Program 1: BASIC FORM

Form.java

```
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

public class FormCollect extends HttpServlet {
   public void doGet(HttpServletRequest req, HttpServletResponse res) throws
ServletException, IOException {
      res.setContentType("text/html");
      PrintWriter pw = res.getWriter();

      String fname = req.getParameter("fname");
      String lname = req.getParameter("lname");
      String email = req.getParameter("email");
      String gender = req.getParameter("gender");


      pw.println("Welcome " + fname + " login successful");
   }
}
```

Index.html

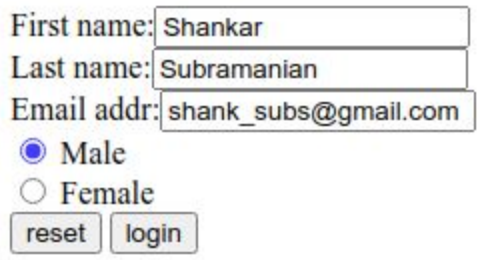
```
<html>

<body>

   <form action="welcome" method="get">
      First name:<input type="text" name="fname"><br>
      Last name:<input type="text" name="lname"><br>
      Email addr:<input type="text" name="email"><br>
      <input type="radio" id="male" name="gender" value="male"> Male <br>
      <input type="radio" id="female" name="gender" value="female"> Female <br>

      <input type="reset" value="reset">
      <input type="submit" value="login">
   </form>
```

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

Web.xml

```
<web-app>

<servlet>
<servlet-name>shankar</servlet-name>
<servlet-class>FormCollect</servlet-class>
</servlet>

<servlet-mapping>
<servlet-name>shankar</servlet-name>
<url-pattern>/welcome</url-pattern>
</servlet-mapping>

</web-app>
```

O/P:



Program 2: FORM VALIDATION

Index.html

```
<html>
```

```
<body>
   <form action="FormValidation" method="get">
      User id:<input type="text" name="id"><br>
      Password:<input type="text" name="pwd"><br>
      Name:<input type="text" name="name"><br>
      Address:<input type="text" name="address"><br>

      Country: <select name="country" id="country">
         <option value="india">India</option>
         <option value="uk">UK</option>
         <option value="aus">Australia</option>
         <option value="usa">USA</option>
      </select> <br>

      Zip code:<input type="text" name="zipcode"><br>
      Email:<input type="text" name="email"><br>
      Sex: <input type="radio" id="male" name="gender" value="male"> Male <input type="radio"
id="female"
         name="gender" value="female"> Female <br>
      Language: <input type="radio" id="english" name="language" value="english"> English
<input type="radio" id="non-english" name="language"
         value="non-english"> Non-English <br>

      About: <textarea id="about" name="about" rows="4" cols="50"> </textarea> </br>
      <input type="submit" value="login">
   </form>
</body>

</html>
```

Formvalidation.java

```
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import java.util.regex.Matcher;
import java.util.regex.Pattern;
```

```
public class FormValidation extends HttpServlet {

   public static boolean isAlphabet(String str) {
      return ((str.equals("")) && (str != null) && (str.matches("^[a-zA-Z]*$")));
   }

   public static boolean isNumber(String str) {
      int n;
      boolean flag = false;
      try {
         n = Integer.parseInt(str);
      } catch (NumberFormatException ex) {
         flag = true;
      }
      return flag;
   }

   public static boolean isNotEmail(String email) {
      String emailRegex = "^[a-zA-Z0-9_+&*-]+(?:\\." + "[a-zA-Z0-9_+&*-]+)*@" +
"(?:[a-zA-Z0-9-]+\\.)+[a-z"
            + "A-Z]{2,7}$";

      Pattern pat = Pattern.compile(emailRegex);
      if (email == null)
         return false;
      return pat.matcher(email).matches();
   }

   public void doGet(HttpServletRequest req, HttpServletResponse res) throws
ServletException, IOException {
      res.setContentType("text/html");
      PrintWriter pw = res.getWriter();

      String id = req.getParameter("id");
      String pwd = req.getParameter("pwd");
      String name = req.getParameter("name");
      String address = req.getParameter("address");
      String country = req.getParameter("country");
      String zipcode = req.getParameter("zipcode");
      String email = req.getParameter("email");
      String gender = req.getParameter("gender");
      String language = req.getParameter("language");
      String about = req.getParameter("about");
```

