**1.Create a simple web page using bootstrap**

**Program:**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Simple Web page using Bootstrap</title>

<link rel = "stylesheet" href = "https://stackpath.bootstrapcdn.com/bootstrap/4.3.1/css/bootstrap.min.css">

</head>

<body>

<header>

<nav class = "navbarnavbar-expand-lgnavbar-dark bg-dark">

<a class = "navbat-brand" href = "https://nandhu-r.github.io/portfolio/">My Page</a>

</nav>

</header>

<main>

<div class = "container mt-5">

<h1>Welcome to My page</h1>

<p>This is a sample web page created using Bootstrap by Nandhu</p>

</div>

</main>

<footer class = "bg-dark text-light py-3">

<div class = "container">

<p>&copy; 2023 My Web Page</p>

</div>

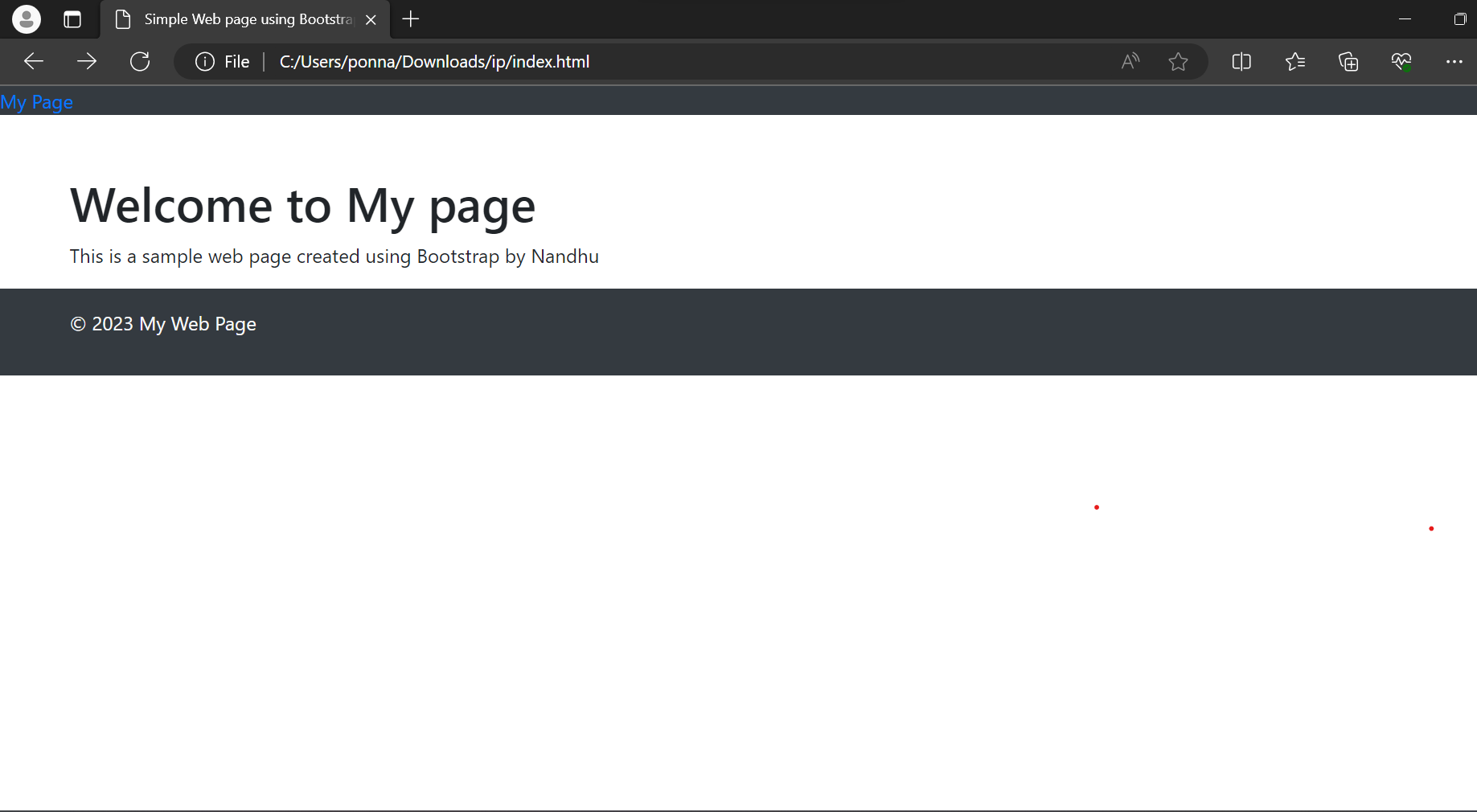
</footer>

<script src = "https://stackpath.bootstrapcnd.com/bootstrap/4.3.1/js/bootstrap.min.js"></script>

</body>

</html>

**Output:**

****

**2.Implement Typescript Classes And Function**

**Program:**

class Rectangle{

private width:number;

private height:number;

constructor(width:number, height:number) {

this.width = width;

this.height = height;

