynamism, offering a variety of courses and research contributions. I am extremely happy that by gaining 'A+' grade from the NAAC in the year 2024, Acharya Nagarjuna University is offering educational opportunities at the UG, PG levels apart from research degrees to students from over 221 affiliated colleges spread over the two districts of Guntur and Prakasam.

The University has also started the Centre for Distance Education in 2003-04 with the aim of taking higher education to the door step of all the sectors of the society. The centre will be a great help to those who cannot join in colleges, those who cannot afford the exorbitant fees as regular students, and even to housewives desirous of pursuing higher studies. Acharya Nagarjuna University has started offering B.Sc., B.A., B.B.A., and B.Com courses at the Degree level and M.A., M.Com., M.Sc., M.B.A., and L.L.M., courses at the PG level from the academic year 2003-2004 onwards.

To facilitate easier understanding by students studying through the distance mode, these self-instruction materials have been prepared by eminent and experienced teachers. The lessons have been drafted with great care and expertise in the stipulated time by these teachers. Constructive ideas and scholarly suggestions are welcome from students and teachers involved respectively. Such ideas will be incorporated for the greater efficacy of this distance mode of education. For clarification of doubts and feedback, weekly classes and contact classes will be arranged at the UG and PG levels respectively.

It is my aim that students getting higher education through the Centre for Distance Education should improve their qualification, have better employment opportunities and in turn be part of country's progress. It is my fond desire that in the years to come, the Centre for Distance Education will go from strength to strength in the form of new courses and by catering to larger number of people. My congratulations to all the Directors, Academic Coordinators, Editors and Lesson-writers of the Centre who have helped in these endeavors.

Prof. K. Gangadhara Rao
M.Tech., Ph.D.,
Vice-Chancellor I/c
Acharya Nagarjuna University.

MASTER OF COMPUTER APPLICATIONS (MCA)
FIRST YEAR, Semester-II, Paper-VII
207MC24: WEB TECHNOLOGIES LAB
SYLLABUS

1. Write a Java Program to define a class, describe its constructor, overload the constructors and instantiate its object
2. Build and run "Celsius Converter" sample application using swings
3. Develop an applet that receives an integer in one text field, and computes its factorial Value and returns it in another text field, when the button named "Compute" is clicked
4. Develop and demonstrate a HTML document that illustrates the use of external style sheet, ordered list, table, borders, padding, color, and the tag.
5. Create a form with the following specifications:
    a) Our form uses frames, one to hold the links bar at the top of the browser window.
    b) Other is a larger frame that provides the main view.
    c) The links bar should contain 5 links, which when clicked, should display the appropriate HTML file in the larger frame.
6. Create a webpage with the following using html
    a) Embed an image in web page
    b) Fix the hot spots
    c) Show all the related information when a hot spot is clicked in the map
7. Write a JavaScript code to find factorial of N. (Use recursive function)
8. Write a JavaScript code block using arrays and generate the current date in words, this should include the day, month and year.
9. Create a web page using two image files. which switch between one another as the mouse pointer moves over the images. Use the onMouseOver and onMouseOut event handlers.
10. Design an XML document to store information about a student in an engineering college affitiated to ANU. The information must include college id, Name of the College, Brach, Year of Joining, and e-mail id. Make up sample data for 3 students. Create a CSS style sheet and use it to display the document.
11. Create an XML document, which contains l0 users information. Implement a program, which takes User Id as an input and returns the user details by taking the user information from the XML document
12. write a java program to illustrate java to database connectivity using JDBC
13. Write a program to print the Fibonacci numbers using RMI.
14. write a java servlet program to conduct online examination and to display student mark list available in a database
15. Create a java program to create an airline reservation service and a travel agent and the travel agent is searching for an airline using web services and database.

207MC24: WEB TECHNOLOGIES LAB

Programs List:

1. Write a Java Program to define a class, describe its constructor, overload the constructors and instantiate its object
2. Build and run "Celsius Converter" sample application using swings
3. Develop an applet that receives an integer in one text field, and computes its factorial Value and returns it in another text field, when the button named “Compute” is clicked
4. Develop and demonstrate a HTML document that illustrates the use of external style sheet, ordered list, table, borders, padding, color, and the tag.
5. Create a form with the following specifications:

   a) Our form uses frames, one to hold the links bar at the top of the browser window.

   b) Other is a larger frame that provides the main view.

   c) The links bar should contain 5 links, which when clicked, should display the appropriate HTML file in the larger frame.
6. Create a webpage with the following using html
   a. Embed an image in web page
   b. Fix the hot spots
   c. Show all the related information when a hot spot is clicked in the map
7. Write a JavaScript code to find factorial of N. (Use recursive function)
8. Write a JavaScript code block using arrays and generate the current date in words, this should include the day, month and year.
9. Create a web page using two image files, which switch between one another as the mouse pointer moves over the images. Use the onMouseOver and onMouseOut event handlers.
10. Design an XML document to store information about a student in an engineering college affiliated to ANU. The information must include college id, Name of the

College, Brach, Year of Joining, and e-mail id. Make up sample data for 3 students. Create a CSS style sheet and use it to display the document.

11. Create an XML document, which contains 10 users information. Implement a program, which takes User Id as an input and returns the user details by taking the user information from the XML document

12. write a java program to illustrate java to database connectivity using JDBC

13. Write a program to print the Fibonacci numbers using RMI.

14. write a java servlet program to conduct online examination and to display student mark list available in a database

15. Create a java program to create an airline reservation service and a travel agent and the travel agent is searching for an airline using web services and database.

PROGRAMS AND RESULTS

Programs -1

Write a java program, to define a class, describe its constructor, overload the constructor and instantiate its object.(constructor overloading)

```
import java.io.*;
class Box1
 {
   int l, b, h;
   int volume,area;
   Box1()
      {
       System.out.println("Default Constructor");
       l=10;
       b=20;
       h=30;
       System.out.println("l="+l);
       System.out.println("b="+b);
       System.out.println("h="+h);
   }
   Box1 (int x)
      {
  System.out.println(" Constructor with one argument");
       l=x;
       b=x;
       h=x;
       System.out.println("l="+l);
       System.out.println("b="+b);
       System.out.println("h="+h);
   }
   Box1 (int x, int y)
      {
       System.out.println ("Constructor with two arguments");
       l=x;
       b=y;
       area=l*b;
       System.out.println("l="+l);
       System.out.println("b="+b);
       System.out.println("area="+area);
   }
   Box1 (int x, int y, int z)
      {
       System.out.println (" Constructor with three arguments ");
       l=x;
       b=y;
       h=z;
       volume=l*b*h;
```

```
        System.out.println ("l="+l);
        System.out.println ("b="+b);
        System.out.println ("h="+h);
        System.out.println ("volume="+volume);
    }
}
class Box
{
    public static void main (String[] args)
 {
          Box1 b1=new Box1();
          Box1 b2=new Box1(10);
          Box1 b3=new Box1(10,20);
          Box1 b4=new Box1(10, 20, 30);
    }
    }
```

OUTPUT:

```
C:\Users\himan\OneDrive\Desktop\java>javac Box1.java

C:\Users\himan\OneDrive\Desktop\java>java Box
Default Constructor
l=10
b=20
h=30
Constructor with one parameter
l=10
b=10
h=10
Constructor with two parameters
l=10
b=20
Area=200
Constructor with three parameters
l=10
b=20
h=30
Volume=6000
```

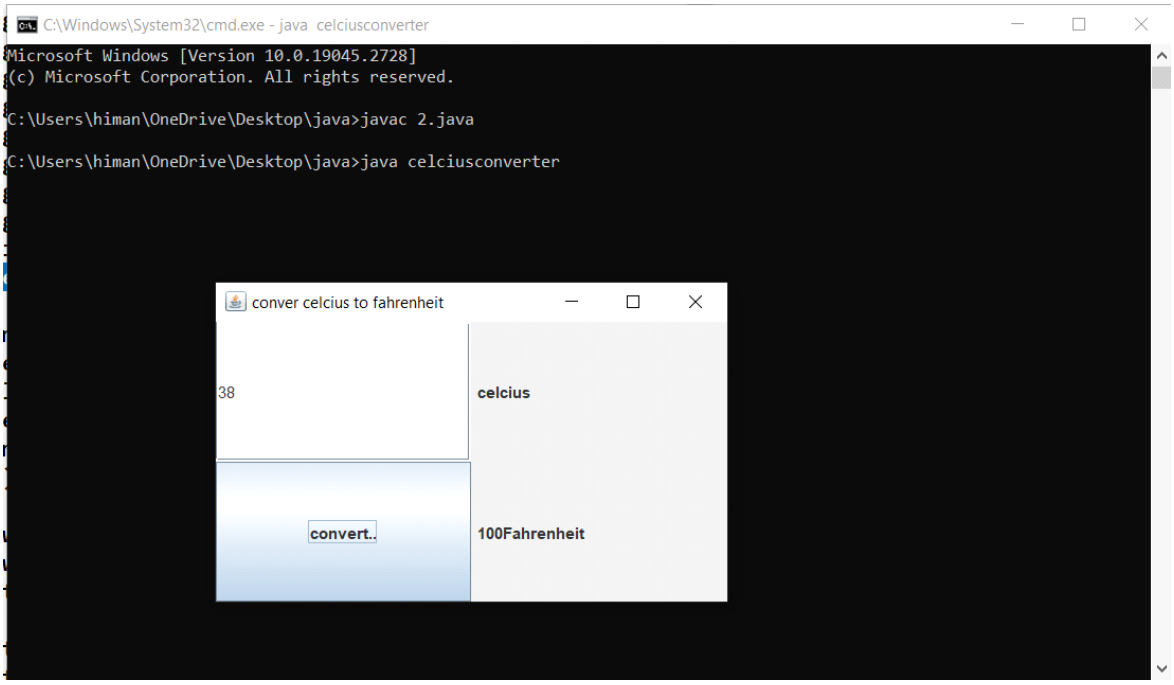
Programs -2

Build and run "Celsius Converter" sample application using swings.

```
import java.awt.BorderLayout;
import java.awt.event.*;
import java.awt.GridLayout;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import javax.swing.BorderFactory;
import javax.swing.*;
import javax.swing.JButton;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.border.*;
import javax.swing.JPanel;
import javax.swing.SwingConstants;
import javax.swing.UIManager;
//import javax.swing.plaf.metal;
class celciusconverter extends JFrame implements ActionListener
{
JFrame convertframe;
JPanel convertpanel;
JTextField tempcelcius;
JLabel celciuslabel,fahrenheitlabel;
JButton converttemp;
celciusconverter()
{
  convertframe=new JFrame("conver celcius to fahrenheit");
  convertpanel=new JPanel();
  convertpanel.setLayout(new GridLayout(2,2));
  addWidgets();
  convertframe.getContentPane().add(convertpanel,BorderLayout.CENTER);
  convertframe.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
  convertframe.pack();
  convertframe.setVisible(true);
  }
  private void addWidgets()
  {
  tempcelcius=new JTextField(2);
  celciuslabel=new JLabel("celcius",SwingConstants.LEFT);
converttemp=new JButton("convert..");
  fahrenheitlabel=new JLabel("fahrenheit",SwingConstants.LEFT);
  converttemp.addActionListener(this);
  convertpanel.add(tempcelcius);
  convertpanel.add(celciuslabel);
  convertpanel.add(converttemp);
  convertpanel.add(fahrenheitlabel);
  convertpanel.add(fahrenheitlabel);
```

```
 celciuslabel.setBorder(BorderFactory.createEmptyBorder(5,5,5,5));
 fahrenheitlabel.setBorder(BorderFactory.createEmptyBorder(5,5,5,5));
 }
        public void actionPerformed(ActionEvent e)
        {
                int tempfahr=(int)((Double.parseDouble(tempcelcius.getText()))*1.8+32);
                fahrenheitlabel.setText(tempfahr+"Fahrenheit");
        }
         public static void main(String args[])
         {
         try
         {

        UIManager.setLookAndFeel(UIManager.getCrossPlatformLookAndFeelClassName()
);
         }
         catch(Exception e){ }
          celciusconverter converter=new celciusconverter();
         } }
```

OUTPUT:



Programs -3

Develop an applet that receives an integer in one text field, and computes its factorial Value and returns it in another text field, when the button named "Compute" is clicked.

