Practical 1

Q.1 a) Create a simple calculator application using servlet.

CODE:

```
index.html
<html>
<body>
<h2>Simple Calculator</h2>
<form method="post" action="CalcServlet">
 NO-1: <input type="text" name="t1">
 NO-2: <input type="text" name="t2"><br><br>
 <input type="submit" value="+" name="btn">
 <input type="submit" value="-" name="btn">
 <input type="submit" value="*" name="btn">
 <input type="submit" value="/" name="btn">
</form>
</body>
</html>
CalcServlet.java
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
import javax.servlet.annotation.WebServlet;
@WebServlet("/CalcServlet")
public class CalcServlet extends HttpServlet {
  protected void doPost(HttpServletRequest request, HttpServletResponse response)
      throws ServletException, IOException {
    response.setContentType("text/html");
    PrintWriter out = response.getWriter();
    try {
      int a = Integer.parseInt(request.getParameter("t1"));
```

```
int b = Integer.parseInt(request.getParameter("t2"));

String op = request.getParameter("btn");

int c = 0;

if(op.equals("+")) c = a + b;

else if(op.equals("-")) c = a - b;

else if(op.equals("*")) c = a * b;

else if(op.equals("/")) c = a / b;

out.println("<h3>Result: " + a + " " + op + " " + b + " = " + c + "</h3>");

} catch(Exception e) {

out.println("<h3>Error: Please enter valid numbers.</h3>");

}

}
```

OUTPUT:







Q.1 b) Create a servlet for a login page. If the username and password are correct then it says message "Hello" else a message "login failed".

CODE:

index.html

<html>

<body>

<form action="LoginServlet" method="post">

UserName: <input type="text" name="uname">

Password: <input type="password" name="pw">


```
<input type="submit" value="LOGIN">
</form>
</body>
</html>
LoginServlet.java
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
import javax.servlet.annotation.WebServlet;
@WebServlet("/LoginServlet")
public class LoginServlet extends HttpServlet {
  protected void doPost(HttpServletRequest request, HttpServletResponse response)
       throws ServletException, IOException {
     response.setContentType("text/html");
     String user = request.getParameter("uname");
     String pass = request.getParameter("pw");
     String msg = (user.equals("admin") && pass.equals("admin123"))?
             "Hello " + user : "Login failed";
     response.getWriter().println("<b>" + msg + "</b>");
  }
}
 OUTPUT:
                                  http://localhost:8080/Pract1b/LoginServlet
                                                   ×
                                  localhost
                                   File Edit View Favorites Tools Help
  UserName : admin
  Password :
                                  Hello admin
     http://localhost:8080/Pract1b/index.html
                                        http://localhost:8080/Pract1b/LoginServlet
                 ×
  TODO supply a title
                                                  × 📑
  File Edit View Favorites Tools Help
                                   File Edit View Favorites Tools Help
  UserName : admin
  Password :
                                   Login failed
  LOGIN
```

Q.1 c) Create a registration servlet in Java using JDBC. Accept the details such as Username, Password, Email, and Country from the user using HTML Form and store the registration details in the database.

Code:

MySql Command from mysql software:-

- Select services -> expand databases -> right click on MySQL server at localhost:3306[disconnected] -> click on connect -> enter password (tiger) -> OK
- 2. Again right click on MySQL server at localhost:3306 -> select Create database -> enter database name and select the check box to grant permission.
- 3. Right click on Table under your database
- 4. Enter table name user by replacing untitled. Click on Add column, name -> username, type-> varchar, size-> 20, select checkbox of primary key, again click on Add column password varchar size 20, again click on Add column emailed varchar(20), again click Add column country varchar 10;
- 5. add mysql-connector to library folder of the current application

index.html

PRACTICAL 2

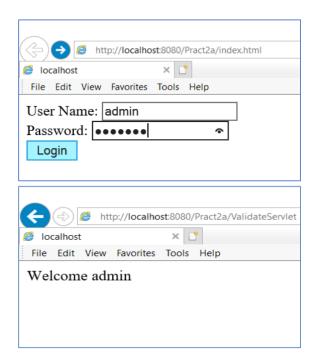
Q.2 a) Using Request Dispatcher Interface create a Servlet which will validate the password entered by the user, if the user has entered "Servlet" as password, then he will be forwarded to Welcome Servlet else the user will stay on the index.html page and an error message will be displayed.