}

public getArea():number {

return this.width \* this.height;

}

public getPerimeter():number {

return 2 \* (this.width + this.height);

}

}

function calculateAreaAndPerimeter() {

var rectangle = new Rectangle(5, 10);

var area = rectangle.getArea();

var perimeter = rectangle.getPerimeter();

console.log(`Area:${area}`);

console.log(`Perimeter:${perimeter}`);

}

calculateAreaAndPerimeter();

**Output:**

**3.Implement Bootstrap Typography**

**Program:**

<!DOCTYPE html>

<html>

<head>

<title>Bootstrap Typography</title>

<!-- Import Bootstrap CSS -->

<link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.3.1/css/bootstrap.min.css">

</head>

<body>

<div class="container mt-5">

<h1>Heading 1</h1>

<h2>Heading 2</h2>

<h3>Heading 3</h3>

<h4>Heading 4</h4>

<h5>Heading 5</h5>

<h6>Heading 6</h6>

<p class="lead">This is a lead paragraph.</p>

<p>This is a normal paragraph.</p>

<p class="text-muted">This is a muted paragraph.</p>

<p class="text-primary">This is a primary paragraph.</p>

<p class="text-success">This is a success paragraph.</p>

<p class="text-danger">This is a danger paragraph.</p>

<p class="text-info">This is an info paragraph.</p>

<p class="text-warning">This is a warning paragraph.</p>

<blockquote class="blockquote">

<p class="mb-0">This is a blockquote.</p>

<footer class="blockquote-footer">Ponnandhakumar</footer>

</blockquote>

<ul class="list-unstyled">

<li>List item 1</li>

<li>List item 2</li>

<li>List item 3</li>

</ul>

</div>

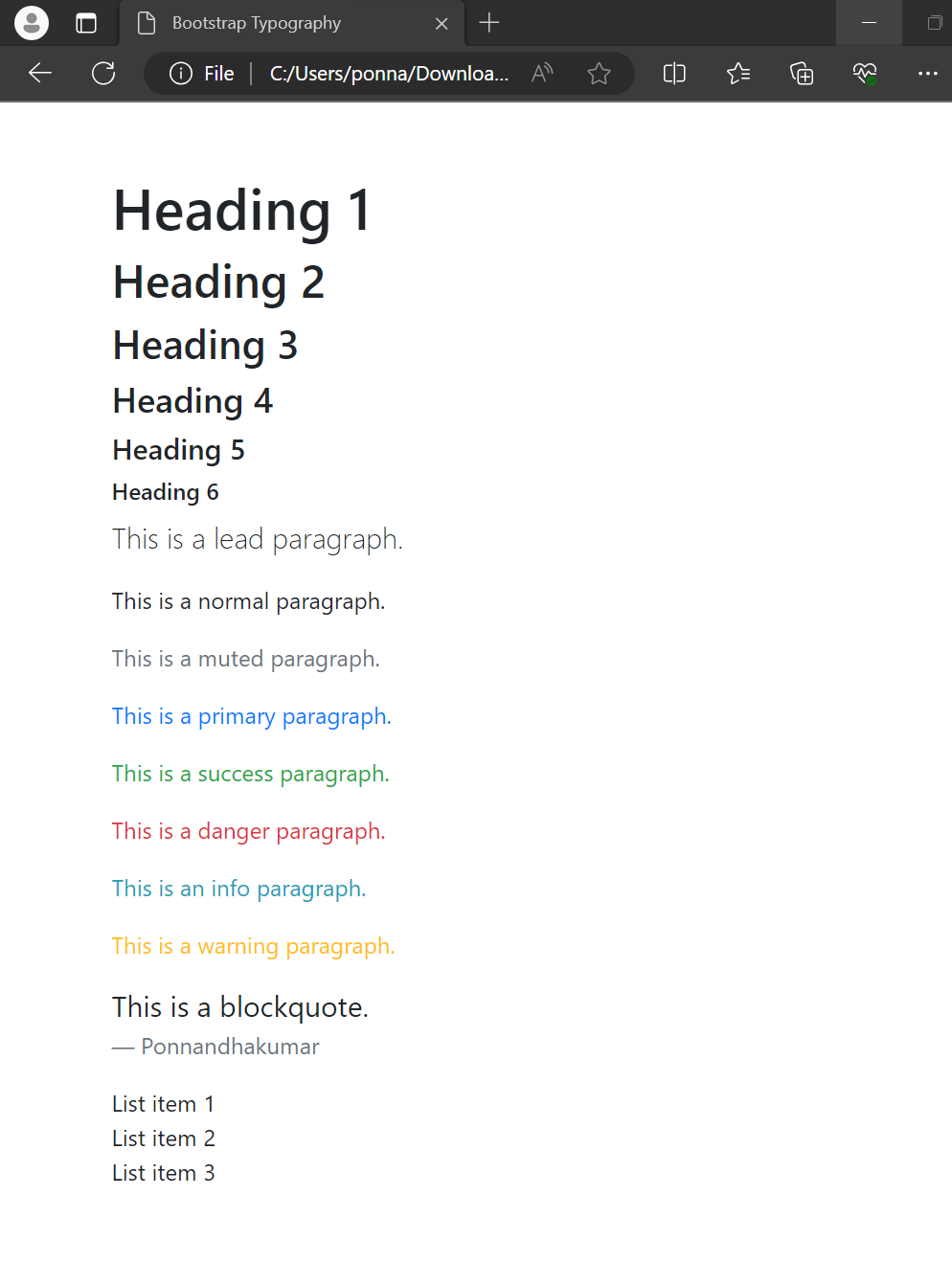
<!-- Import Bootstrap JavaScript -->

<script src="https://stackpath.bootstrapcdn.com/bootstrap/4.3.1/js/bootstrap.min.js"></script>