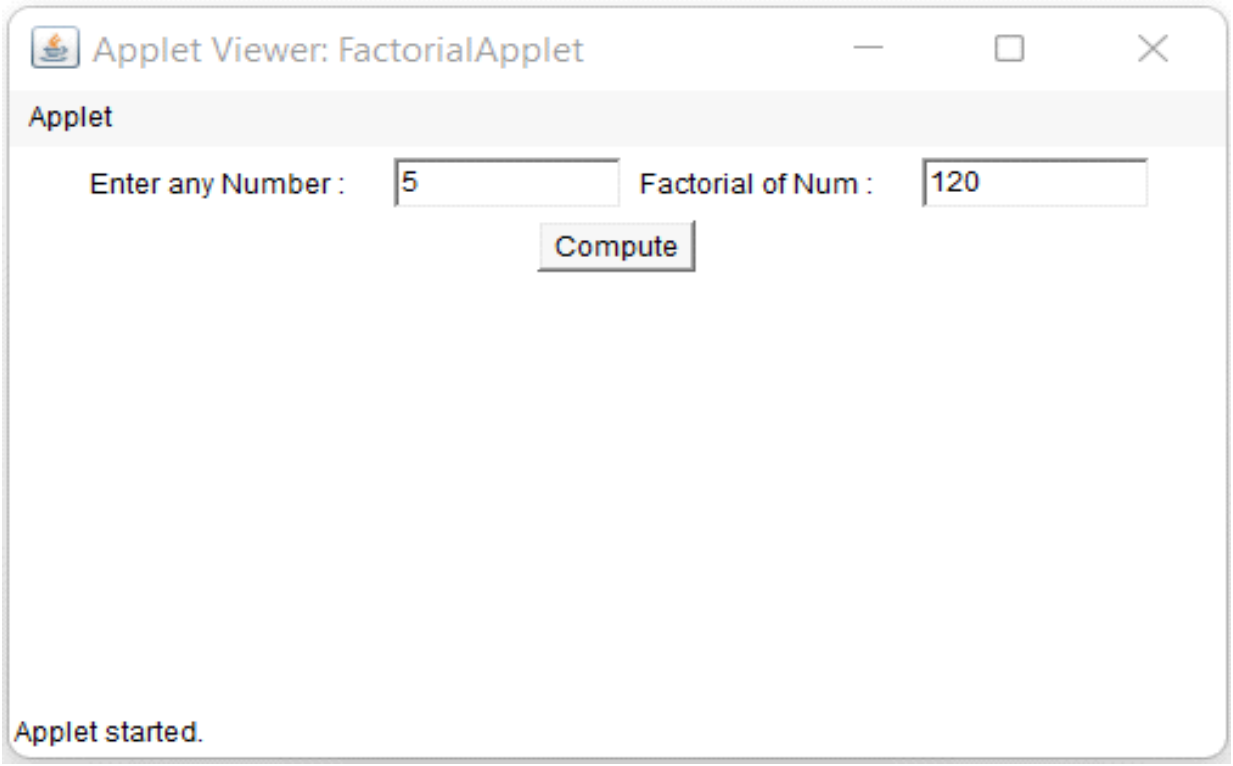
FactorialApplet.java

```
/** Develop applet to find factorial of the given number */
import java.awt.*;
import java.applet.*;
import java.awt.event.*;
/*<applet code="FactorialApplet" width=500 height=250>
</applet>*/
public class FactorialApplet extends Applet implements ActionListener {
   Label L1,L2;
   TextField T1,T2;
   Button B1;
   public void init() {
      L1=new Label("Enter any Number : ");
      add(L1);
      T1=new TextField(10);
      add(T1);
      L2=new Label("Factorial of Num : ");
      add(L2);
      T2=new TextField(10);
      add(T2);
      B1=new Button("Compute");
      add(B1);
      B1.addActionListener(this);
```

```
    }
    public void actionPerformed(ActionEvent e) {
       if(e.getSource()==B1)
       {
       int value=Integer.parseInt(T1.getText());
       int fact=factorial(value);
       T2.setText(String.valueOf(fact));
       }
    }
    int factorial(int n) {
       if(n==0)
          return 1;
       else
          return n*factorial(n-1);
    }
}
```

OUTPUT:

```
C:\StudyGlance\Java_Lab_Programs\W3>javac FactorialApplet.java

C:\StudyGlance\Java_Lab_Programs\W3>appletviewer FactorialApplet.java
```


Applet Viewer: FactorialApplet
Applet
Enter any Number :
5
Factorial of Num :
120
Compute
Applet started.

Programs -4

Develop and demonstrate a HTML document that illustrates the use of external style sheet, ordered list, table, borders, padding, color and the tag.

```
<html>
	<head>
		<link rel="stylesheet" type="text/css" href="Basics.css"/>
		<title> CSS Basics </title>
	</head>
	<body>
		<h1> This header is 36 pt </h1>
		<h2> This header is black </h2>
		<p> This paragraph has a left margin of 50 pixels </p>
		<table>
			<tr>
				<th> Name </th>
				<th> Email </th>
				<th> Phone number </th>
			</tr>
			<tr>
				<td> manikanta </td>
				<td> manikantvemulapati@.com </td>
				<td> 9030404598 </td>
			</tr>
			<tr>
				<td> hari</td>
				<td> hari123@gmail.com </td>
				<td> 7895462132</td>
			</tr>
			<tr>
				<td> srini</td>
				<td> srini245@gmail.com </td>
				<td> 7856345263 </td>
			</tr>
		</table>
		<hr/>
			This is an ordered list.
		<ol>
			<li>MCA </li>
			<li>MSc(CS) </li>
			<li>ECE </li>
		</ol>
		<p>
			<span>This is some span text.</span>
			This is some random text.
```

```
                    <span>This is some more span text.</span>
                </p>
        </body>
</html>
```

Basics.css

```
body { background-color:yellow; }
table { border: 2px solid; padding: 5px; }
th { border: 1px solid blue; padding:8px; }
td { border: 1px solid blue; padding:8px; }
ol { font-size:80%; list-style:lower-roman;color:#770000 }
span { background-color:grey; font-size:120%; font-style:italic; }
p { font-size:90%; }
```

OUTPUT:

This header is 36 pt

This header is black

This paragraph has a left margin of 50 pixels

Name	Email	Phone number
manikanta	manikantvemulapati@.com	9030404598
hari	hari123@gmail.com	7895462132
srini	srini245@gmail.com	7856345263

This is an ordered list.

i. MCA
ii. MSc(CS)
iii. ECE

This is some span text. This is some random text. *This is some more span text.*

Programs -5

Create a form with the following specifications:

a) **Our form uses frames, one to hold the links bar at the top of the browser window.**
b) **Other is a larger frame that provides the main view.**
c) **The links bar should contain 5 links, which when clicked, should display the appropriate HTML file in the larger frame.**

5.html

```
<html>
	<title>Program3</title>
	<frameset cols="30%,*">
		<frame name="f1" src="5a.html">
		<frame name="f2">
	</frameset>
</html>
```

5a.html

```
<html>
	<body>
		<a href="SE.html" target="f2">SE</a><br>
<a href="PYTHON.html" target="f2">PYTHON</a><br>
		<a href="CNS.html" target="f2">CNS </a><br>
		<a href="WT.html" target="f2">WT</a><br>
		<a href="AI.html" target="f2"> AI </a>
</body>
</html>
```

SE.html

```
<html>
	<title>SE</title>
	<body bgcolor="green ">
		This subject describes the Software Engineering	</body>
</html>
```

PYTHON.html

```
<html>
	<title>PYTHON</title>
	<body bgcolor="red">
		This subject describes about PYTHON
	</body>
</html>
```

CNS.html

```
<html>
        <title>CNS</title>
        <body bgcolor="grey">
                This subject describes about the Computer Networks
        </body>
</html>
```