CODE:

```
Index.html
<html>
<body>
<form method="post" action="ValidateServlet">
 User Name: <input type="text" name="un"><br>
 Password: <input type="password" name="pw"><br>
 <input type="submit" value="Login">
</form>
</body>
</html>
ValidateServlet.java
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
import javax.servlet.annotation.WebServlet;
@WebServlet("/ValidateServlet")
public class ValidateServlet extends HttpServlet {
  public void doPost(HttpServletRequest req, HttpServletResponse res)
      throws IOException, ServletException {
    res.setContentType("text/html");
    PrintWriter out = res.getWriter();
    String username = req.getParameter("un");
    String password = req.getParameter("pw");
```

```
if ("Servlet".equals(password)) {
      req.setAttribute("s1username", username);
      RequestDispatcher rd = req.getRequestDispatcher("WelcomeServlet");
      rd.forward(req, res);
    } else {
      out.print("Incorrect password<br>");
      RequestDispatcher rd = req.getRequestDispatcher("index.html");
      rd.include(req, res);
    }
  }
}
WelcomeServlet.java
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
import javax.servlet.annotation.WebServlet;
@WebServlet("/ValidateServlet")
public class ValidateServlet extends HttpServlet {
  public void doPost(HttpServletRequest req, HttpServletResponse res)
      throws IOException, ServletException {
    res.setContentType("text/html");
    PrintWriter out = res.getWriter();
    String username = req.getParameter("un");
    String password = req.getParameter("pw");
    if ("Servlet".equals(password)) {
      req.setAttribute("s1username", username);
```

```
RequestDispatcher rd = req.getRequestDispatcher("WelcomeServlet");
    rd.forward(req, res);
} else {
    out.print("Incorrect password<br>");
    RequestDispatcher rd = req.getRequestDispatcher("index.html");
    rd.include(req, res);
}
}
```



Q.2 b) Create a servlet that uses Cookies to store the number of times a user has visited servlet.

CODE:

Index.html

```
<html>
<body>
<form action="CookieServlet" method="get">
        <input type="submit" value="Visit Page">
        </form>
</body>
```

CookieServlet.java

```
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
import javax.servlet.annotation.WebServlet;
@WebServlet("/CookieServlet")
public class CookieServlet extends HttpServlet {
  private int i = 1;
  public void doGet(HttpServletRequest req, HttpServletResponse res) throws IOException {
     res.setContentType("text/html");
     PrintWriter out = res.getWriter();
     Cookie c = new Cookie("visit", String.valueOf(i));
     res.addCookie(c);
    if (i == 1)
       out.println("This is the first time you are visiting this page");
     else
       out.println("You visited this page " + i + " times");
    i++;
  }
}
 File Edit View Favorites Tools Help
 This is the first time you are visiting this page
   http://localhost:8080/Pract2c/CookieServlet
  File Edit View Favorites Tools Help
  You visited this page 2 times
```

Q.2 c) Create a servlet demonstrating the use of session creation and destruction. Also check whether the user has visited this page first time or has visited earlier also using sessions.

CODE:

```
Index.html
```

```
<html>
<body>
<form action="CalculationVisitServlet" method="get">
<input type="submit" value="Visit Page">
</form>
</body>
</html>
```

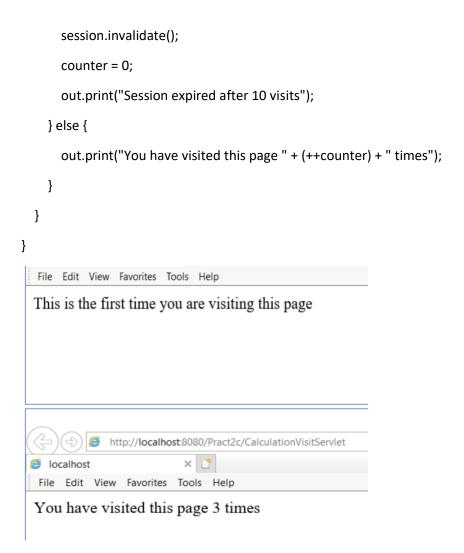
CalculationVisitServlet.java

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

@WebServlet("/CalculationVisitServlet")
public class CalculationVisitServlet extends HttpServlet {
    private int counter = 0;

public void doGet(HttpServletRequest req, HttpServletResponse res) throws IOException {
    res.setContentType("text/html");
    PrintWriter out = res.getWriter();
    HttpSession session = req.getSession(true);

if (session.isNew()) {
    out.print("This is the first time you are visiting this page");
    counter = 1;
    } else if (counter == 10) {
```



PRACTICAL 3

Q.3 a) Create a Servlet application to upload and download a file.

CODE:

```
Uploading a file
```

Index.html

```
<html>
```

<body>

<form action="FileUploadServlet" method="post" enctype="multipart/form-data">

Select File: <input type="file" name="file">

Destination: <input type="text" name="destination" value="/tmp">

<input type="submit" value="Upload">

</form>

```
</body>
</html>
FileUploadServlet.java
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
import javax.servlet.annotation.*;
@WebServlet("/FileUploadServlet")
@MultipartConfig
public class FileUploadServlet extends HttpServlet {
  public void doPost(HttpServletRequest req, HttpServletResponse res) throws IOException,
ServletException {
    res.setContentType("text/html");
    PrintWriter out = res.getWriter();
    String path = req.getParameter("destination");
    Part filePart = req.getPart("file");
    String filename = filePart.getSubmittedFileName();
    try (InputStream is = filePart.getInputStream();
       OutputStream os = new FileOutputStream(path + File.separator + filename)) {
      byte[] buffer = new byte[1024];
      int read;
      while ((read = is.read(buffer)) != -1) os.write(buffer, 0, read);
      out.println("File uploaded successfully: " + filename);
    } catch (Exception e) {
      out.println("Error: " + e.getMessage());
    }
```

}

```
}
```

Downloading a file

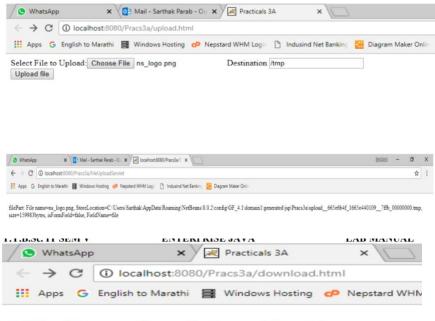
Index.html

```
<html>
<body>
<h2>File Download</h2>
<a href="DownloadServlet?filename=SampleChapter.pdf">Sample Chapter</a><br>
<a href="DownloadServlet?filename=TOC.pdf">Table of Contents</a>
</body>
</html>
```

DownloadServlet.java

```
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;
import javax.servlet.annotation.*;
@WebServlet("/DownloadServlet")
public class DownloadServlet extends HttpServlet {
  public void doGet(HttpServletRequest req, HttpServletResponse res) throws IOException {
    String filename = req.getParameter("filename");
    res.setContentType("application/octet-stream");
    res.setHeader("Content-Disposition", "attachment; filename=" + filename);
    try (InputStream is = getServletContext().getResourceAsStream("/" + filename);
       OutputStream os = res.getOutputStream()) {
      byte[] buffer = new byte[1024];
      int read;
      while ((read = is.read(buffer)) != -1) os.write(buffer, 0, read);
    }
  }
}
```

OUTPUT:



File Download Application

Click Sample Chapter

Click Table Of Contents

Q.3 b) Develop Simple Servlet Question Answer Application using Database.

Step 1: Database aur Table Banana

- 1. NetBeans me Services tab kholo (Projects ke bagal me hota hai).
- 2. Databases \rightarrow MySQL Server pe right-click \rightarrow Connect karo.
 - o root ka username/password daalna hoga.
- 3. MySQL Server pe right-click → Create Database select karo.
 - o Name do: queansdb \rightarrow OK.
- 4. Ab queans de database ke andar jao \rightarrow right-click \rightarrow Execute Command.
 - o Yeh command likho aur run karo:

```
o CREATE TABLE queans (
o queno INT PRIMARY KEY,
o question VARCHAR(200),
o opt1 VARCHAR(100),
o opt2 VARCHAR(100),
o opt3 VARCHAR(100),
o opt4 VARCHAR(100),
o anskey VARCHAR(1)
```

Insert min 2 records Right click on table-> click on 'view data' -> right click on empty dataset -> insert a record > click on 'Add Row' -> OK

Step 2: Records Insert Karna

- 1. queans \rightarrow Tables \rightarrow queans par right-click \rightarrow View Data.
- 2. Jo naya window khulega usme right-click → Insert Record / Add Row.
- 3. 2 records daal do, jaise:

Record 1

```
queno: 1
question: What is the capital of India?
opt1: Delhi
opt2: Mumbai
opt3: Kolkata
opt4: Chennai
anskey: A
```

Record 2