</body>

</html>

**Output:**



**4.Validation Using Javascript**

**Program:**

**Registration.html:**

<html>

<head>

<script>

var re\_id=/^\w{5,12}$/

var re\_pwd=/^\w{8,12}$/

var re\_name=/^[a-zA-Z.]+$/

var re\_email=/^\w+([\.-]?\w+)\*@\w+([\.-]?\w+)\*(\.\w{2,3})+$/

var re\_pin=/^\d{6,6}$/

function isChecked(x)

{

var flag=false;

for(var i=0;i<x.length;i++)

if(x[i].checked)

{

flag=true;

break;

}

return flag;

}

function formValidation()

{

if(!re\_id.test(document.frm.userid.value))

{

alert("ID can contain alphabet,digit,\_ and must be between 5 and 12");

document.frm.userid.focus();

return false;

}

else if(!re\_pwd.test(document.frm.passid.value))

{

alert("password must be:\n-between 8 and 12");

document.frm.passid.focus();

return false;

}

else if(!re\_name.test(document.frm.username.value))

{

alert("name must contain alphabet and .");

document.frm.username.focus();

return false;

}

else if(!(document.frm.dob.value!=""))

{

alert("dob cannot be empty.");

document.frm.dob.focus();

return false;

}

else if(document.frm.country.value=="default")

{

alert("select any country");

document.frm.country.focus();

return false;

}

else if(!re\_pin.test(document.frm.zip.value))

{

alert("pin code must contain 6 digits");

document.frm.zip.focus();

return false;

}

else if(!re\_email.test(document.frm.email.value))

{

alert("email is empty or not valid");

document.frm.email.focus();

return false;

}

else if(!isChecked(document.frm.interest))

{

alert("select your area of interest");

document.frm.interest[0].focus();

return false;

}

else

return true;

}

</script>

</head>

<body>

<pre>

<h1>Registration Form</h1>

<form name='frm' onSubmit="return formValidation()" action="login.html">

User id :<input type="text" name="userid" maxlength=12 required autofocus/>

Password :<input type="password" name="passid" maxlength=12 />

Name :<input type="text" name="username" />

DOB :<input type="date" name="dob"/>

Country :<select name="country">

<option value="default" selected>(Please select a country)</option>

<option value="AF">Australia</option>

<option value="AL">Canada</option>

<option value="DZ">India</option>

<option value="AD">USA</option>

</select>

ZIP Code :<input type="text" maxlength=6 name="zip" />

Email :<input type="text" name="email" size="50"/>

Sex :<input type="radio" name="sex" value="Male" checked />Male <input type="radio" name="sex" value="Female" />Female

Interested in :<input type="checkbox" name="interest" value="sports"/>sports<input type="checkbox" name="interest" value="music" />music

<input type="submit"/><input type="reset"/>

</form>

</pre>

</body>

</html>

**Login.html:**

<html>

<head>

<script>

function authenticate()

{

var name=document.getElementById("log");

var pwd=document.getElementById("pwd");

var users=["user1","user2","user3"];

var passwords=["pass1","pass2","pass3"];

if(users.indexOf(name.value)==-1)

{

alert("Invalid user name... try again...");

name.select();

return false;

}

else if(passwords[users.indexOf(name.value)]!=pwd.value)

{

alert("Invalid password... try again...");

pwd.select();

return false;

}

else

return true;

}

</script>

</head>

<body style="line-height:12pt;">

<div style="position:absolute;

border:34px ridge red;

left:520px;

top:150px;

padding:20px;

background:gold;">

<center>

<form action="payment.html" onSubmit="return authenticate()">

User Name :<input id="log" type="text" required autofocus/><br/><br/>

Password:<input id="pwd" type="password" required/><br/><br/>

<br/>

<input type="submit"><input type="reset">

</form>

</center>

</div>

</body>

</html>

**Payment.html:**

<html>

<head>

<script>

var re\_card=/^\d{12}$/

var re\_cvv=/^\d{3}$/

function validate()

{

var c=document.getElementById("card");

var n=document.getElementById("name");

var e=document.getElementById("exdate");

var cvv=document.getElementById("cvv");

if (!re\_card.test(c.value))

{

alert("Card Number should be 12 digit number...");

c.select();

return false;

}

else if(n.value=="")

{

alert("name should not be empty...");

n.focus();

return false;