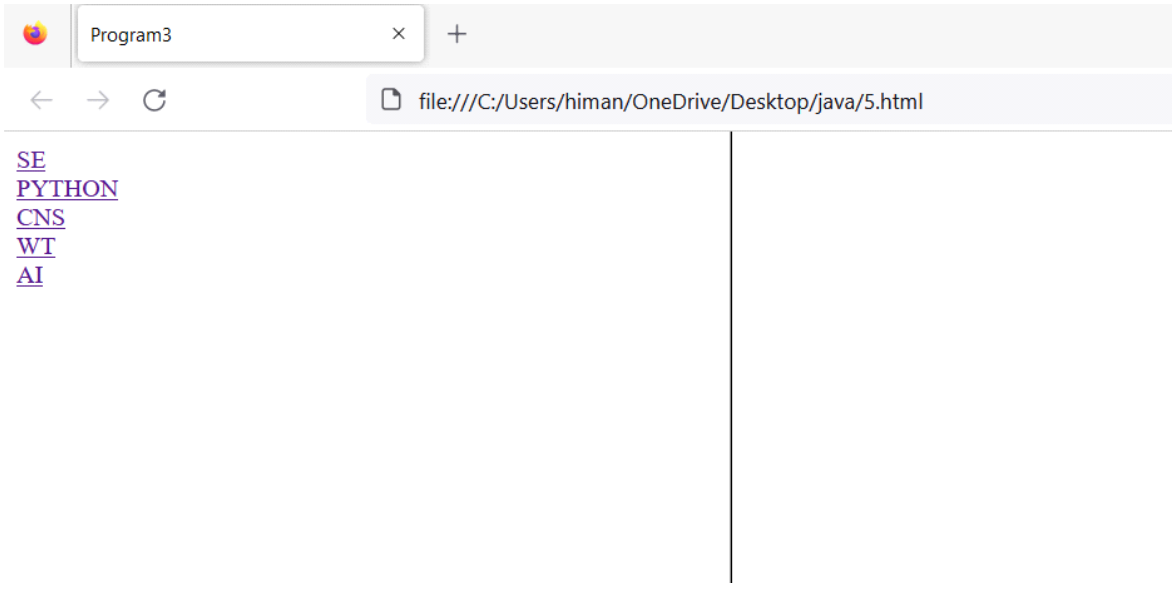
WT.html

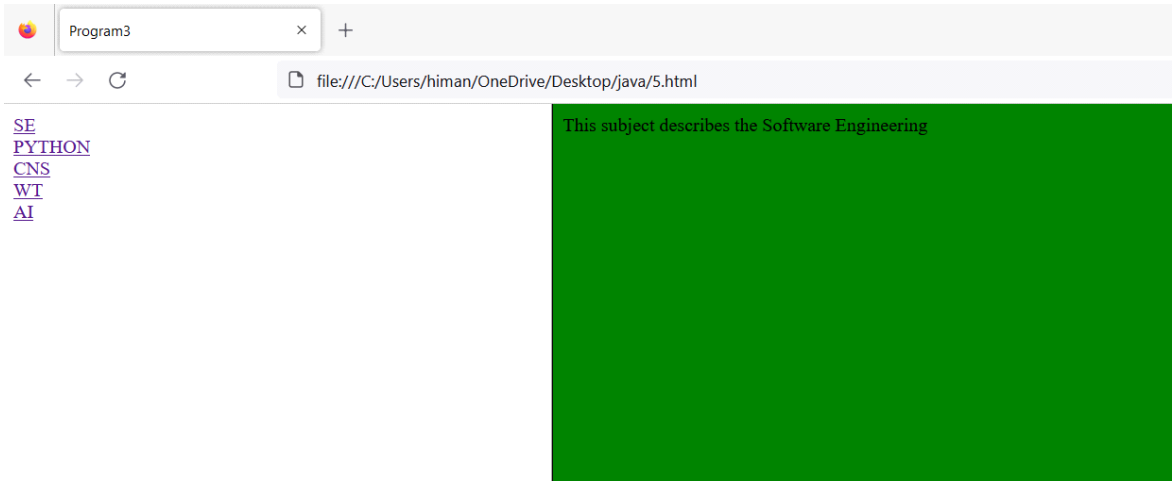
```
<html>
        <title>WT</title>
        <body bgcolor="yellow">
                This subject describes Web Technologies
        </body>
</html>
```

AI.html

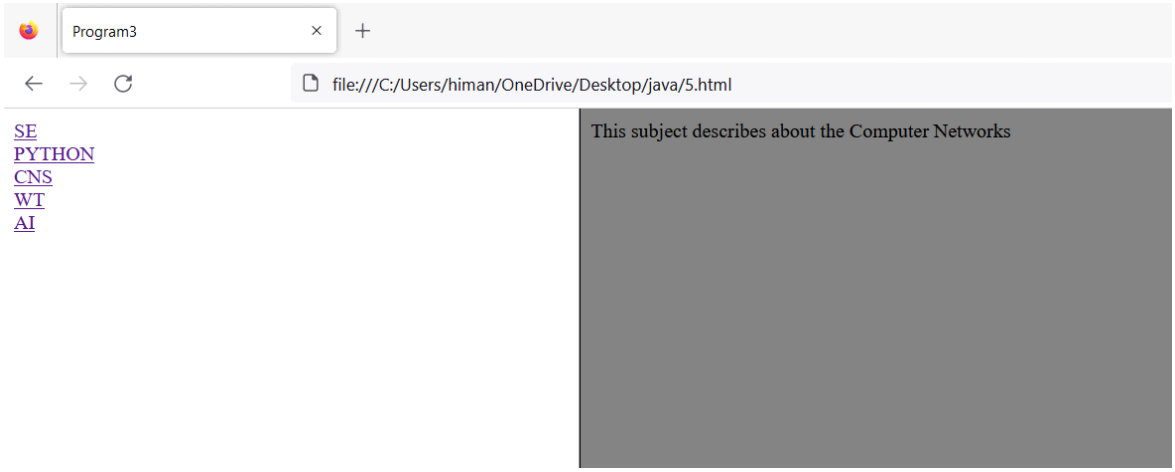
```
<html>
        <title>AI</title>
        <body bgcolor="blue">
<font color="yellow">
                This subject describes about Artificial Intelligence
        </font></body>
</html>
```

OUTPUT:




Program3
file:///C:/Users/himan/OneDrive/Desktop/java/5.html
SE
PYTHON
CNS
WT
AI
This subject describes the Software Engineering


Program3
file:///C:/Users/himan/OneDrive/Desktop/java/5.html
SE
PYTHON
CNS
WT
AI
This subject describes about PYTHON


Program3
file:///C:/Users/himan/OneDrive/Desktop/java/5.html
SE
PYTHON
CNS
WT
AI
This subject describes about the Computer Networks


Program3
file:///C:/Users/himan/OneDrive/Desktop/java/5.html
SE
PYTHON
CNS
WT
AI
This subject describes Web Technologies


Program3
file:///C:/Users/himan/OneDrive/Desktop/java/5.html
SE
PYTHON
CNS
WT
AI
This subject describes about Artificial Intelligence

Programs -6

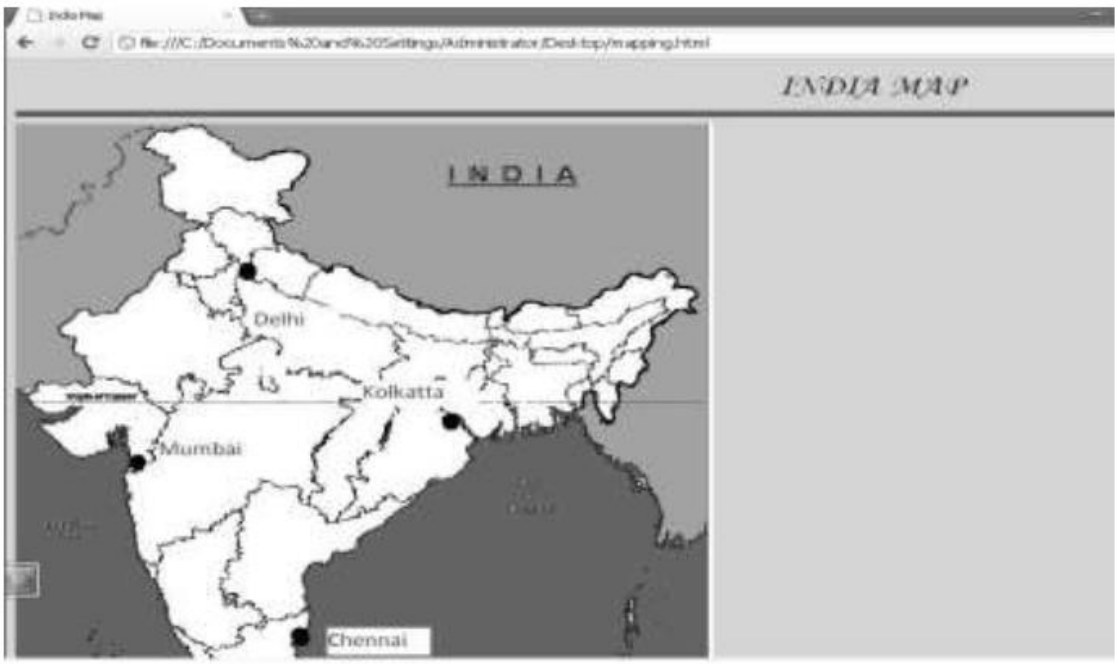
To create a webpage with the following using html.

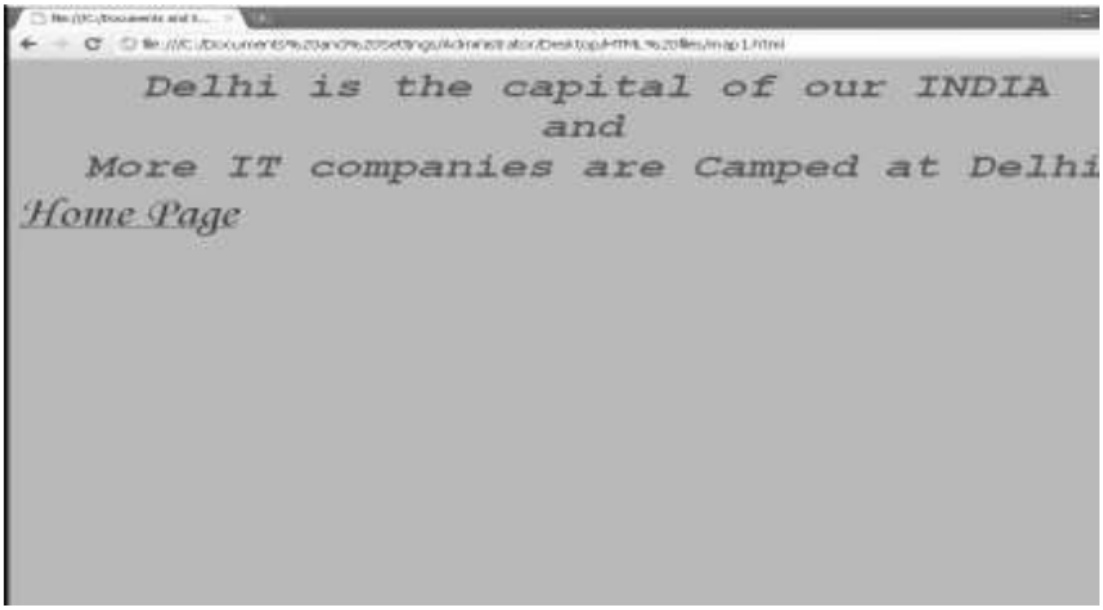
- **To embed an image in web page**
- **To fix the hot spots**
- **Show all the related information when a hot spot is clicked in the map**

```
<html>
<head>
<title>India Map</title>
<head>
<body bgcolor="PINK">
<font face="Monotype Corsiva" color="BLUE" size="6">
<marquee direction="left" behavior="alternate">INDIA MAP
</marquee>
</font>
<hr size="6" color="RED">
<map name="pagemap">
<area shape="rect" coords="194,151,247,219" href="map1.html">
<area shape="rect" coords="291,268,384,337" href="map2.html">
<area shape="rect" coords="100,337,197,384" href="map3.html">
<area shape="rect" coords="236,543,344,577" href="map4.html">
</map>
<img src="india.bmp" usemap="#pagemap">
</body>
<font color="#ff0000" size="5">
<p><b>Hints:</b><i>Click on the Name of the Cities in the map to know its
description</i></p>
</html>
/*map1.html*/
<html>
<body bgcolor="SKYBLUE">
<font face="Monotype Corsiva" size="18" color="RED">
<center><b><i><tt>Delhi is the capital of our INDIA<br> and <br>More IT companies are
Camped at Delhi</tt></i></b></center>
<a href="mapping.html">Home Page</a>
</font>
</body>
</html>
/*map2.html*/
<html>
<body bgcolor="SKYBLUE">
<font face="Times New Roman" size="18" color="RED">
<center><b><i>Calcutta is the wealthy city in WEST BENGAL<br> and <br>it has Famous
"Sunderbans Forests"</i></b></center>
```

```
<a href="mapping.html">Home Page</a>
</font></body></html>
/*map3.html*/
<html>
<body bgcolor="DARKGREEN">
<font face="Times New Roman" size="12" color="RED">
<center>MUMBAI is the capital of Maharashtra<br> and <br>it has Famous India
Gate</center>
<a href="mapping.html">Home Page</a>
</font>
</body>
</html>
/*map4.html*/
<html>
<body bgcolor="BLACK">
<font face="Times New Roman" size="12" color="RED">
<center>Chennai is hte capital of Tamil Nadu<br> and <br>More IT companies are camped
at
Chennai</center>
<a href="mapping.html">Home Page</a>
</font></body></html>
```