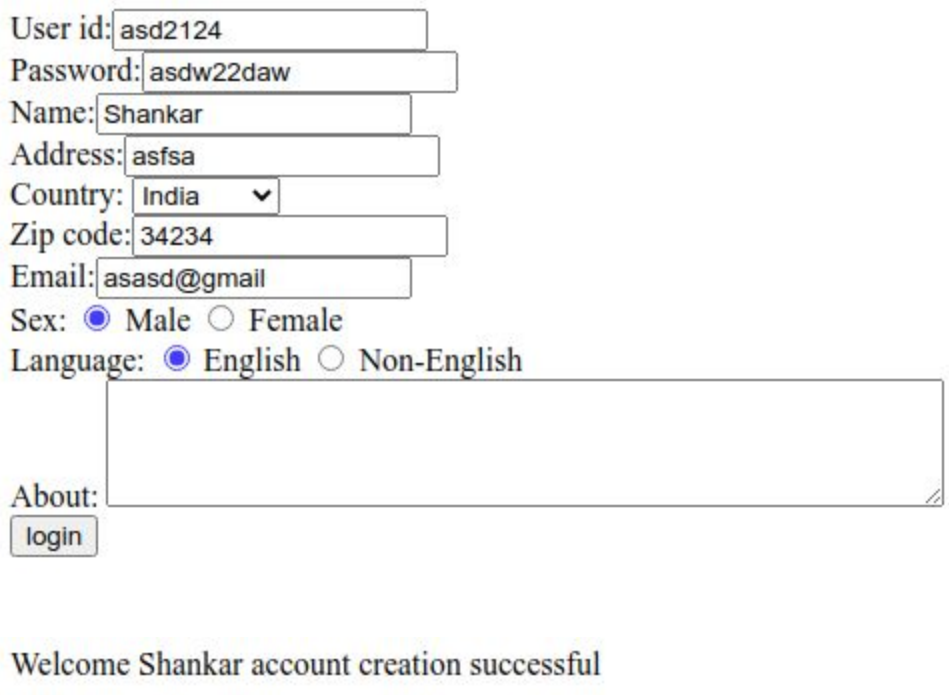
```
        boolean flag = true;
        String errParam = new String();

        if      (id.length() < 5 || id.length() > 12  || id.isBlank()){
            errParam = "id";
            flag = false;
        } else if(pwd.length() < 7 || pwd.length() > 12 || id.isBlank()){
            errParam = "pwd";
            flag = false;
        } else if(name.isBlank()   || isAlphabet(name)){
            errParam = "name";
            flag = false;
        } else if(zipcode.isBlank() || isNumber(zipcode)) {
            errParam = "zipcode";
            flag = false;
        } else if(isNotEmail(email) ){
            errParam = "email";
            flag = false;
        } else if(gender.isBlank()){
            errParam = "gender";
            flag = false;
        } else if(language.isBlank()) {
            errParam = "language";
            flag = false;
        }

        if( flag == false ){
            pw.println("Account creation unsuccessful");
            pw.println("\nError in parameter:" + errParam);
        } else{
            pw.println("Welcome " + name + " account creation successful");
        }
    }
}
```

Web.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<web-app version="3.0" xmlns="http://java.sun.com/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
http://java.sun.com/xml/ns/javaee/web-app_3_0.xsd">
    <servlet>
```

```
        <servlet-name>FormValidation</servlet-name>
        <servlet-class>FormValidation</servlet-class>
    </servlet>
    <servlet-mapping>
        <servlet-name>FormValidation</servlet-name>
        <url-pattern>/FormValidation</url-pattern>
    </servlet-mapping>
    <session-config>
        <session-timeout>
            30
        </session-timeout>
    </session-config>
</web-app>
```

O/P:



User id: asd2124
Password: asdw22daw
Name: Shankar
Address: asfsa
Country: India
Zip code: a4234
Email: asasd@gmail
Sex: Male Female
Language: English Non-English
About:
login

Account creation unsuccessful Error in parameter:zipcode

Program 3: Mark to Grade

Index.html