}

else if(e.value=="")

{

alert("expired name should not be empty...");

e.focus();

return false;

}

else if (!re\_cvv.test(cvv.value))

{

alert("Cvv should be 3 digit number...");

cvv.select();

return false;

}

else

{

alert("thank you for purchasing with us...");

window.close();

return true;

}

}

</script>

</head>

<body>

<form name="myform" onSubmit="return validate()">

<center>

<pre style="position:absolute;

border:34px outset gold;

left:420px;

top:130px;

padding:20px;">

CARD NO: <input id="card" type="text" required maxlength=12 autofocus /><br/>

NAME: <input id="name" type="text" name="name"/><br/>

EXPIRY DATE: <input type="month" id="exdate" /><br/>

CVV: <input id="cvv" type="text" maxlength=3 />

<input type="submit"/>

</pre>

</center>

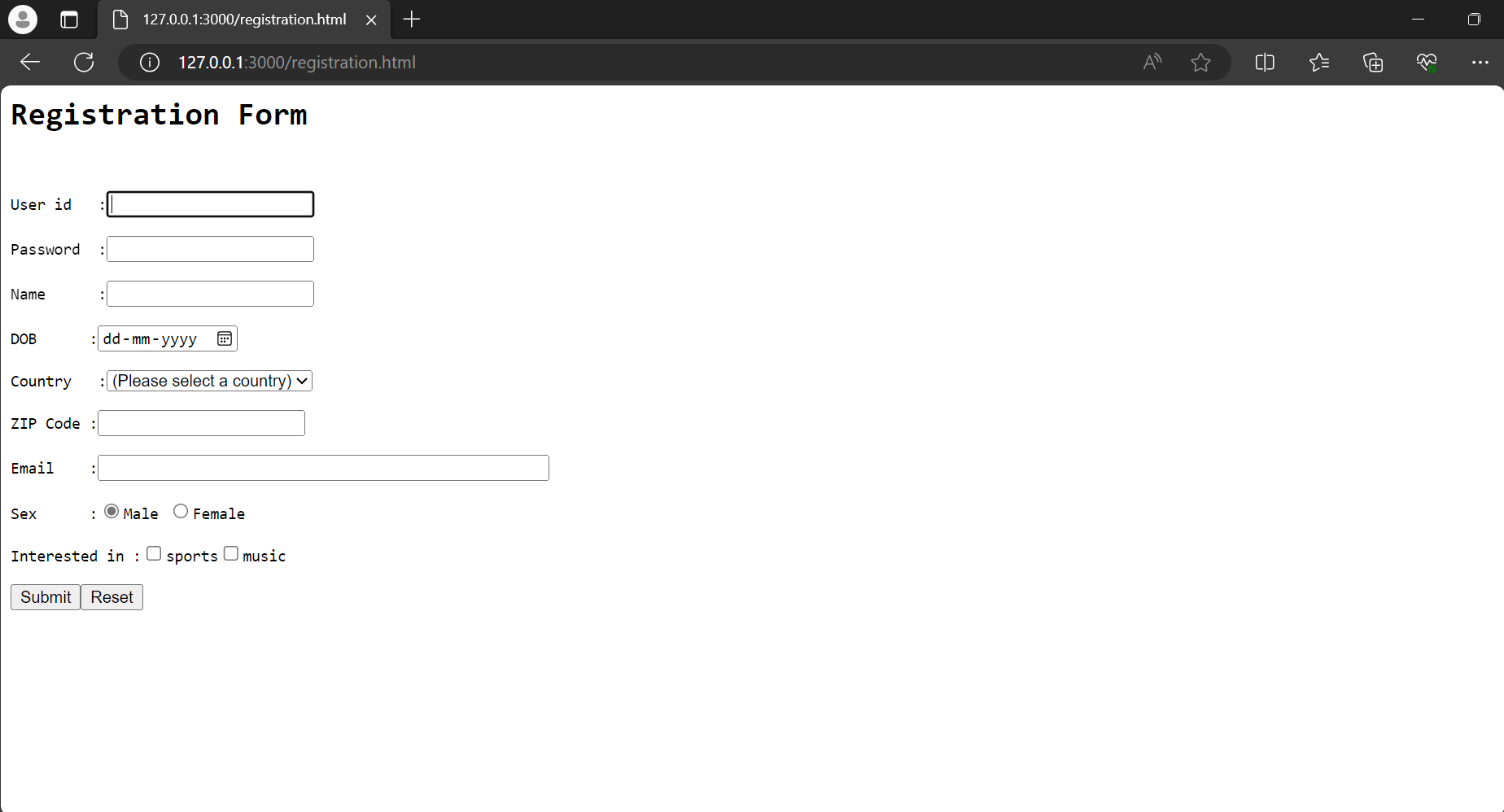
</form>

</body>

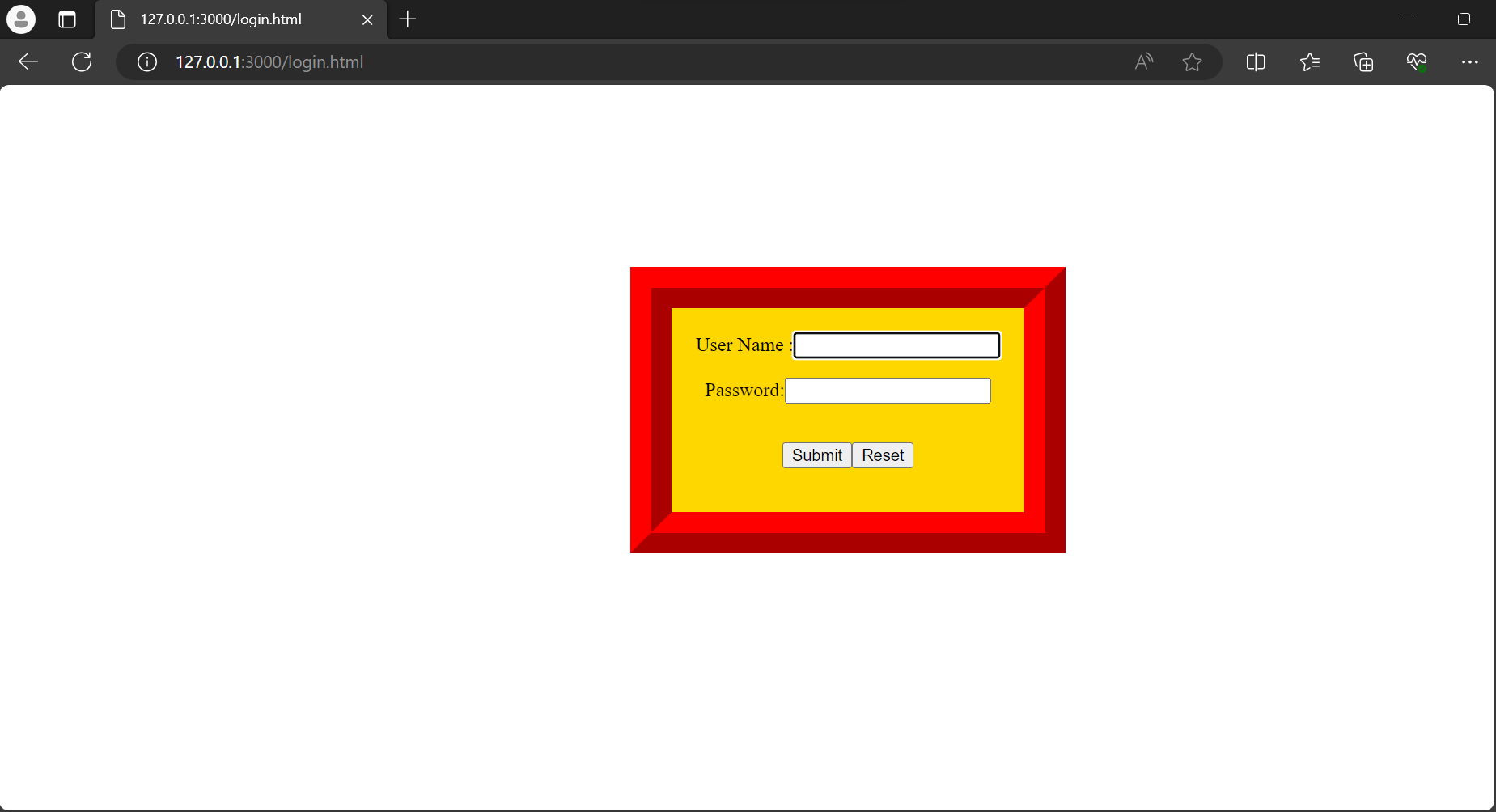
</html>