OUTPUT:



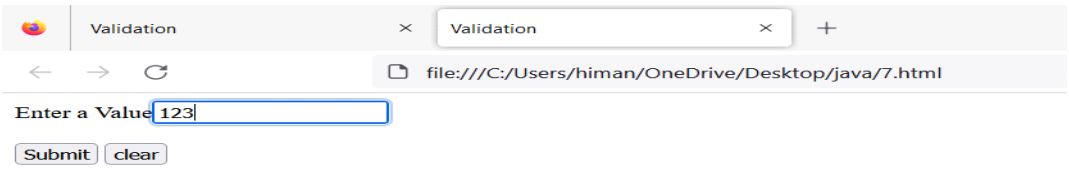

Delhi is the capital of our INDIA
and
More IT companies are Camped at Delhi
Home Page

Programs -7

Write a JavaScript code to find factorial of N. (Use recursive function)

```
<html>
	<title>Validation</title>
	<body>
		<form name="f1">
			Enter a Value<input type="text" name="t1"><br><br>
			<input type ="Button" value = "Submit" OnClick=factorial()>
			<input type="reset" value="clear">
		</form>
		<script language="javascript">
			function factorial()
			{
				n=document.f1.t1.value;
				var result = fact(n);
			alert("Factorial of the given number " + result);
			}
		function fact(n)
		{
		if(n==0)
			return 1;
		else
			return(n*fact(n-1));
		}
		</script>
	</body>
</html>
```

OUTPUT:



Programs -8

Write a JavaScript code block using arrays and generate the current date in words, this should include the day, month and year.

```
<!DOCTYPE html>
<html>
<head>
<script type="text/javascript">
    var d=new Date();
     var weekday=new
  Array("Sunday","Monday","Tuesday","wednesday","Thursday","Friday","Saturday");
    var monthname=new
 Array("Jan","Feb","Mar","Apr","May","Jun","Jul","Aug","Sep","Oct","Nov","Dec");
 document.write(weekday[d.getDay()]+"")
 document.write(d.getDay()+".");
 document.write(monthname[d.getMonth()]+"");
 document.write(d.getFullYear());;
</script>
</head>
<body>

</body>
</html>
```

OUTPUT:

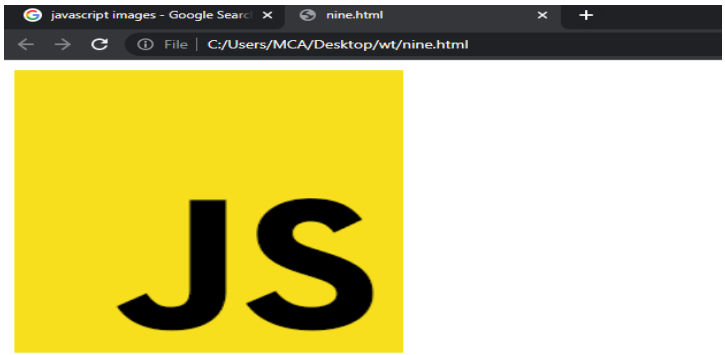
wednesday3.Jun2023

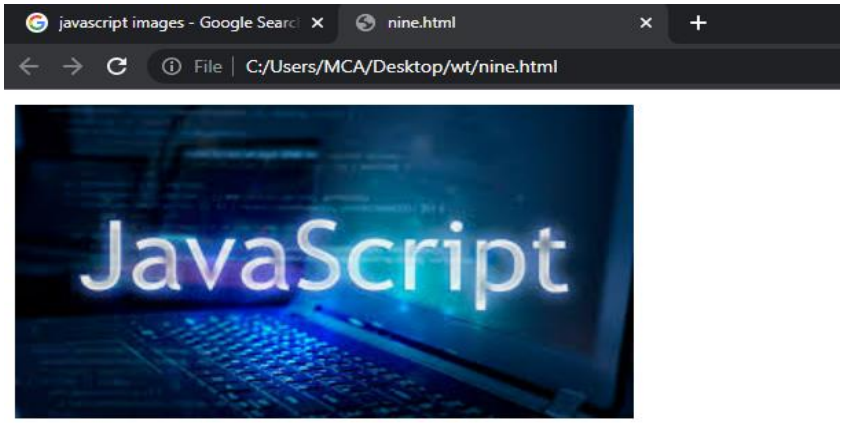
Programs -9

Create a web page using two image files, which switch between one another as the mouse pointer moves over the images. Use the onMouseOver and onMouseOut event handlers.

```
<html>
<head>
<script type = "text/javascript">
   function mouseover()
   {
document.getElementById("img").src = "java.jpg";
   }
   function mouseout()
   {
document.getElementById("img").src = html.jpg;
   }
</script>
</head>
<body>
<imgsrc = "image1.jpg" id = "img" onmouseover="mouseover()"
onmouseout="mouseout()"/>
</body>
</html>
```

OUTPUT:




javascript images - Google Searc
nine.html
File | C:/Users/MCA/Desktop/wt/nine.html
JavaScript

Programs -10

Design an XML document to store information about a student in an engineering college affiliated to ANU. The information must include college id, Name of the College, Brach, Year of Joining, and e-mail id. Make up sample data for 3 students. Create a CSS style sheet and use it to display the document.

10a.css:

```
/* Define styling properties for each tag of the xml file */
 student {margin-top:15px;font-weight:bold;color:pink;}
 info {display:block;margin-left:15px;color:gray;}
 usn, name {color:red;font-size:15pt;}
 coll, branch {color:blue;font-size:15pt;}
 yoj, email {color:green;font-size:15pt;}
```

10.xml:

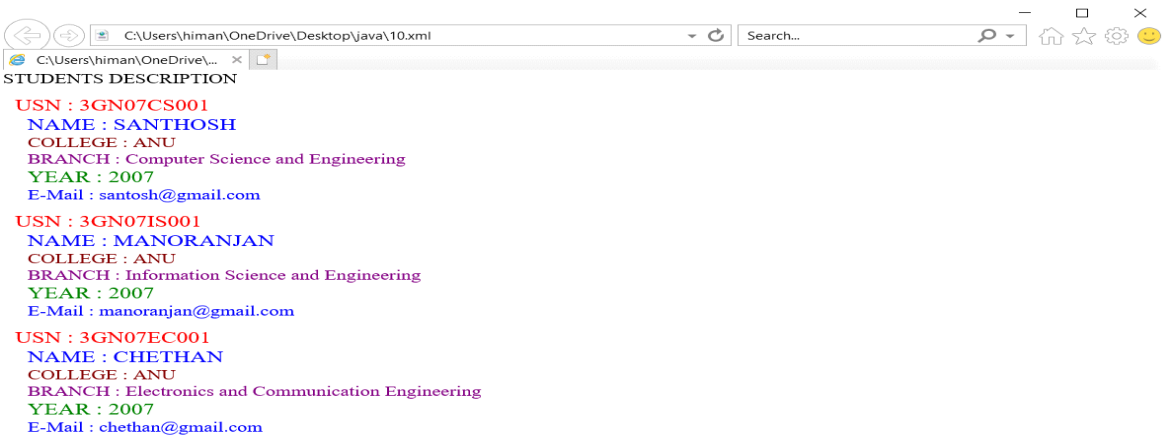
```
<?xml-stylesheet type="text/css" href="10.css" ?>
<!DOCTYPE HTML>
<html>
<head>
<h1> STUDENTS DESCRIPTION </h1>
</head>
<students>
<student>
<USN>USN : 3GN07CS001</USN>
<name>NAME : SANTHOSH</name>
<college>COLLEGE :  ANU</college>
<branch>BRANCH : Computer Science and Engineering</branch>
<year>YEAR : 2007</year>
<e-mail>E-Mail : santosh@gmail.com</e-mail>
</student>
<student>
<USN>USN : 3GN07IS001</USN>
<name>NAME : MANORANJAN</name>
<college>COLLEGE :  ANU</college>
<branch>BRANCH : Information Science and Engineering</branch>
<year>YEAR : 2007</year>
<e-mail>E-Mail : manoranjan@gmail.com</e-mail>
</student>
<student>
<USN>USN : 3GN07EC001</USN>
<name>NAME : CHETHAN</name>

<college>COLLEGE : ANU</college>
<branch>BRANCH : Electronics and Communication Engineering
</branch>
```

```
<year>YEAR : 2007</year>
<e-mail>E-Mail : chethan@gmail.com</e-mail>
</student>
</students>

</html>
```

10.CSS

```
student{
display:block; margin-top:10px; color:Navy;
}
USN{
display:block; margin-left:10px;font-size:14pt; color:Red;
}
name{
display:block; margin-left:20px;font-size:14pt; color:Blue;
}
college{
display:block; margin-left:20px;font-size:12pt; color:Maroon;
}
branch{
display:block; margin-left:20px;font-size:12pt; color:Purple;
}
year{
display:block; margin-left:20px;font-size:14pt; color:Green;
}
e-mail{
display:block; margin-left:20px;font-size:12pt; color:Blue;

}
```

OUTPUT:



Programs -8

Programs -11

Create an XML document, which contains 10 users information. Implement a program, which takes User Id as an input and returns the user details by taking the user information from the XML document.

student.xml:

```
<?xml version="1.0" encoding="UTF-8"?>
<students-details>
<student>
<studentid>561</studentid>
<name>Ramu</name>
<address>ECIL</address>
<gender>Male</gender>
</student>
<student>
<studentid>562</studentid>
<name>Ramya</name>
<address>KBHP</address>
<gender>Female</gender>
</student>
<student>
<studentid>563</studentid>
<name>Mahi</name>
<address>BHEL</address>
<gender>Male</gender>
</student>
<student>
<studentid>564</studentid>
<name>Manvi</name>
<address>KOTI</address>
<gender>Female</gender>
</student>
<student>
<studentid>565</studentid>
<name>Ammu</name>
<address>ECIL</address>
<gender>Female</gender>
</student>
</students-details>
```