```
<html>
   <head>
      <title>Mark to Grade</title>

   </head>
   <body>
   <center>
      <h1>Student marks</h1>
      <form action="marks.jsp" method="get">
         Enter Marks in Subject 1   : <input type="text" name="sub1"> <br><br>
         Enter Marks in Subject 2   : <input type="text"  name="sub2"><br><br>
         Enter Marks in Subject 3   : <input type="text"  name="sub3"><br><br>
         Enter Marks in Subject 4   : <input type="text"  name="sub4"><br><br>
         Enter Marks in Subject 5   : <input type="text"  name="sub5"><br><br>
         Enter Marks in Subject 6   : <input type="text"  name="sub6"><br><br>
         <input type="submit">
        </form>
```

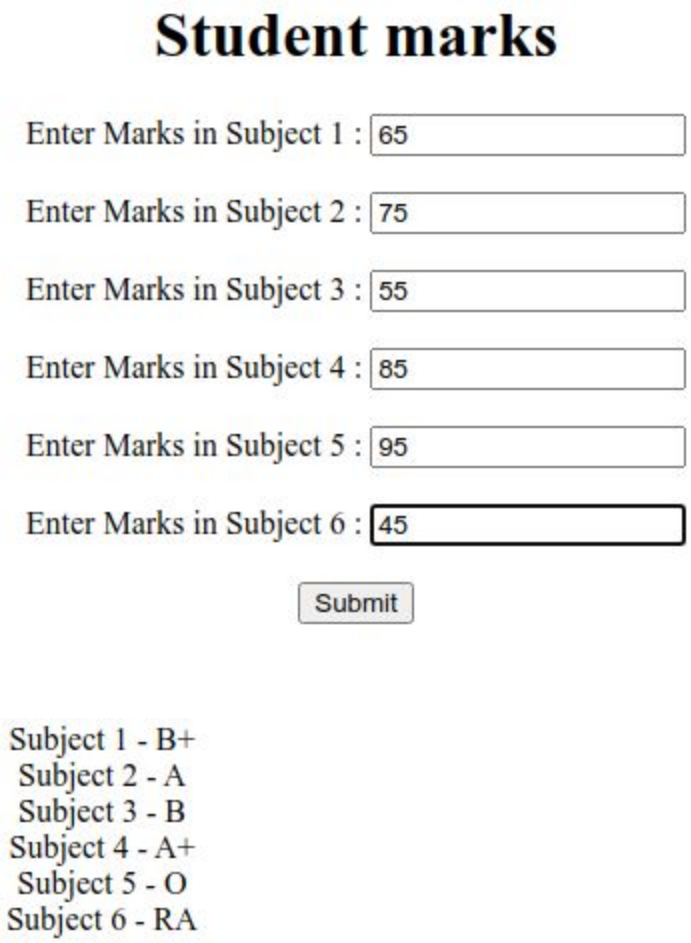
```
      </center>
   </body>
</html>
```

Index.jsp

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
   <head>
      <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
      <title>JSP Page</title>
   </head>
   <body> <center>
      <%
         int sub1=Integer.parseInt(request.getParameter("sub1"));
         int sub2=Integer.parseInt(request.getParameter("sub2"));
         int sub3=Integer.parseInt(request.getParameter("sub3"));
         int sub4=Integer.parseInt(request.getParameter("sub4"));
         int sub5=Integer.parseInt(request.getParameter("sub5"));
         int sub6=Integer.parseInt(request.getParameter("sub6"));

         out.println("Subject 1 - "  + getGrade(sub1));
         out.println("<br>Subject 2 - "  + getGrade(sub2));
         out.println("<br>Subject 3 - "  + getGrade(sub3));
         out.println("<br>Subject 4 - "  + getGrade(sub4));
         out.println("<br>Subject 5 - "  + getGrade(sub5));
         out.println("<br>Subject 6 - "  + getGrade(sub6));
         %>
         <%!
         public String getGrade(int mark){
            if(mark > 90 ){
               return("O");
            }else if (mark >= 80) {
               return("A+");
            }else if (mark >= 70) {
               return("A");
            } else if (mark >= 60) {
               return("B+");
            } else if(mark >= 50){
               return("B");
            } else{
               return("RA");
            }
```

```
        }


      %>
   </center></body>
</html>
```

O/P:



Program 3: Display marks from database

Index.jsp

```
<%@ page import="java.io.*,java.util.*,java.sql.*" %>
  <%@ page import="javax.servlet.http.*,javax.servlet.*" %>
    <%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
      <%@ taglib uri="http://java.sun.com/jsp/jstl/sql" prefix="sql" %>
```

```
<html>

<head>
  <title>SELECT Operation</title>
</head>

<body>
  <sql:setDataSource var="snapshot" driver="com.mysql.jdbc.Driver"
url="jdbc:mysql://localhost/test"
    user="root" password="" />

  <sql:query dataSource="${snapshot}" var="result">
    SELECT * from marks;
  </sql:query>

  <table border="1" width="100%">
    <tr>
      <th>Name</th>
      <th>Sub1</th>
      <th>Sub2</th>
      <th>Sub3</th>
      <th>Sub4</th>
    </tr>

    <c:forEach var="row" items="${result.rows}">
      <tr>
        <td>
          <c:out value="${row.Name}" />
        </td>
        <td>
          <c:out value="${row.Sub1}"/>
        </td>
        <td>
          <c:out value="${row.Sub2}" />
        </td>
        <td>
          <c:out value="${row.Sub3}" />
        </td>
        <td>
          <c:out value="${row.Sub4}" />
        </td>
      </tr>
    </c:forEach>
```

```
        </table>

    </body>

    </html>
```

O/P:

Name	Sub1	Sub2	Sub3	Sub4
Aaditya	78	66	95	75
Anirudh	45	88	98	75

+ Options

Name	Sub1	Sub2	Sub3	Sub4
Aaditya	78	66	95	75
Anirudh	45	88	98	75

Program 5: online shop

Index.html

```
<html>
<body>
   <meta http-equiv="Refresh" content="0; url='/onlineShop/homepage'" />
</body>
</html>
```

Homepage.java:

```
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import java.sql.*;

public class homePage extends HttpServlet {
   private Connection conn;

   public Connection listItems(HttpServletRequest request, HttpServletResponse response,
Connection conn)
         throws ServletException, IOException {

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

```
        try {
            Statement stmt = conn.createStatement();
            String sql = "SELECT * FROM store";
            ResultSet rs = stmt.executeQuery(sql);

            out.println("<table border> <tr><th>Item Code</th> <th>Item Name</th> <th>Item
Quantity</th> <th>Item Cost</th> </tr>");
            while (rs.next()) {
                String code = rs.getString("item_code");
                String name = rs.getString("item_name");
                String num = rs.getString("item_num");
                String cost = rs.getString("item_cost");

                out.println("<tr> <td>" + code + "</td><td>" + name + "</td><td>" + num + "</td><td>"
+ cost + "/tr");
            }
            out.println("</table>");
        } catch (Exception e) {
            e.printStackTrace();
            System.out.println("Error in select all");
        }
        return conn;
    }

    public Connection getConnection(HttpServletResponse response) throws IOException {
        PrintWriter out = response.getWriter();

        try {
            String url = "jdbc:mysql://localhost/test";
            String username = "root";
            String password = "";
            Class.forName("com.mysql.jdbc.Driver");

            conn = DriverManager.getConnection(url, username, password);
        } catch (Exception e) {
            e.printStackTrace();
            out.println("Error occurred while connecting to database");
        }
        return conn;
    }

    protected void processRequest(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
```

```
        PrintWriter out = response.getWriter();
        try {
            getConnection(response);
            listItems(request, response, conn);
                    out.println("<a href = \"/onlineShop/purchase\"> <input type = 'button' value =
'Click to proceed'> </a>");

        } finally {
            out.close();
        }
    }

    protected void doGet(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        processRequest(request, response);

    }

}
```

Purchase.java:

```
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import java.sql.*;

public class purchase extends HttpServlet {
    private Connection conn;

    public Connection listItems(HttpServletRequest request, HttpServletResponse response,
Connection conn)
            throws ServletException, IOException {

        PrintWriter out = response.getWriter();

        try {
```

```
            Statement stmt = conn.createStatement();
            String sql = "SELECT * FROM store";
            ResultSet rs = stmt.executeQuery(sql);
            int ctr = 0;
            out.println("<form action='/onlineShop/checkout' method='get'>");
            out.println("<table border> <tr><th>Item Code</th> <th>Item Name</th> <th>Item
Quantity</th> <th>Item Cost</th> <th>Buying</th></tr>");
            while (rs.next()) {
                String code = rs.getString("item_code");
                String name = rs.getString("item_name");
                String num = rs.getString("item_num");
                String cost = rs.getString("item_cost");