**Output:**

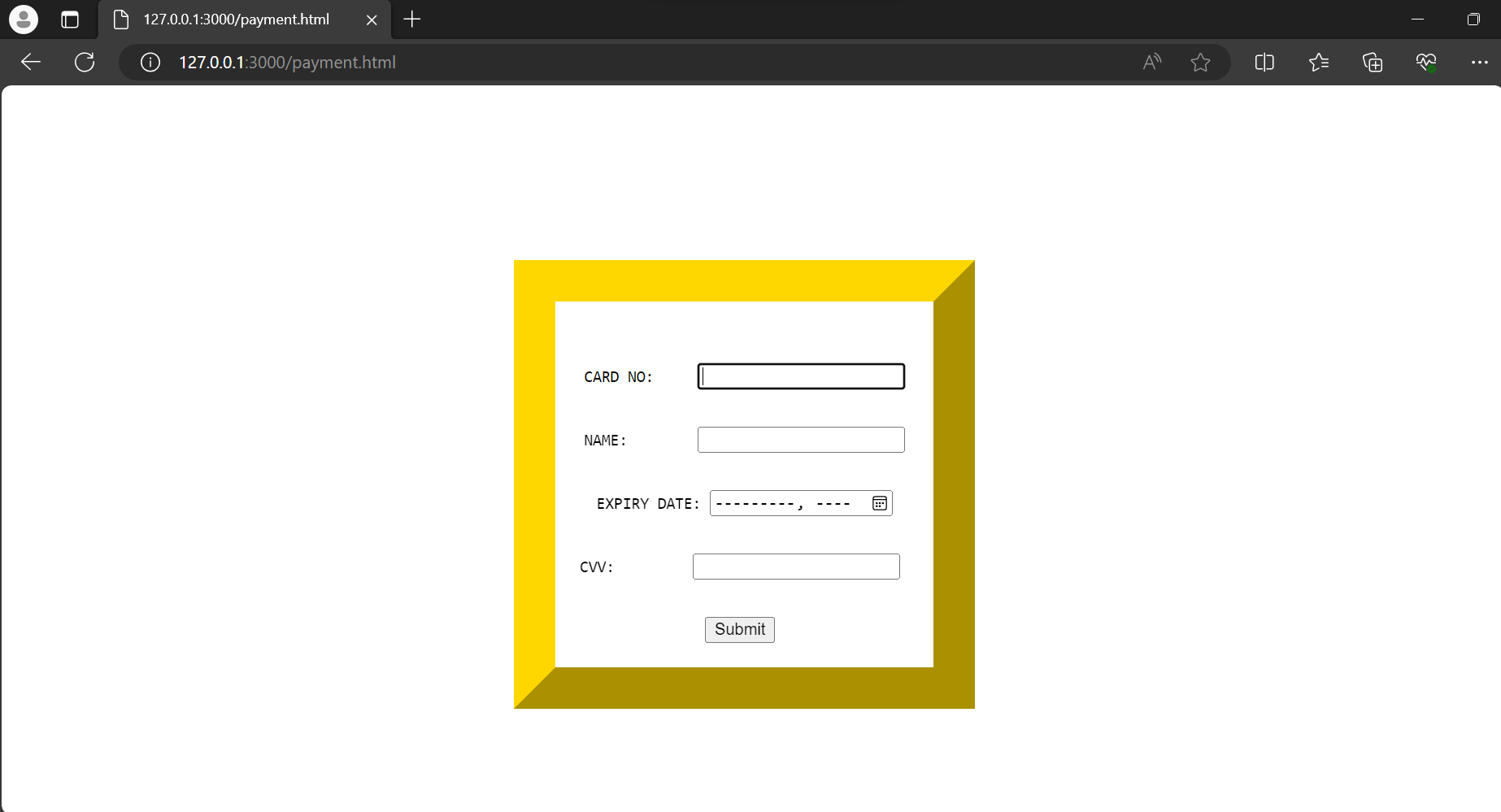
**Registration.html:**

****

**Login.html:**

****

**Payment.html:**

****

**5.Invoking Servlet From HTML Form**

**Program:**

**sayhello.java:**

package ex5;

import java.io.IOException;

import java.io.PrintWriter;

import javax.servlet.GenericServlet;

import javax.servlet.ServletException;

import javax.servlet.ServletRequest;

import javax.servlet.ServletResponse;

public class sayhello extends GenericServlet{@Override

public void service(ServletRequest req, ServletResponse res)

throws ServletException, IOException {

// TODO Auto-generated method stub

PrintWriter out=res.getWriter();

String name=req.getParameter("usr-name");

out.println("<h1> Welcome"+name+"</h1>");

}

}

**web.xml:**

<?xml version=*"1.0"* encoding=*"UTF-8"*?>

<web-app xmlns:xsi=*"http://www.w3.org/2001/XMLSchema-instance"* xmlns=*"http://java.sun.com/xml/ns/javaee"* xsi:schemaLocation=*"http://java.sun.com/xml/ns/javaee http://java.sun.com/xml/ns/javaee/web-app\_3\_0.xsd"* id=*"WebApp\_ID"* version=*"3.0"*>

<display-name>simpleservlet</display-name>

<welcome-file-list>

<welcome-file>index.html</welcome-file>

<welcome-file>index.htm</welcome-file>

<welcome-file>index.jsp</welcome-file>

<welcome-file>default.html</welcome-file>

<welcome-file>default.htm</welcome-file>

<welcome-file>default.jsp</welcome-file>

</welcome-file-list>

*<*servlet>

<servlet-name>sayhello</servlet-name>

<servlet-class>ex5.sayhello</servlet-class>

</servlet>

<servlet-mapping>

<servlet-name>sayhello</servlet-name>

<url-pattern>/hello</url-pattern>

</servlet-mapping*>*

</web-app>

**InvokeServ.html:**

<!DOCTYPE html>

<html>

<head>

<meta charset=*"ISO-8859-1"*>

<title>Insert title here</title>

</head>

<body>

<form name=*"form1"* method=*"post"* action =*"http://localhost:8080/ex5/hello"*>