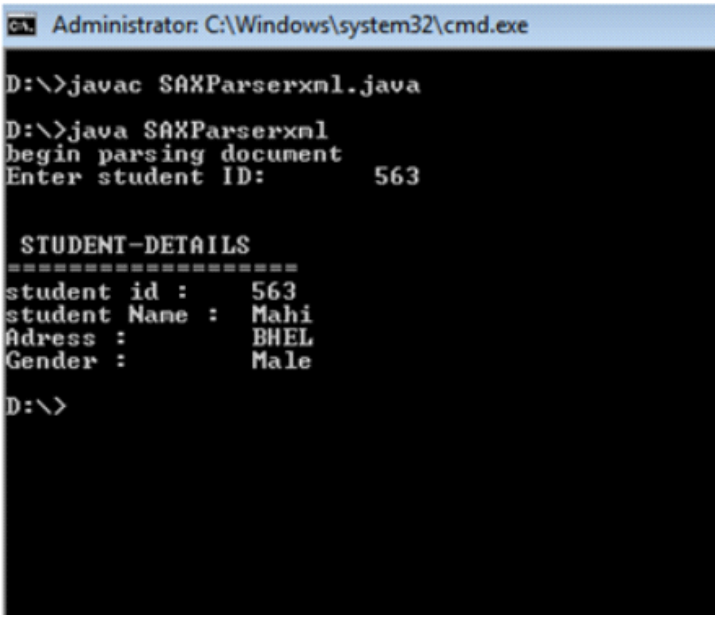
SAXParserxml.java:

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

```
import javax.xml.parsers.SAXParser;
import javax.xml.parsers.SAXParserFactory;
import org.xml.sax.Attributes;
import org.xml.sax.SAXException;
import org.xml.sax.helpers.DefaultHandler;
public class SAXParserxml extends DefaultHandler
{
boolean studentid = true,name = false,address = false,gender = false;
int flag=0,c=0;
String sid,sname,sadd,sgender,tid;
public void startDocument()
{
System.out.println("begin parsing document");
System.out.print("Enter student ID:\t");
try{
BufferedReader reader = new BufferedReader(new InputStreamReader(System.in));
tid = reader.readLine();
}catch(Exception e){}
}
public void startElement(String url,String localname, String qName, Attributes att){
if (qName.equalsIgnoreCase("studentid"))
{
studentid = true;
}
else if (qName.equalsIgnoreCase("name") && flag==1)
{
name = true;
}
else if (qName.equalsIgnoreCase("address")&& flag==1)
{
address = true;
}
else if (qName.equalsIgnoreCase("gender")&& flag==1)
{
gender = true;
}
}

public void characters(char[] ch,int start,int length){
if (studentid)
{
String x=new String(ch, start, length);
if(x.equals(tid))
{
flag=1;sid=x; c=1;
}
```

```
else
flag=0;
studentid = false;
}
else if (name)
{
sname=new String(ch, start, length); name = false;
}
else if (address)
{
sadd=new String(ch, start, length); address = false;
}
else if (gender)
{
sgender=new String(ch, start, length); gender = false;
}
}
public void endElement(String url,String localname, String qName){}
public void endDocument()
{
if(c==0)
System.out.println("student Id is not present.Try Again!!!");
else
{
System.out.println("\n\n STUDENT-DETAILS");
System.out.println("====================");
System.out.println("student id :\t" +sid);
System.out.println("student Name :\t" +sname);
System.out.println("Adress :\t" +sadd);
System.out.println("Gender :\t" +sgender);
}
}
public static void main(String[] arg)throws Exception{
SAXParser p=SAXParserFactory.newInstance().newSAXParser();
p.parse(new FileInputStream("student.xml"), new SAXParserxml());
}
}
```

OUTPUT:


Administrator: C:\Windows\system32\cmd.exe
D:\>javac SAXParserxml.java
D:\>java SAXParserxml
begin parsing document
Enter student ID: 563
STUDENT-DETAILS
==========
student id : 563
student Name : Mahi
Adress : BHEL
Gender : Male
D:\>

Programs -12

Write a java program to illustrate java to database connectivity using JDBC.

JDBCEx.java:

```
import java.io.DataInputStream;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.Statement;
public class JDBCEx {
        public static void main(String[] args) throws Exception {
        Class.forName("sun.jdbc.odbc.JdbcOdbcDriver");
                Connection
con=DriverManager.getConnection("jdbc:odbc:pvkr","scott","tiger");
                Statement stmt=con.createStatement();
                DataInputStream m=new DataInputStream(System.in);
                System.out.println("enter empid from emp");
                int n=Integer.parseInt(m.readLine());
                ResultSet rs=stmt.executeQuery("select * from emp where empno="+n);
                String s="";
                while(rs.next())
                {
                        s=s+rs.getInt(1)+" ";
                        s=s+rs.getString(2)+" ";
                        s=s+rs.getString(3)+" ";
                        s=s+rs.getInt(4)+" ";
                        s=s+rs.getDate(5)+" ";
                        s=s+rs.getDouble(6)+" ";
                        s=s+rs.getDouble(7)+" ";
                        s=s+rs.getInt(8)+" ";
                }
                System.out.println("Employ Details are:");
                System.out.println(s);
                rs.close();
                stmt.close();
                con.close();
        }
}
```

OUTPUT:

```
Employ Details are:
------- --------------- ---------- ---------- --------- ---------- ----------
  1001 jay ram         srikakulam 7937439364              1984.5     647584
```

Programs -13

Write a program to print the Fibonacci numbers using RMI. (Use NetBeans)

RMIFiboInt.java:

```
import java.rmi.Remote;
public interface RMIFiboInt extends Remote{
        int[] fibo(int n) throws Exception;
 }
```

RMIFiboImpl.java:

```
import java.rmi.server.UnicastRemoteObject;
public class RMIFiboImpl extends UnicastRemoteObject implements RMIFiboInt {
        RMIFiboImpl()throws Exception {
        }
        @Override
        public int[] fibo(int n){
                int x1,x2,i,t;
                int[] a=new int[n];
                x1=0;
                x2=1;
                for(i=0;i<n;i++){
                        if(i==0)
                                a[i]=x1;
                        else if(i==1)
                                a[i]=x2;
                        else{
                                t=x1;
                                x1=x2;
                                x2=x2+t;
                                a[i]=x2;
                        }
                }
                return a;
        }
}
```

RMIFiboServer.java:

```
import java.rmi.registry.LocateRegistry;
import java.rmi.registry.Registry;
public class RMIFiboServer {
        public RMIFiboServer(){
        }
        public static void main(String args[]){
```

```
		try{
			RMIFiboImpl fobj=new RMIFiboImpl();
		LocateRegistry.createRegistry(1099);
		Registry reg=LocateRegistry.getRegistry();
		reg.rebind("rmifibo",fobj);
			System.out.println("The RMI Server is ready");
		}
		catch(Exception e){
			System.out.println("Exception:"+e);
			System.exit(1);
		}
	}

}
```

RMIFiboClient.java:

```
import java.io.DataInputStream;
import java.rmi.registry.LocateRegistry;
import java.rmi.registry.Registry;
public class RMIFiboClient {
	public static void main(String args[])throws Exception{
		try{

			Registry reg=LocateRegistry.getRegistry();
		RMIFiboInt f=(RMIFiboInt)reg.lookup("rmifibo");
			DataInputStream m=new DataInputStream(System.in);
			System.out.println("enter a value");
			int n1=Integer.parseInt(m.readLine());
			System.out.println("Fibonacci numbers are");
			int[] a=f.fibo(n1);
			for(int i=0;i<a.length;i++)
				System.out.println(a[i]);
		}
		catch(Exception e){
			System.out.println(e);
		}
	}
 }
```

OUTPUT:

The RMI Server is ready….
Enter a value:
10

0

1

1

2

3

5

8

13

21

34

Programs -14

Write a java servlet program to conduct online examination and to display student mark list available in a database.

ExamServer.jsp:

```
<%@page contentType="text/html" language="java" import="java.sql.*"%>
<html>
<head>
<title>Online Exam Server</title>
<style type="text/css">
  body{background-color:black;font-family:courier;color:blue}
</style>
</head>
<body>
<h2 style="text-align:center">ONLINE EXAMINATION</h2>
<p>
<a href="ExamClient.html">Back To Main Page</a>
</p>
<hr/>
<%
String str1=request.getParameter("ans1");
String str2=request.getParameter("ans2");
String str3=request.getParameter("ans3");
int mark=0;
Class.forName("sun.jdbc.odbc.JdbcOdbcDriver");
Connection con=DriverManager.getConnection("jdbc:odbc:examDS");
Statement stmt=con.createStatement();
ResultSet rs=stmt.executeQuery("SELECT * FROM examTab");
int i=1;
while(rs.next())
{
 if(i==1)
 {
  String dbans1=rs.getString(1);
  if(str1.equals(dbans1))
  {
   mark=mark+5;
  }
 }
 if(i==2)
 {
  String dbans2=rs.getString(1);
  if(str2.equals(dbans2))
  {
   mark=mark+5;
```

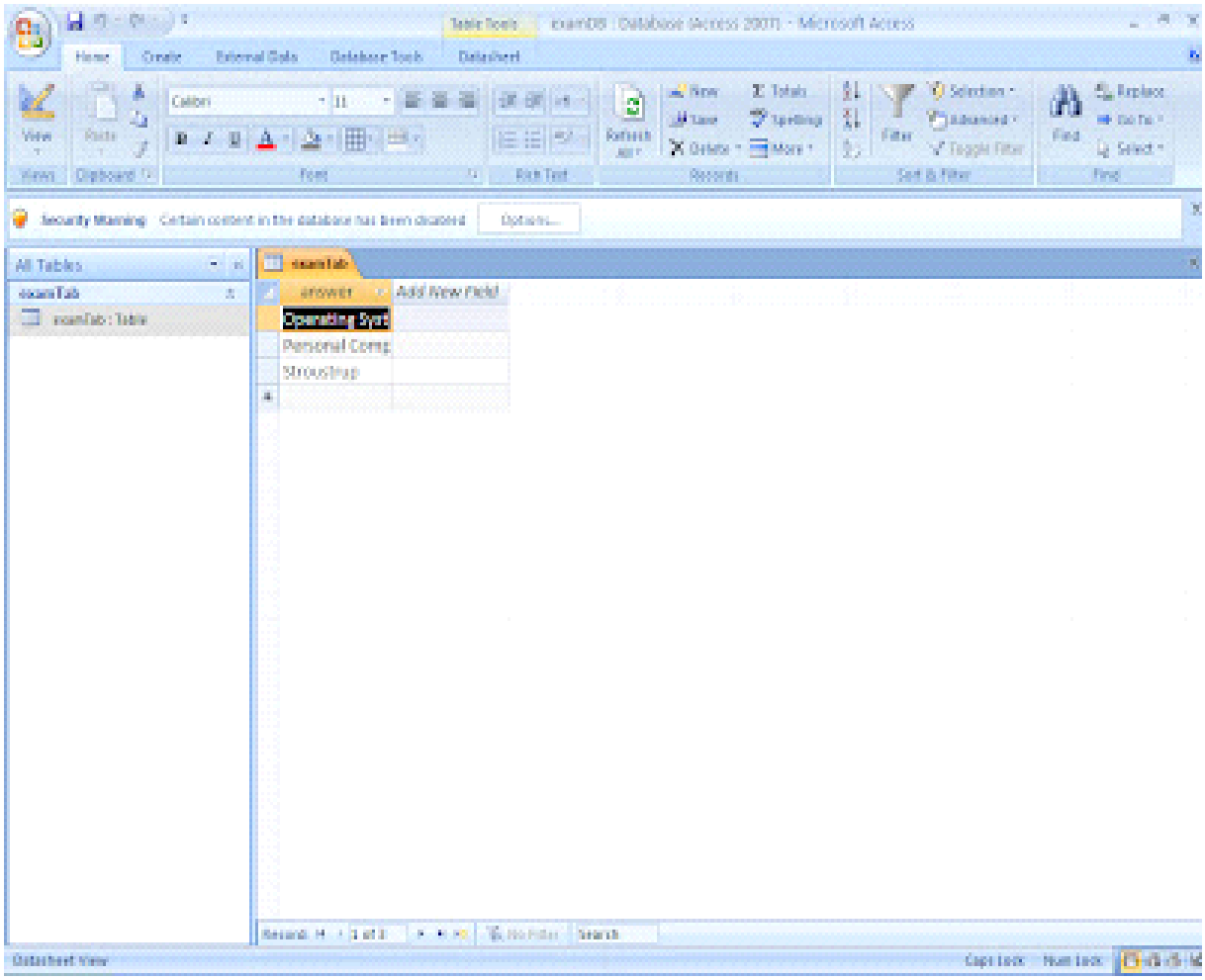
```
  }
 }
 if(i==3)
 {
  String dbans3=rs.getString(1);
  if(str3.equals(dbans3))
  {
   mark=mark+5;
  }
 }
 i++;
}
if(mark>=10)
{
 out.println("<h4>Your Mark Is : "+mark+"</h4>");
 out.println("<h3>Congratulations....! You Are Eligible For The Next Round...</h3>");
}
else
{
 out.println("<h4>Your Mark is : "+mark+"</h4>");
 out.println("<h3>Sorry....!! You Are Not Eligible For  The Next Round...</h3>");
}
%>
</form>
</body>
</html>
```

