

Practical-4

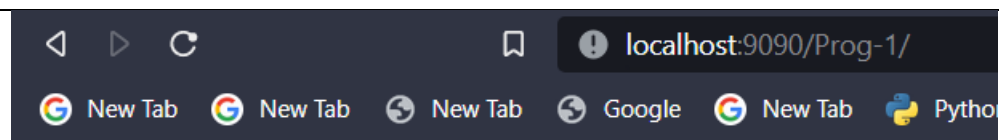
Web.xml

```
<web-app>
<!-- Program 1 -->
<servlet>
  <servlet-name>Prog1</servlet-name>
  <servlet-class>Prog1</servlet-class>
</servlet>
<servlet-mapping>
  <servlet-name>Prog1</servlet-name>
  <url-pattern>/Prog1</url-pattern>
</servlet-mapping>
<!-- Program 2 -->
<servlet>
  <servlet-name>Prog2x</servlet-name>
  <servlet-class>Prog2x</servlet-class>
</servlet>
<servlet-mapping>
  <servlet-name>Prog2x</servlet-name>
  <url-pattern>/Prog2x</url-pattern>
</servlet-mapping>
<!-- Program 3 -->
<servlet>
  <servlet-name>Login</servlet-name>
  <servlet-class>Login</servlet-class>
</servlet>
<servlet-mapping>
  <servlet-name>Login</servlet-name>
  <url-pattern>/Login</url-pattern>
</servlet-mapping>
<servlet>
  <servlet-name>Prog3</servlet-name>
  <servlet-class>Prog3</servlet-class>
</servlet>
<servlet-mapping>
  <servlet-name>Prog3</servlet-name>
  <url-pattern>/Prog3</url-pattern>
</servlet-mapping>
<servlet>
  <servlet-name>welcome</servlet-name>
  <servlet-class>welcome</servlet-class>
</servlet>
<servlet-mapping>
  <servlet-name>welcome</servlet-name>
  <url-pattern>/welcome</url-pattern>
```

```
</servlet-mapping>
<servlet>
  <servlet-name>Logout</servlet-name>
  <servlet-class>Logout</servlet-class>
</servlet>
<servlet-mapping>
  <servlet-name>Logout</servlet-name>
  <url-pattern>/Logout</url-pattern>
</servlet-mapping>
<!-- Program 4 -->
<servlet>
  <servlet-name>Prog4</servlet-name>
  <servlet-class>Prog4</servlet-class>
</servlet>
<servlet-mapping>
  <servlet-name>Prog4</servlet-name>
  <url-pattern>/Prog4</url-pattern>
</servlet-mapping>
<servlet>
  <servlet-name>Update</servlet-name>
  <servlet-class>Update</servlet-class>
</servlet>
<servlet-mapping>
  <servlet-name>Update</servlet-name>
  <url-pattern>/Update</url-pattern>
</servlet-mapping>
<servlet>
  <servlet-name>Delete</servlet-name>
  <servlet-class>Delete</servlet-class>
</servlet>
<servlet-mapping>
  <servlet-name>Delete</servlet-name>
  <url-pattern>/Delete</url-pattern>
</servlet-mapping>
</web-app>
```

index.html

```
<!DOCTYPE HTML><html lang="en"><head>
<meta charset="UTF-8">
<title>Apache Tomcat Examples</title>
</head>
<body>
<p>
<h3>Apache Tomcat Examples</H3>
</p>
<ul>
  <li><a href="Prog1">Program-1</a></li>
  <li><a href="Prog2.html">Program-2</a></li>
  <li><a href="Login">Program-3</a></li>
  <li><a href="DBInsert.html">Program-4</a></li>
</ul>
</body></html>
```

**Apache Tomcat Examples**

- [Program-1](#)
- [Program-2](#)
- [Program-3](#)
- [Program-4](#)