Name : <input type=*"text"* name=*"usr-name"*>

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

</form>

</body>

</html>

**6.Program for session tracking using hidden form fields**

**Program:**

**web.xml:**

<?xml version=*"1.0"* encoding=*"UTF-8"*?>

00<web-app xmlns:xsi=*"http://www.w3.org/2001/XMLSchema-instance"* xmlns=*"http://java.sun.com/xml/ns/javaee"* xsi:schemaLocation=*"http://java.sun.com/xml/ns/javaee http://java.sun.com/xml/ns/javaee/web-app\_3\_0.xsd"* id=*"WebApp\_ID"* version=*"3.0"*>

<display-name>simpleservlet</display-name>

<welcome-file-list>

<welcome-file>index.html</welcome-file>

<welcome-file>index.htm</welcome-file>

<welcome-file>index.jsp</welcome-file>

<welcome-file>default.html</welcome-file>

<welcome-file>default.htm</welcome-file>

<welcome-file>default.jsp</welcome-file>

</welcome-file-list>

<servlet>

<servlet-name>servlet1</servlet-name>

<servlet-class>ex6.server1</servlet-class>

</servlet>

<servlet-mapping>

<servlet-name>servlet1</servlet-name>

<url-pattern>/s1</url-pattern>

</servlet-mapping>

<servlet>

<servlet-name>servlet2</servlet-name>

<servlet-class>ex6.server2</servlet-class>

</servlet>

<servlet-mapping>

<servlet-name>servlet2</servlet-name>

<url-pattern>/s2</url-pattern>

</servlet-mapping>

</web-app>

**Server1.java:**

package ex6;

import java.io.PrintWriter;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

public class server1 extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response){

try{

response.setContentType("text/html");

PrintWriter out = response.getWriter();

String n=request.getParameter("userName");

out.print("Welcome "+n);

//creating form that have invisible textfield

out.print("<form action='s2'>");

out.print("<input type='hidden' name='uname' value='"+n+"'>");

out.print("<input type='submit' value='go'>");

out.print("<br> User Name is Tracked From HTML");

out.print("</form>");

out.close();

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

}

}

**Server2.java:**

package ex6;

import java.io.PrintWriter;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

public class server2 extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response) {

try{

response.setContentType("text/html");

PrintWriter out = response.getWriter();

//Getting the value from the hidden field

String n=request.getParameter("uname");

out.print("<br> <h1>User Name tracked Using Hidden Form Field</h1>");

out.print("<br><h3>Hello "+n+"</h3>");

out.close();

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

}

}

**hidden.html:**

<!DOCTYPE html>

<html>

<head>

<meta charset=*"ISO-8859-1"*>

<title>Insert title here</title>

</head>

<body>

<form action="http://localhost:8080/ex6/s1">

Name:<input type="text" name="userName"/><br/>

<input type="submit" value="go"/>

</form>

</body>

</html>

**7.Program for session tracking using hit count**

**Program:**

**web.xml:**

<?xml version=*"1.0"* encoding=*"UTF-8"*?>

<web-app xmlns:xsi=*"http://www.w3.org/2001/XMLSchema-instance"* xmlns=*"http://java.sun.com/xml/ns/javaee"* xsi:schemaLocation=*"http://java.sun.com/xml/ns/javaee http://java.sun.com/xml/ns/javaee/web-app\_3\_0.xsd"* id=*"WebApp\_ID"* version=*"3.0"*>

<display-name>simpleservlet</display-name>

<welcome-file-list>

<welcome-file>index.html</welcome-file>

<welcome-file>index.htm</welcome-file>

<welcome-file>index.jsp</welcome-file>

<welcome-file>default.html</welcome-file>

<welcome-file>default.htm</welcome-file>

<welcome-file>default.jsp</welcome-file>

</welcome-file-list>

<servlet>

<servlet-name>tracks</servlet-name>

<servlet-class>ex7.hits</servlet-class>

</servlet>

<servlet-mapping>

<servlet-name>tracks</servlet-name>

<url-pattern>/count</url-pattern>

</servlet-mapping>

</web-app>

**hits.java**

package ex7;

import java.io.IOException;

import java.io.PrintWriter;

import java.util.Date;

import javax.servlet.ServletException;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

import javax.servlet.http.HttpSession;

public class hits extends HttpServlet {

public void doGet(HttpServletRequest request, HttpServletResponse response)

throws ServletException, IOException

{

HttpSession session = request.getSession(true);

Date createTime = new Date(session.getCreationTime());

Date lastAccessTime =

new Date(session.getLastAccessedTime());

String title = "Session tracking. Hit count Example";

Integer visitCount = new Integer(0);

String visitCountKey = new String("visitCount");

String userIDKey = new String("userID");

String userID = new String("ABCD");

if (session.isNew()){

//title = "Welcome to my website";

session.setAttribute(userIDKey, userID);

} else {

visitCount = (Integer)session.getAttribute(visitCountKey);

visitCount = visitCount + 1;

userID = (String)session.getAttribute(userIDKey);

}

session.setAttribute(visitCountKey, visitCount);

response.setContentType("text/html");

PrintWriter out = response.getWriter();