ExamClient.HTML:

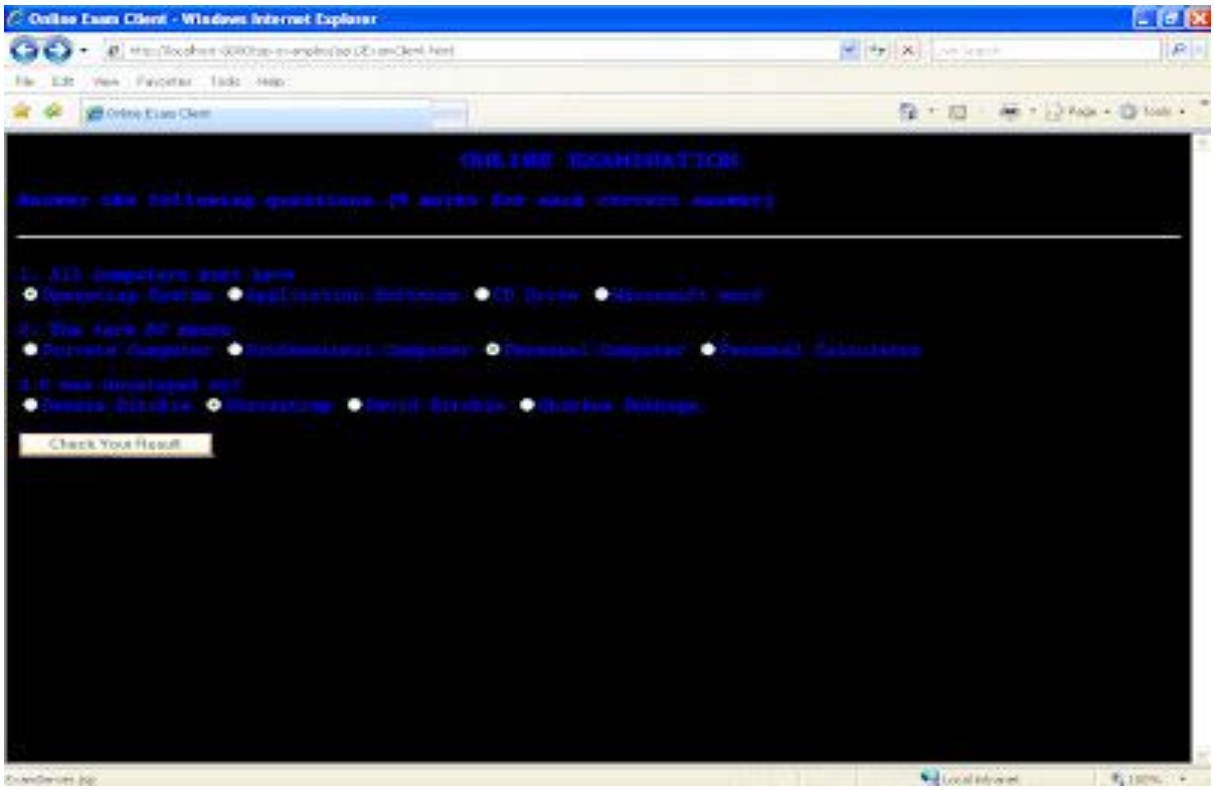
```
<html>
<head>
<title>Online Exam Client</title>
<style type="text/css">
   body{background-color:black;font-family:courier;color:blue}
</style>
</head>
<body>
<h2 style="text-align:center">ONLINE EXAMINATION</h2>
<h3>Answer the following questions (5 marks for each correct answer)</h3>
<hr/>
<form name="examForm" method="post" action="ExamServer.jsp">
1. All computers must have <br/>
<input type="radio" name="ans1" value="Operating System">Operating System
<input type="radio" name="ans1" value="Application Software">Application Software
<input type="radio" name="ans1" value="CD Drive">CD Drive
<input type="radio" name="ans1" value="Microsoft word">Microsoft word
<br/><br/>
2. The term PC means <br/>
<input type="radio" name="ans2" value="Private Computer">Private Computer
<input type="radio" name="ans2" value="Professional Computer">Professional Computer
```

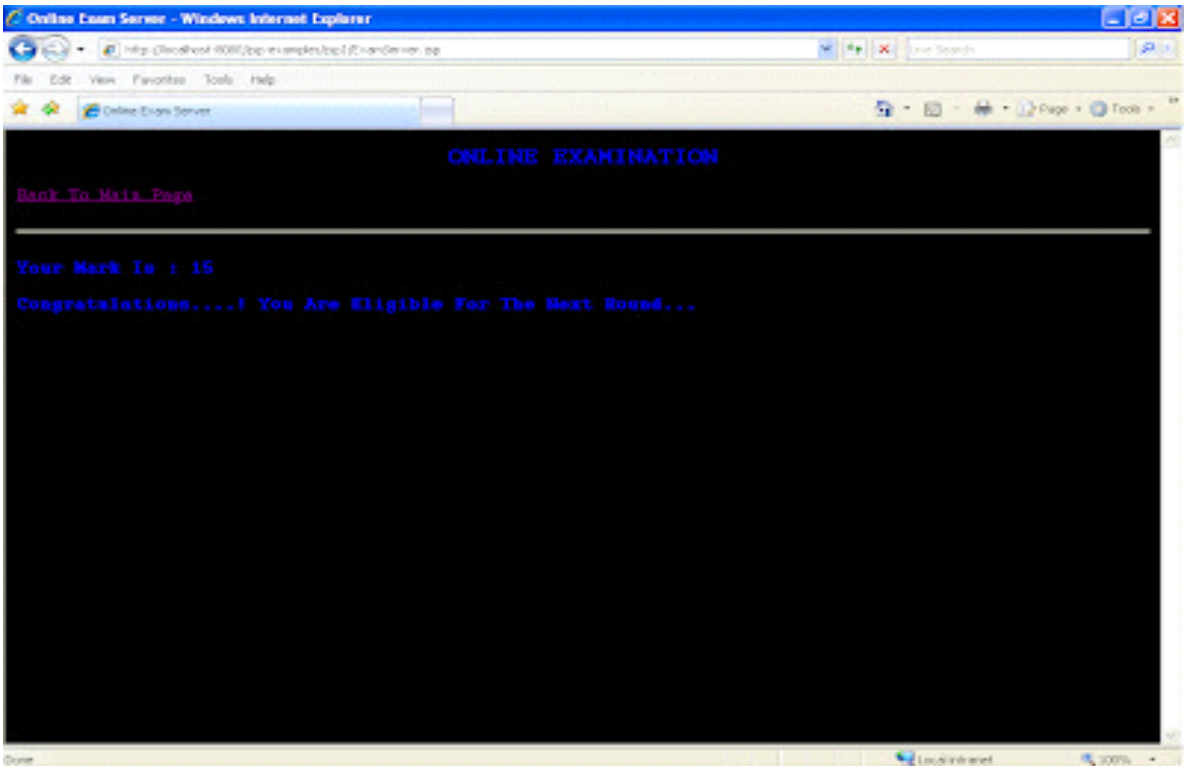
```
<input type="radio" name="ans2" value="Personal Computer">Personal Computer
<input type="radio" name="ans2" value="Personal Calculator">Personal Calculator
<br/><br/>
3.C was developed by?<br/>
<input type="radio" name="ans3" value="Dennis Ritchie">Dennis Ritchie
<input type="radio" name="ans3" value="Stroustrup">Stroustrup
<input type="radio" name="ans3" value="David Ritchie">David Ritchie
<input type="radio" name="ans3" value="Charles Babbage">Charles Babbage
<br/><br/>
<input type="submit" value="Check Your Result"/>
</form>
</body>
</html>
```

DATABASE



OUTPUT:


Online Exam Client - Windows Internet Explorer
ONLINE EXAMINATION
Check Your Result


Online Exam Server - Windows Internet Explorer
ONLINE EXAMINATION
Back To Main Page
Your Mark Is : 15
Congratulations....! You Are Eligible For The Next Round...

Programs -15

Create a java program to create an airline reservation service and a travel agent and the travel agent is searching for an airline using web services and database.