Program-1

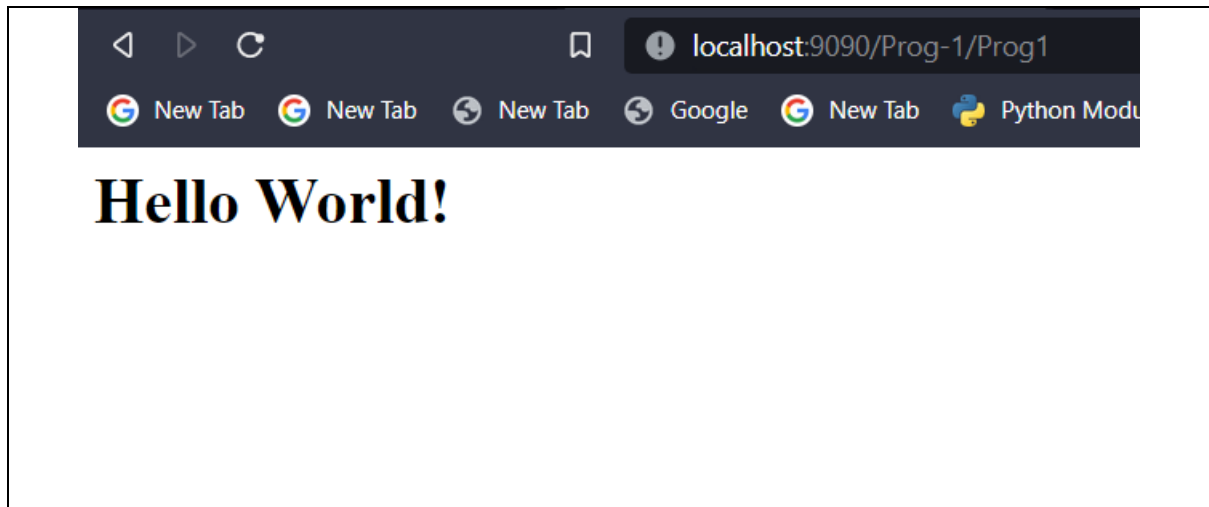
1. Write a Generic Servlet and servlet mapping code which displays "Hello World" string in the browser window upon running.

Ans:

```
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;

public class Prog1 extends HttpServlet {
    public void doGet(HttpServletRequest request, HttpServletResponse
response)
    throws IOException, ServletException
    {
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();
        out.println("<html><head><head><title>Hello
World!</title></head><body><h1 >Hello World!</h1></body></html>");
    }
}
```

Output-1



Program-2

2. Write a servlet and servlet mapping code for simple Servlet which displays “Hello {User}” string in the browser window where user value is passed through deployment descriptor file

Ans:

Prog2.html

```
<html>
  <head>
    <title>User Details</title>
  </head>
  <body>
    <form action="Prog2x" method="get">
      Enter User Name : <input type="text" name="uname"/><br>
      Enter Password : <input type="text" name="pass"/><br>
      <input type="submit" value="Log In"/>
    </form>
  </body>
</html>
```

Prog2x.java

```
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;

public class Prog2x extends HttpServlet {

    public void doGet(HttpServletRequest request, HttpServletResponse response)
        throws IOException, ServletException
    {
        response.setContentType("text/html");

        PrintWriter out = response.getWriter();

        out.println("<html>");
        out.println("<head>");
        out.println("<title>Prog2x</title>");
        out.println("</head>");
        out.println("<body>");

        out.print("<h1>Hello " + request.getParameter("uname") + "</h1>");
        out.println("</body>");
        out.println("</html>");
    }
}
```

Output-2

The image displays two screenshots of a web browser interface. The top screenshot shows a login form with the following elements:

- Address bar: `localhost:9090/Prog-1/Prog2.html`
- Tab bar: Multiple tabs including 'New Tab', 'Google', and 'Python Module'.
- Form fields:
 - 'Enter User Name : Harsh' (text input)
 - 'Enter Password : 123' (password input)
- Buttons: A 'Log In' button.

The bottom screenshot shows the result of the login:

- Address bar: `localhost:9090/Prog-1/Prog2x?uname=Harsh&pass=123`
- Tab bar: Similar to the top screenshot, with additional tabs like 'Python Module Ind...' and 'mt Mon'.
- Output: A large, bold, black serif text reading 'Hello Harsh'.

Program-3

3. Write a servlet and servlet mapping code to for log in and welcome page of the user containing Log Out button. Make use of Session to load the home page. If the session is not created then the user should automatically redirected to Log In page. Username should be passed and a welcome message with the username should be displayed on welcome page if the session is set. Username is to be passed through cookie.