                out.println("<tr> <td>" + code + "</td><td>" + name + "</td><td>" + num + "</td><td>"
+ cost);
                out.println(" </td><td><input type='text' name = 'item" +ctr +"'></td></tr>");
                ctr++;
            }
            out.println("</table>");
            out.println("<input type='hidden' name = 'counter' value = '"+ctr+"'</input>" );
            out.println("<input type='submit' value= 'Proceed to Checkout'> </form>");
        } catch (Exception e) {
            e.printStackTrace();
            System.out.println("Error in select all");
        }
        return conn;
    }

    public Connection getConnection(HttpServletResponse response) throws IOException {
        PrintWriter out = response.getWriter();

        try {
            String url = "jdbc:mysql://localhost/test";
            String username = "root";
            String password = "";
            Class.forName("com.mysql.jdbc.Driver");

            conn = DriverManager.getConnection(url, username, password);
        } catch (Exception e) {
            e.printStackTrace();
            out.println("Error occurred while connecting to database");
        }
        return conn;
    }
```

```
    protected void processRequest(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");

        PrintWriter out = response.getWriter();
        try {
            getConnection(response);
            listItems(request, response, conn);
        } finally {
            out.close();
        }
    }

    @Override
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        processRequest(request, response);

    }

}
```

checkout.java

```
import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.Statement;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

public class checkout extends HttpServlet {
    private Connection conn;

        public Connection calcPrice(HttpServletRequest request, HttpServletResponse response,
Connection conn, int item_count)
            throws ServletException, IOException {

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

```
        try {
            Statement stmt = conn.createStatement();
            String sql = "SELECT * FROM store";
            ResultSet rs = stmt.executeQuery(sql);
            int ctr = 0;
            int total_cost = 0;
            out.println("<form action='/onlineShop/payment' method=\"get\">");
            out.println("<table border> <tr> <th>Item Code</th> <th>Item Name</th> <th>Item
Quantity</th> <th>Item Price</th><th>Item Total Price</th></tr>");
            while (rs.next()) {
                String code = rs.getString("item_code");
                String name = rs.getString("item_name");
                String num = rs.getString("item_num");
                int cost = rs.getInt("item_cost");

                int quant = 2;//Integer.parseInt(request.getParameter("item"+ctr));
                if(quant==0)
                    break;
                total_cost += cost * quant;
                out.println("<tr> <td>" + code + "</td><td>" + name + "</td><td>" + quant +
"</td><td>" + cost + "</td><td>" + (cost * quant) + "</td></tr>");
                ctr++;
            }
            out.println("</table>");

            out.println("Total cost = " + total_cost);
            out.println("<br><input type='submit' value= 'Pay'> </form>");
        } catch (Exception e) {
            e.printStackTrace();
            System.out.println("Error in select all");
        }
        return conn;
    }

    public Connection getConnection(HttpServletResponse response) throws IOException {
        PrintWriter out = response.getWriter();

        try {
            String url = "jdbc:mysql://localhost/test";
            String username = "root";
            String password = "";
            Class.forName("com.mysql.jdbc.Driver");

            conn = DriverManager.getConnection(url, username, password);
```

```
        } catch (Exception e) {
            e.printStackTrace();
            out.println("Error occurred while connecting to database");
        }
        return conn;
    }

    public void doGet(HttpServletRequest req, HttpServletResponse res) throws
ServletException, IOException {
        res.setContentType("text/html");
        PrintWriter pw = res.getWriter();

        int item_count = Integer.parseInt(req.getParameter("counter"));
        try {
            getConnection(res);
            calcPrice(req, res, conn, item_count);
        } finally {
        }


    }
}
```

Payment.java

```
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

public class payment extends HttpServlet {

    public void doGet(HttpServletRequest req, HttpServletResponse res) throws
ServletException, IOException {
        res.setContentType("text/html");
        PrintWriter pw = res.getWriter();

        pw.println("Payment successsful");

    }
}
```

O/P:

Item Code	Item Name	Item Quantity	Item Cost
1	bread	4	45/tr
2	pen	3	10/tr

Click to proceed

Item Code	Item Name	Item Quantity	Item Cost	Buying
1	bread	4	45	3
2	pen	3	10	1

Proceed to Checkout

Item Code	Item Name	Item Quantity	Item Price	Item Total Price
1	bread	2	45	90
2	pen	2	10	20

Total cost = 110

Pay

Payment successsful