Database used: MS Access
index.jsp

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!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=UTF-8">
<title>Travel Agency</title>
</head>
<body>
<center><h1>Travel Easy</h1>
<h3> - A Smarter way to travel</h3>
<br><br>
<b> Enter your Details</b>
<form name="index" action="AirlineList.jsp" method="post">
<br>
<table cellpadding="6" cellspacing="6">
<tr>
<td><b>From</b></td>
<td><input type="text" name="txt_from"</td>
</tr>
<tr>
<td><b>To</b></td>
<td><input type="text" name="txt_to"</td>
</tr>
<tr>
<td><b>Date of Journey</b></td>
<td><input type="text" name="txt_depart"</td>
</tr>
<tr>
<td><b>Number of Passengers</b></td>
<td><input type="text" name="txt_no"</td>
</tr>
<tr>
<td><b>Type of Flight</b></td>
<td><input type="Radio" name="group1" value="domestic">Domestic Flights</td
</tr>
<tr>
<td></td>
```

```
<td><input type="Radio" name="group1" value="international">International Flights</td>
</tr>
<tr>
<td><b>Select desired Airlines</b></td>
<td>
<select name="airline">
<option>Kingfisher</option>
<option>SpiceJet</option>
</select>
</td>
</tr>
</table>
<br><br>
<input type="Submit" name="Submit" value="Find Flights">
</form>
</center>
</body>
</html>
```

airlinelist.jsp

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!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=UTF-8">
<title>Domestic Flights</title>
</head>
<body>
<center><h1>Travel Easy</h1>
<h3> - A Smarter way to travel</h3>
</center>
<br><br>
<%@ page language="java" %>
<%@ page import ="java.sql.*" %>
<%@ page import =
"java.util.Date,java.text.SimpleDateFormat,java.text.ParseException"%>
<%
        String type = request.getParameter("group1");
        String from= request.getParameter("txt_from");
        String to = request.getParameter("txt_to");
        String depart= request.getParameter("txt_depart");
        String ret = request.getParameter("txt_return");
        String no = request.getParameter("txt_no");
        String airline = request.getParameter("airline");
```

```
Class.forName("sun.jdbc.odbc.JdbcOdbcDriver");
        String sTable = type;
        String sSql = "SELECT * FROM "   sTable   " WHERE From='" from "' and TO='" to
"' and DepartDate='" depart "' and SeatCapacity>=" no "";
        String sDBQ = "d:/"  airline ".mdb";
        String database = "jdbc:odbc:Driver={Microsoft Access Driver (*.mdb)};DBQ="
sDBQ  ";DriverID=22;READONLY=true";
        Connection cn = null;
        Statement st = null;
ResultSetrs = null;
        try {
cn = DriverManager.getConnection( database ,"","");
st = cn.createStatement();
rs = st.executeQuery( sSql );
ResultSetMetaDatarsmd = rs.getMetaData();
            String s1,s2,s3,s4,s5,s6,s7,s8;
            int i=1;
            String flight_no[] = new String[100];
            //out.println("<form name='AirlLine' action=" method='post'><b>" i " . "
rs.getString(1)  "</b><br><br>");
out.println("<h3><b>" airline  " Flights</b></h3><br>");
out.println("<table cellspacing=20 cellpaddinng=15>");
out.println("<tr><th>Flight No</th><th>From</th><th>To</th><th>Departure
Date</th><th>Arrival Date</th><th>Start Time</th>");
out.println("<th>Reach Time</th><th>Seats Remaining</th></tr>");
            while(rs.next())
            {
            s1 = rs.getString(1);
flight_no[i] = s1;
            s2 = rs.getString(2);
            s3 = rs.getString(3);
            s4 = rs.getString(4);
            s5 = rs.getString(5);
            s6 = rs.getString(6);
            s7 = rs.getString(7);
            s8 = rs.getString(8);
out.println("<tr><td>" s1 "</td>");
out.println("<td>" s2 "</td>");
out.println("<td>" s3 "</td>");
out.println("<td>" s4 "</td>");
out.println("<td>" s5 "</td>");
out.println("<td>" s6 "</td>");
out.println("<td>" s7 "</td>");
out.println("<td>" s8 "</td></tr>");
i  ;
            }
```

```
out.println("</table>");
            if(i==1)
            {
out.println("<br><center><b>Sorry!! No flights scheudle available</b></center><br>");
            }
            else
            {
out.println("<form name='AirlineList' action='" airline ".jsp' method='post'>");
out.println("<br><table><tr><td>Select Flight</td><td>");
out.println("<select name='flight_no'>");
for(int temp=1;temp<i;temp  )
               {
out.println("<option>" flight_no[temp] "</option>");
               }
out.println("</select></td></tr><tr></tr>");
out.println("<tr><td><input type='hidden' name='no' value='" no "'</td>");
out.println("<td><input type='hidden' name='air_type' value='" type "'</td></tr>");
for(int j=1;j<=Integer.parseInt(no);j  )
               {
out.println("<tr><th>Passenger " j  " details</th></tr>");
out.println("<tr></tr>");
out.println("<tr><td>Name</td><td><input type='text' name='pas" j "_name'</td></tr>");
out.println("<tr><td>Age</td><td><input type='text' name='pas" j "_age'</td></tr>");
out.println("<tr><td>Sex</td><td><input type='text' name='pas" j "_sex'</td></tr>");
out.println("<tr></tr>");
               }
out.println("</table><br><br><input type='Submit' name='Submit' value='Book
Now'/></form>");
            }
            //out.println("<input name ='submit' value='Submit' type='submit'/>");
         }
         finally {
            try { if( null != rs ) rs.close(); } catch( Exception ex ) {}
            try { if( null != st ) st.close(); } catch( Exception ex ) {}
            try { if( null != cn ) cn.close(); } catch( Exception ex ) {}
               }
      %>
</body>
</html>
```

Kingfisher.jsp

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!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=UTF-8">
<title>Kingfisher Airlines</title>
</head>
<body>
<%@ page language="java" %>
<%@ page import ="java.sql.*" %>
<%
        String s = request.getParameter("no");
out.println("<h1><center>Kingfisher Airlines</h1><br><h3>- Have a nice
trip!!!</h3></center><br>");
out.println("<br><br>Your Booking Details");
out.println("<br><br><table cellspacing=10 cellpaddin=10>");
Class.forName("sun.jdbc.odbc.JdbcOdbcDriver");
        String sTable = request.getParameter("air_type");
        String sSql = "SELECT * FROM " sTable " WHERE FlightNo='"
request.getParameter("flight_no") "'";
        String sDBQ = "d:/kingfisher.mdb";

        String database = "jdbc:odbc:Driver={Microsoft Access Driver (*.mdb)};DBQ="
sDBQ ";DriverID=22;READONLY=true";
        Connection cn = null;
        Statement st = null;
ResultSetrs = null;
        String name,age,sex,flightno,from,to,departure,arrival,starttime,reachtime,seat;
out.println("<tr><th>Name</th><th>Age</th><th>Sex</th><th>Flight
No</th><th>From</th><th>To</th><th>Departure Date</th><th>Arrival
Date</th><th>Start Time</th><th>Reach Time</th><th>Seat No</th></tr>");
        try
        {
cn = DriverManager.getConnection( database ,"","");
st = cn.createStatement();
rs = st.executeQuery( sSql );
ResultSetMetaDatarsmd = rs.getMetaData();
         int seat1=1;
         while(rs.next())
         {
flightno = rs.getString(1);
            from = rs.getString(2);
            to = rs.getString(3);
            departure = rs.getString(4);
            arrival = rs.getString(5);
starttime = rs.getString(6);
reachtime = rs.getString(7);
            seat = rs.getString(8);
            seat1 = Integer.parseInt(seat);
for(int i=1;i<=Integer.parseInt(s);i  )
```

```
          {
             name= request.getParameter("pas" i "_name");
             age = request.getParameter("pas" i "_age");
             sex = request.getParameter("pas" i "_sex");
flightno = request.getParameter("flight_no");
out.println("<tr><td>" name "</td><td>" age "</td><td>" sex "</td>");
out.println("<td>" flightno "</td><td>" from "</td><td>" to "</td><td>" departure "</td>");
out.println("<td>" arrival "</td><td>" starttime "</td><td>" reachtime "</td><td>" seat1
"</td>");
             seat1--;
            }
           }
           Connection cn1 = null;
          Statement st1 = null;
ResultSet rs1 = null;
         try
         {
sSql = "update "      sTable      " set SeatCapacity=" seat1 " WHERE FlightNo='"
request.getParameter("flight_no") "'";
          rs1 = st.executeQuery( sSql );
          }
catch(Exception e)
         {
          }

          }
          finally {
             try { if( null != rs ) rs.close(); } catch( Exception ex ) {}
             try { if( null != st ) st.close(); } catch( Exception ex ) {}
             try { if( null != cn ) cn.close(); } catch( Exception ex ) {}
                }
      %>
</body>
</html>
```

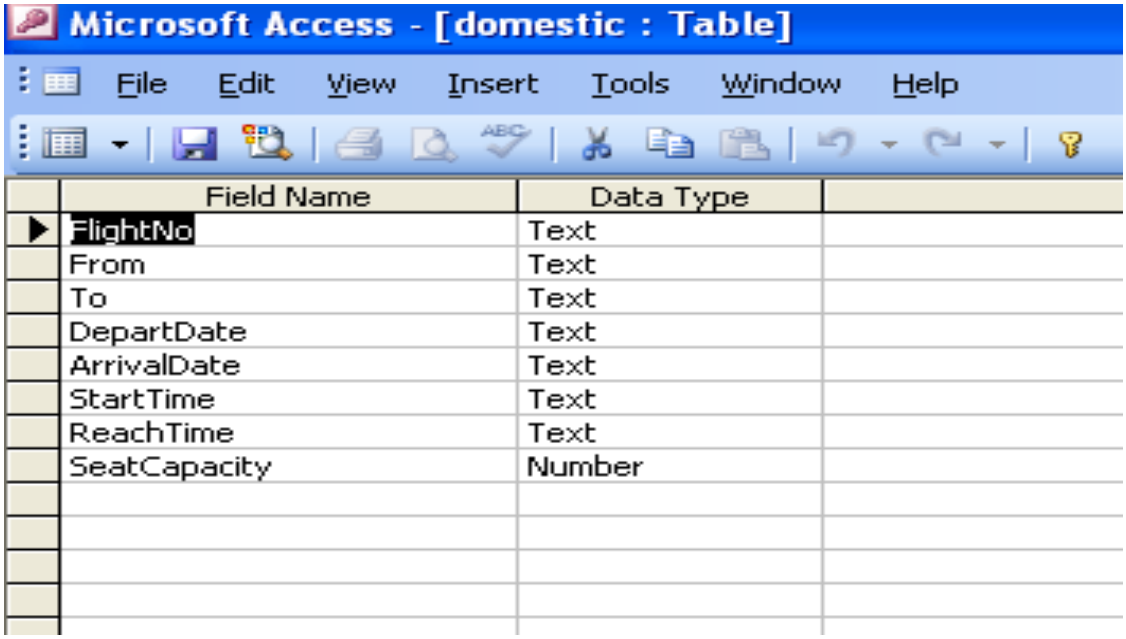
SpiceJet.jsp

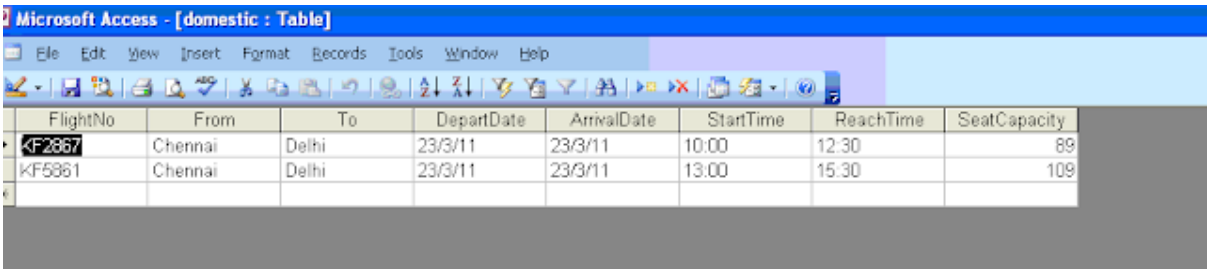
```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
  "http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>SpiceJet Airlines</title>
</head>
<body>
<%@ page language="java" %>
```