```
queno: 2
question: Which language is platform independent?
opt1: C
opt2: C++
opt3: Java
opt4: Python
anskey: C
```

4. OK daba do \rightarrow records save ho jaayenge.

Baad me

Q.3 c) Create simple Servlet application to demonstrate Non-Blocking Read Operation.

CODE:

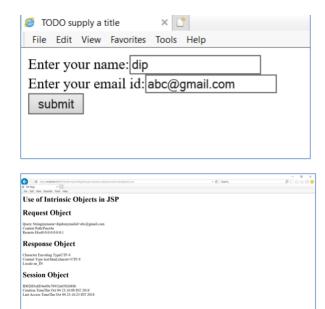
Index.html

PRACTICAL - 4

Q.4 a) Develop a simple JSP application to display values obtained from the use of intrinsic objects of various types.

```
index.html
<html>
<body>
<form action="implicitObjectEx.jsp">
Name: <input type="text" name="myname"><br>
Email: <input type="text" name="mymailid"><br>
<input type="submit" value="Submit">
</form>
</body>
</html>
implicitObjectEx.jsp
<%@page contentType="text/html;charset=UTF-8"%>
<html>
<body>
<h2>Request Object</h2>
Query: <%=request.getQueryString()%><br>
Context Path: <%=request.getContextPath()%><br>
Remote Host: <%=request.getRemoteHost()%><br>
<h2>Response Object</h2>
Encoding: <%=response.getCharacterEncoding()%><br>
Content Type: <%=response.getContentType()%><br>
Locale: <%=response.getLocale()%><br>
<h2>Session Object</h2>
ID: <%=session.getId()%><br>
Created: <%=new java.util.Date(session.getCreationTime())%><br>
```

Last Access: <%=new java.util.Date(session.getLastAccessedTime())%>
 </body> </html>



Q.4 b) Develop a simple JSP application to pass values from one page to another with validations. (Name-txt, age-txt, hobbies-checkbox, email-txt, gender-radio button).

CODE:

Index.html <html> <body> <form action="Validate.jsp"> Name: <input type="text" name="name">
 Age: <input type="text" name="age">
 Hobbies: <input type="checkbox" name="hob" value="Singing">Singing <input type="checkbox" name="hob" value="Reading">Reading <input type="checkbox" name="hob" value="Football">Football
 Email: <input type="text" name="email">
 Gender:

<input type="radio" name="gender" value="male">Male

```
<input type="radio" name="gender" value="female">Female
 <input type="radio" name="gender" value="other">Other<br>
 <input type="submit" value="Submit">
</form>
</body>
</html>
CheckerBean.java
package mypack;
public class CheckerBean {
      String name="", hob="", email="", gender="", error="";
      int age=0;
      public void setName(String n){name=n;}
      public String getName(){return name;}
      public void setAge(int a){age=a;}
      public int getAge(){return age;}
      public void setHob(String h){hob=h;}
      public String getHob(){return hob;}
      public void setEmail(String e){email=e;}
      public String getEmail(){return email;}
      public void setGender(String g){gender=g;}
      public String getGender(){return gender;}
      public String getError(){return error;}
      public boolean validate(){
             boolean res=true;
             if(name.trim().isEmpty()){error+="<br>Enter Name"; res=false;}
             if(age<0||age>99){error+="<br>Invalid Age"; res=false;}
             if(!email.matches("^[_A-Za-z0-9-]+(\.[_A-Za-z0-9-]+)*@[A-Za-z0-9-]+(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]+)*(\.[A-Za-z0-9-]
Za-z]{2,})$")){
```

```
error+="<br>Invalid Email"; res=false;
    }
    return res;
  }
}
Validate.jsp
<@page contentType="text/html" pageEncoding="UTF-8" import="mypack.*"%>
<jsp:useBean id="obj" class="mypack.CheckerBean" scope="request"/>
<jsp:setProperty name="obj" property="*"/>
<% if(obj.validate()){ %>
  <jsp:forward page="successful.jsp"/>
<% } else { %>
  <jsp:include page="index.jsp"/>
  <%=obj.getError()%>
<% } %>
successful.jsp
<html>
<body>
<h1>DATA VALIDATED SUCCESSFULLY</h1>
</body>
</html>
 Apps G English to Marathi 🚆 Windows Hosting 👴 Nepstard WHM Logir
 Enter Your Name Amit
 Enter Your Age 22
 Select Hobbies Singing Reading Books Playing Football
 Enter E-mail amitshetty@gmail.com
 Select Gender 

Male Female Other
 Submit Form
```

DATA VALIDATED SUCCESSFULLY