Ans:

Login.java

```
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
public class Login extends HttpServlet{
    public void doGet(HttpServletRequest request,HttpServletResponse response)
    throws IOException, ServletException{
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();
        out.print("<Form action='Prog3' method='get'>"+
        "<input type='text' name='login' placeholder='Username'/>"+
        "<br><br>"+
        "<input type='text' name='Password' placeholder='Password'/>"+
        "<br><br>"+
        "<input type='submit' name='submit' value='Log In'/>"+
        "</Form>");
        out.close();
    }
}
```

Prog3.java

```
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
public class Prog3 extends HttpServlet{
    public void doGet(HttpServletRequest request, HttpServletResponse response)
    throws IOException,ServletException{
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();
        Cookie UserName = new Cookie("UserName", request.getParameter("login"));
        response.addCookie(UserName);
        Cookie Password = new
        Cookie("Password",request.getParameter("Password"));
        response.addCookie(Password);
        HttpSession s = request.getSession();
        s.setAttribute("Name",null);
        response.sendRedirect("welcome"); }}
```


welcome.java

```
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
public class welcome extends HttpServlet {
    public void doGet(HttpServletRequest request, HttpServletResponse
response)throws IOException, ServletException{
        HttpSession s = request.getSession(false);
        Cookie ck[] = request.getCookies();
        String username = null,password=null;
        for(Cookie c1:ck){
            if(c1.getName().equals("UserName"))
                username=c1.getValue();
            if(c1.getName().equals("Password"))
                password = c1.getValue();
        }
        if(username.equals("Harsh") && password.equals("Harsh")){
            response.setContentType("text/html");
            PrintWriter out = response.getWriter();
            out.print("Welcome <h1>"+username+"</h1>");
            out.print(
                "<Form action='Logout' method='get'><br><br><input type='submit'
name='submit' value='Log Out'/></Form>");
            out.close();
        }
    }
}
```

Logout.java

```
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
public class Logout extends HttpServlet{
    public void doGet(HttpServletRequest request, HttpServletResponse response)
throws ServletException, IOException{
        HttpSession s = request.getSession(false);
        s.invalidate();
        Cookie ck[] = request.getCookies();
        for(Cookie c1 : ck){
            if(c1.getName().equals("UserName")){
                c1.setMaxAge(0);
                response.addCookie(c1);
            }
        }
        response.sendRedirect("Login");
    }
}
```

Output-3

The image displays three sequential screenshots of a web application running in a browser. The browser's address bar shows the URL `localhost:9090/Prog-1/Login` for the first and third screenshots, and `localhost:9090/Prog-1/welcome` for the second screenshot. The first screenshot shows a login form with a text input field containing the name 'Harsh', another text input field also containing 'Harsh', and a 'Log In' button. The second screenshot shows the 'welcome' page, which displays the text 'Welcome' followed by the name 'Harsh' in a large, bold, serif font, and a 'Log Out' button. The third screenshot shows the login form again, but with the input fields labeled 'Username' and 'Password' instead of containing text.

Program-4

4. Write an application using servlet to perform CRUD operations on MySQL database connected to the servlet with type-4 driver. Also apply a basic formatting in the page.

Ans:

DBInsert.html

```
<form action="Prog4" method="get">
  ID: <input type="text" name="pid" /> <br />
  Name: <input type="text" name="pname" /> <br />
  Price: <input type="text" name="pprice" /> <br />
  <input type="submit" />
</form>
```

Prog4.java

```
import java.io.*;
import java.sql.*;
import javax.servlet.*;
import javax.servlet.http.*;

public class Prog4 extends HttpServlet {
    public void doGet(HttpServletRequest request, HttpServletResponse response)
        throws IOException, ServletException{
        response.setContentType("text/html");
        PrintWriter out=response.getWriter();
        try{
            Connection connection =
                DriverManager.getConnection("jdbc:mysql://localhost/test", "root", "");
            Statement statement = connection.createStatement();
            if(request.getParameter("pid")!=null){
                String sql = "insert into product
values('"+request.getParameter("pid")+"','"+request.getParameter("pname")+"','"+re
quest.getParameter("pprice")+"')";
                int num=statement.executeUpdate(sql);
            }
            ResultSet rs = statement.executeQuery("SELECT * FROM product");
            out.print("<table
border=1><tr><th>ID</th><th>Name</th><th>Price</th></tr>");
            while(rs.next()){
                out.print("<tr>"+
                    "<td>"+rs.getInt(1)+"</td>"+<td>"+rs.getString(2)+"</td>"+
                    "<td>"+rs.getInt(3)+"</td>"+
                    "<td><a href=\"Delete\">Delete</a></td>"+
                    "<td><a href=\"Update\">Update</a></td>"+
                    "</tr>");
            }
            out.print("</table>");
            connection.close();
        }
    }
}
```

```

    } catch(Exception e){
        out.print(e.getMessage()+"errorrrr");
    }
    out.close();
}
}