```
<%@ page import ="java.sql.*" %>
<%
        String s = request.getParameter("no");
out.println("<h1><center>SpiceJet Airlines</h1><br><h3>- Have a nice
trip!!!</h3></center><br>");
out.println("<br><br>Your Booking Details");
out.println("<br><br><table cellspacing=10 cellpaddin=10>");
Class.forName("sun.jdbc.odbc.JdbcOdbcDriver");
        String sTable = request.getParameter("air_type");
        String sSql = "SELECT * FROM " sTable " WHERE FlightNo='"
request.getParameter("flight_no") "'";
        String sDBQ = "d:/SpiceJet.mdb";

        String database = "jdbc:odbc:Driver={Microsoft Access Driver (*.mdb)};DBQ="
sDBQ  ";DriverID=22;READONLY=true";
        Connection cn = null;
        Statement st = null;
ResultSetrs = null;
        String name,age,sex,flightno,from,to,departure,arrival,starttime,reachtime,seat;
out.println("<tr><th>Name</th><th>Age</th><th>Sex</th><th>Flight
No</th><th>From</th><th>To</th><th>Departure Date</th><th>Arrival
Date</th><th>Start Time</th><th>Reach Time</th><th>Seat No</th></tr>");
        try
        {
cn = DriverManager.getConnection( database ,"","");
st = cn.createStatement();
rs = st.executeQuery( sSql );
ResultSetMetaDatarsmd = rs.getMetaData();
         int seat1=1;
         while(rs.next())
         {
flightno = rs.getString(1);
            from = rs.getString(2);
            to = rs.getString(3);
            departure = rs.getString(4);
            arrival = rs.getString(5);
starttime = rs.getString(6);
reachtime = rs.getString(7);
            seat = rs.getString(8);
            seat1 = Integer.parseInt(seat);
for(int i=1;i<=Integer.parseInt(s);i  )
        {
           name= request.getParameter("pas" i "_name");
           age = request.getParameter("pas" i "_age");
           sex = request.getParameter("pas" i "_sex");
flightno = request.getParameter("flight_no");
```

```
out.println("<tr><td>" name "</td><td>" age "</td><td>" sex "</td>");
out.println("<td>" flightno "</td><td>" from "</td><td>" to "</td><td>" departure "</td>");
out.println("<td>" arrival "</td><td>" starttime "</td><td>" reachtime "</td><td>" seat1
"</td>");
            seat1--;
           }
          }
          Connection cn1 = null;
         Statement st1 = null;
ResultSet rs1 = null;
        try
        {
sSql = "update "      sTable      " set SeatCapacity=" seat1 " WHERE FlightNo='"
request.getParameter("flight_no") "'";
         rs1 = st.executeQuery( sSql );
         }
catch(Exception e)
        {
         }

         }
         finally {
            try { if( null != rs ) rs.close(); } catch( Exception ex ) {}
            try { if( null != st ) st.close(); } catch( Exception ex ) {}
            try { if( null != cn ) cn.close(); } catch( Exception ex ) {}
               }
     %>
</body>
</html>
```

Database

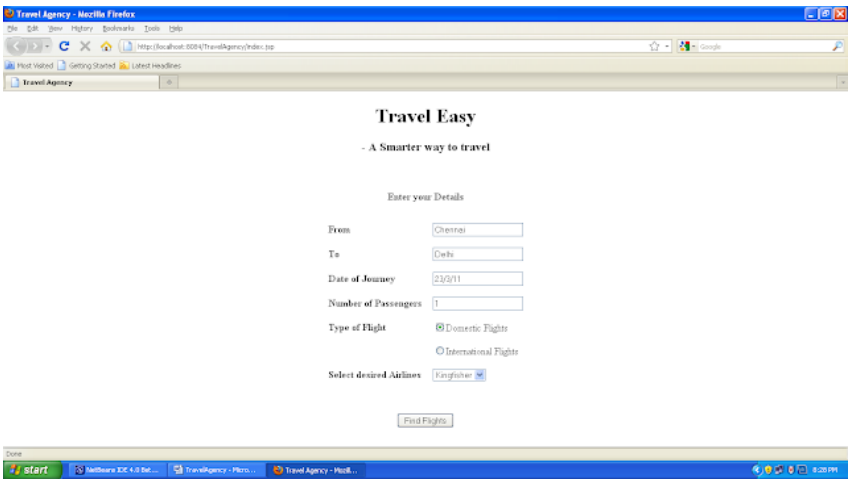




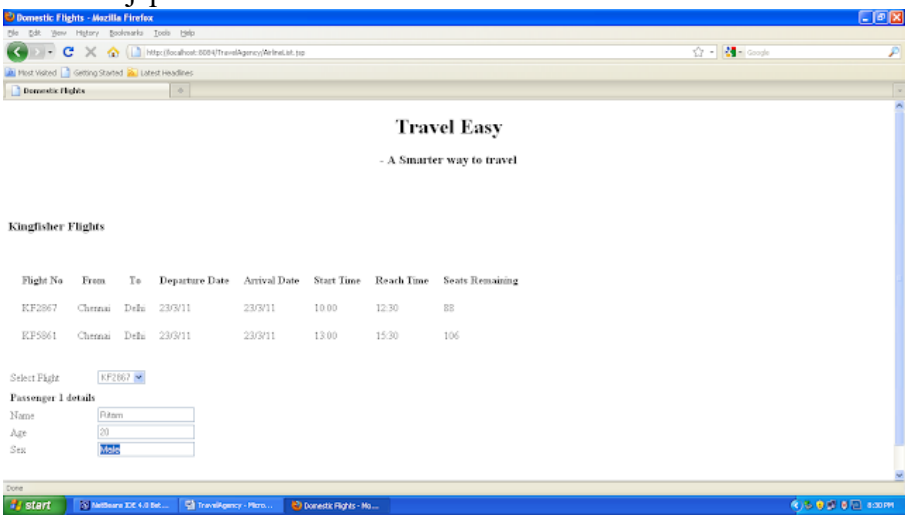
(similarly add for SpiceJet.mdb)

OUTPUT:

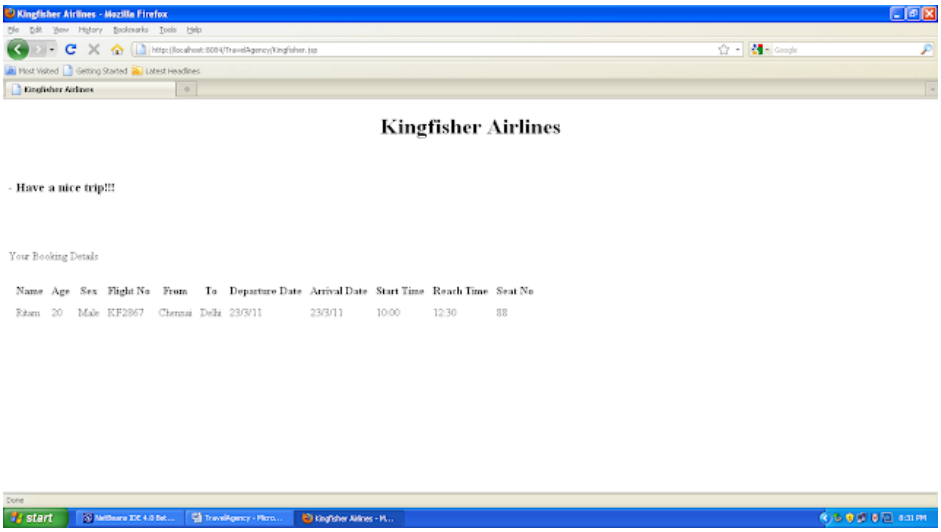
index.jsp

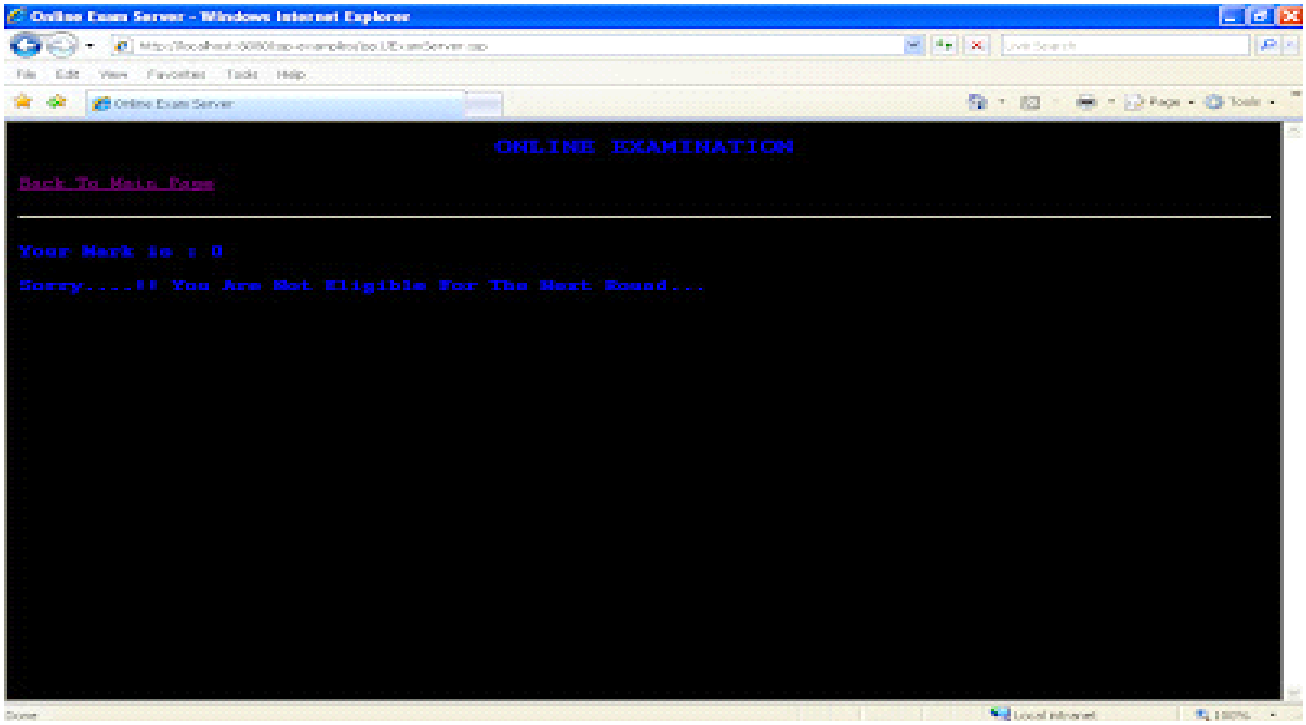


airlinelist.jsp



Kingfisher.jsp





Dr. Vasantha Rudrarnalla