String docType =

"<!doctype html public \"-//w3c//dtd html 4.0 " +

"transitional//en\">\n";

out.println(docType +

"<html>\n" +

"<head><title>" + title + "</title></head>\n" +

"<body bgcolor=\"#f0f0f0\">\n" +

"<h1 align=\"center\">" + title + "</h1>\n" +

"<h2 align=\"center\">Session Infomation</h2>\n" +

"<table border=\"1\" align=\"center\">\n" +

"<tr bgcolor=\"#949494\">\n" +

" <th>Session info</th><th>value</th></tr>\n" +

"<tr>\n" +

" <td>id</td>\n" +

" <td>" + session.getId() + "</td></tr>\n" +

"<tr>\n" +

" <td>Creation Time</td>\n" +

" <td>" + createTime +

" </td></tr>\n" +

"<tr>\n" +

" <td>Time of Last Access</td>\n" +

" <td>" + lastAccessTime +

" </td></tr>\n" +

"<tr>\n" +

" <td>User ID</td>\n" +

" <td>" + userID +

" </td></tr>\n" +

"<tr>\n" +

" <td>Number of visits</td>\n" +

" <td>" + visitCount + "</td></tr>\n" +

"</table>\n" +

"</body></html>");

}

}

**8.Shopping Cart Using Servlet and Cookies**

**Program:**

**LoginServlet.java:**

package ex8;

import java.io.\*;

import javax.servlet.\*;

import javax.servlet.http.\*;

public class LoginServlet extends HttpServlet

{

protected void doPost(HttpServletRequest req, HttpServletResponse res) throws ServletException,IOException

{

res.setContentType("text/html");

PrintWriter out=res.getWriter();

String usr=req.getParameter("User");

String pwd=req.getParameter("password");

String card=req.getParameter("CardID");

boolean flag=true;

String[] userID=getInitParameter("usernames").split(",");

String[] password=getInitParameter("passwords").split(",");

String[] cardids=getInitParameter("cardIDs").split(",");

int i;

for(i=0;i<userID.length;i++)

{

if(userID[i].equals(usr) && password[i].equals(pwd)&&cardids[i].equals(card))

{

flag=false;

Cookie cookie1=new Cookie("CurrentUser",usr);

Cookie cookie2=new Cookie("CreditCard",card);

res.addCookie(cookie1);

res.addCookie(cookie2);

out.println("<h2>Welcome "+usr+"</h2><hr>");

out.println("<h2>Select the book you would like to purchase<h2><hr>");

out.println("<form action='LoginSuccess'>");

out.println("<input type=radio name='book' checked

value='Let us C'/>Let us C<br>");

out.println("<input type=radio name='book'

value='Exploring C'/>Exploring C<br>");

out.println("<input type=radio name='book'

value='Mastering C'/>Mastering C<br>");

out.println("<input type=submit value='purchase'><hr>");

}

}

if(flag==true)

{

out.println("<h4>Invalid user name or password or card number

,please try again by clicking following link</h4>");

out.println("<a href='loginform.html'>"+"LoginForm.html");

}

}

}

**LoginSuccess.java:**

package ex8;

import java.io.\*;

import javax.servlet.\*;

import javax.servlet.http.\*;

public class LoginSuccess extends HttpServlet

{

protected void doGet(HttpServletRequest req,HttpServletResponse res) throws ServletException,IOException

{

Cookie[] mycookie=req.getCookies();

res.setContentType("text/html");

PrintWriter out=res.getWriter();

String book=req.getParameter("book");

out.print("<h2>welcome "+mycookie[0].getValue()+"</h2><hr>");

out.print("<h3>Thank you for purchasing book:"+book+"</h3><hr>");

out.print("<h3>Rs.250 debited from credit card: "+mycookie[1].getValue());

out.close();

}

}

**Loginform.html:**

<!DOCTYPE html>

<html>

<head>

<body>

<pre>

<form action="http://localhost:8088/ex8/LoginServlet" method="post">

Enter username:

<input type="text" value="" name="User">

enter password:

<input type="password" value="" name="password">

enter card ID:

<input type="text" value="" name="CardID">

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

</form>

</pre>

</body>

</html>

**Web.xml:**

<servlet>

<init-param>

<param-name>usernames</param-name>

<param-value>panimalar,nandhu,nade</param-value>

</init-param>

<init-param>

<param-name>passwords</param-name>

<param-value>panimalar,nandhu,nade</param-value>

</init-param>

<init-param>

<param-name>cardIDs</param-name>

<param-value>111111,222222,333333</param-value>

</init-param>

<servlet-name>LoginServlet</servlet-name>

<servlet-class>shopping.LoginServlet</servlet-class>

</servlet>

<servlet-mapping>

<servlet-name>LoginServlet</servlet-name>

<url-pattern>/LoginServlet</url-pattern>

</servlet-mapping>

<servlet>

<servlet-name>LoginSuccess</servlet-name>

<servlet-class>shopping.LoginSuccess</servlet-class>

</servlet>

<servlet-mapping>

<servlet-name>LoginSuccess</servlet-name>

<url-pattern>/LoginSuccess</url-pattern>

</servlet-mapping>