```

Delete.java

```

import java.io.*;
import java.sql.*;
import javax.servlet.*;
import javax.servlet.http.*;

public class Delete extends HttpServlet{
    public void doGet(HttpServletRequest request,HttpServletResponse response)
    throws IOException,ServletException{
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();
        out.print("<form action=\"Delete\" method=\"post\">"+
        "ID:<input type=\"text\" name=\"pid\"/><br/>"+
        "<input type=\"submit\"/>"+
        "</form>");
    }

    public void doPost(HttpServletRequest request,HttpServletResponse response)
    throws IOException,ServletException{
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();
        try{
            Connection connection =
            DriverManager.getConnection("jdbc:mysql://localhost/test", "root", "");
            Statement statement = connection.createStatement();
            out.print(request.getParameter("pid")+"errorrrx");
            String sql = "delete from product where pid
            =" +request.getParameter("pid")+"";
            int num=statement.executeUpdate(sql);
            out.print(request.getParameter("pid"));
            if(num>0){
                response.sendRedirect("Prog4");
            }
            else{
                out.print("deletion not performed");
            }
            connection.close();
        }catch(Exception e){
            out.print(e.getMessage());
        }
        out.close();
    }
}

```

Update.java

```
import java.io.*;
import java.sql.*;
import javax.servlet.*;
import javax.servlet.http.*;

public class Update extends HttpServlet{
    public void doGet(HttpServletRequest request,HttpServletResponse
response)throws IOException,ServletException {
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();
        out.print("<form action=\"Update\" method=\"post\">"+
        "ID:<input type=\"text\" name=\"pid\"/><br/>"+
        "Name:<input type=\"text\" name=\"pname\"/><br/>"+
        "Price:<input type=\"text\" name=\"pprice\"/><br/>"+
        "<input type=\"submit\"/>"+
        "</form>");
    }
    public void doPost(HttpServletRequest request,HttpServletResponse response)
throws IOException, ServletException{
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();
        try{
            Connection connection =
DriverManager.getConnection("jdbc:mysql://localhost/test","root","");
            Statement statement = connection.createStatement();
            out.print(request.getParameter("pname"));
            String sql = "update product set
pname='"+request.getParameter("pname")+"',pprice="+request.getParameter("ppric
e")+ " where pid="+request.getParameter("pid")+"";
            int num = statement.executeUpdate(sql);
            if(num>=0){
                response.sendRedirect("Prog4");
            }else{
                out.print("update not performed");
            }
            connection.close();
        }catch(Exception e){
            out.print(e.getMessage());
        }
        out.close();
    }
}
```

Output-4

<p>ID: <input type="text" value="1"/></p> <p>Name: <input type="text" value="Pencil"/></p> <p>Price: <input type="text" value="5"/></p> <p><input type="button" value="Submit"/></p>	<table border="1"><thead><tr><th>ID</th><th>Name</th><th>Price</th><th></th><th></th></tr></thead><tbody><tr><td>1</td><td>Pencil</td><td>5</td><td>Delete</td><td>Update</td></tr></tbody></table>	ID	Name	Price			1	Pencil	5	Delete	Update			
ID	Name	Price												
1	Pencil	5	Delete	Update										
<p>Delete page</p> <p>ID: <input type="text" value="1"/></p> <p><input type="button" value="Submit"/></p>	<p>Update Page</p> <p>ID: <input type="text" value="1"/></p> <p>Name: <input type="text" value="Pen"/></p> <p>Price: <input type="text" value="10"/></p> <p><input type="button" value="Submit"/></p>													
<p>After Delete</p> <table border="1"><thead><tr><th>ID</th><th>Name</th><th>Price</th></tr></thead><tbody></tbody></table>	ID	Name	Price	<p>After Update</p> <table border="1"><thead><tr><th>ID</th><th>Name</th><th>Price</th><th></th><th></th></tr></thead><tbody><tr><td>1</td><td>Pen</td><td>10</td><td>Delete</td><td>Update</td></tr></tbody></table>	ID	Name	Price			1	Pen	10	Delete	Update
ID	Name	Price												
ID	Name	Price												
1	Pen	10	Delete	Update										