EX.NO: 1	HTML - WEB PAGE TO EMBED A MAP ALONG WITH HOTSPOT, FRAMES AND LINKS

index.html

```
<!DOCTYPE html>
<html lang="en">
<head>
   <meta charset="UTF-8">
   <meta name="viewport" content="width=device-width, initial-scale=1.0">
   <title>India Map</title>
   <link rel="stylesheet" href="style.css">
</head>
<body>
   <img src="india.png" alt="india_map" id="in_map" usemap="#in_map" >
   <map name="in_map">
      <area shape="rect" coords="191, 592, 242, 604" href="tn.html" alt="tamilnadu" target="_blank">
   </map>
   <a href="https://en.wikipedia.org/wiki/India">INDIA</a>
   <iframe src="https://en.wikipedia.org/wiki/India" frameborder="0"></iframe>
</body>
</html>
```

tn.html

```
<!DOCTYPE html>
<html lang="en">
```

```
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Tamil Nadu</title>
    <style>
        #tn_map{
            width: 500px;
            height: auto;
        }
    </style>
</head>
<body>
    <h1>TAMIL NADU</h1>
    <p>
        Tamil Nadu is a southern state in India.
    </p>
    <img src="tamilnadu.png" alt="" id="tn_map">
</body>
</html>
```

EX.NO: 2	CSS - WEB PAGE USING INTERNAL, EXTERNAL AND INLINE CSS

index.html

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>WT_EX.2</title>
    <style>
        .internal{
            background-color: aquamarine;
            color: brown;
        }
        #p2{
            width: 400px;
            height: auto;
        }

    </style>
    <link rel="stylesheet" href="style.css">
</head>
<body>
    <p style="background-color:black;">
        <h1 style="color: blue; background-color:burlywood;">Inline CSS</h1>
        <img src="P1.jpg" alt="img1" style="width: 400px; height:auto;">
```

```
    </p>
    <p>
        <h1 class="internal">Internal CSS</h1>
        <img src="P2.jpg" alt="" id="p2">

    </p>
    <p>
        <h1 class="external">External CSS</h1>
        <img src="P3.jpg" alt="" id="p3">
    </p>
</body>
</html>
```

style.css

```
.external{
    background-color:blueviolet;
    color:antiquewhite;
}
#p3{
    width: 400px;
    height: auto;
}
```

EX.NO: 3	JAVASCRIPT TO VALIDATE REGISTRATION FORM

index.html

```
<!DOCTYPE html>
<html lang="en">
<head>
   <meta charset="UTF-8">
   <meta name="viewport" content="width=device-width, initial-scale=1.0">
   <title>Registration form</title>
</head>
<body>
   <script>
      function validateForm(){
         const name=document.getElementById("fname").value;
         const fn_error=document.getElementById("fn_error");
         const alphabets = /^[A-Za-z]+$/;

         const password=document.getElementById("pswd").value;
         const p_error=document.getElementById("p_error");

         const email=document.getElementById("email").value;
         const email_error=document.getElementById("email_error");
         const emailPattern = /^[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,}$/;

         const mobile=document.getElementById("mob").value;
         const mob_error=document.getElementById("mob_error");
```

```
const lname=document.getElementById("lname").value;
const ln_error=document.getElementById("ln_error");

const address=document.getElementById("adrs").value;
const adrs_error=document.getElementById("adrs_error");

let isValid=true;

fn_error.innerHTML = "";
p_error.innerHTML = "";
email_error.innerHTML = "";
mob_error.innerHTML = "";
ln_error.innerHTML = "";
adrs_error.innerHTML = "";

if(name.length <6 ){
   fn_error.innerHTML="Name must be at least 6 characters long.";
   isValid= false;
}
else if (!name.match(alphabets)) {
   fn_error.innerHTML = "Name must contain only alphabets.";
   isValid= false;
}

if(password.length<6){
   p_error.innerHTML="Password must be at least 6 characters long.";
   isValid= false;
```

```
}

if(!email.match(emailPattern)){
   email_error.innerHTML="Invalid format.";
   isValid=false;
}

if (mobile.length !== 10 || isNaN(mobile)) {

   mob_error.innerHTML = "Mobile number must be exactly 10 digits.";
   isValid = false;
}

if(lname.trim()===""){
   ln_error.innerHTML="Last Name cannot be empty.";
   isValid=false;
}

if(address.trim()===""){
   adrs_error.innerHTML="Address cannot be empty.";
   isValid=false;
}

if(isValid){
   alert("Submitted!");
   return true;
}
return false;
```

```
    }
  </script>
  <h1 style="text-align: center;">Registration Form</h1>
  <form action="" onsubmit="return validateForm()">
    <label for="fname">First Name:</label>
    <input type="text" id="fname" name="First name" placeholder="Name">
    <span style="color: red;" id="fn_error"></span>
    <br><br>

    <label for="pswd">Password:</label>
    <input type="text" id="pswd" name="Password" placeholder="Password">
    <span style="color: red;" id="p_error"></span>
    <br><br>

    <label for="E-mail">E-mail:</label>
    <input type="text" name="E-mail id" id="email" placeholder="E-mail">
    <span style="color: red;" id="email_error"></span>
    <br><br>

    <label for="Mob.number">Mobile Number:</label>
    <input type="number" name="Mobile number" id="mob" placeholder="Mobile
Number">
    <span style="color: red;" id="mob_error"></span>
    <br><br>

    <label for="lname">Last Name:</label>
    <input type="text" name="Last Name" id="lname" placeholder="Last Name">
    <span style="color: red;" id="ln_error"></span>
```

```
        <br><br>

        <label for="address">Address:</label>
        <input type="text" name="Address" id="adrs" placeholder="Address">
        <span style="color: red;" id="adrs_error"></span>
        <br><br>

        <button>Submit</button>

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

EX.NO: 4	SERVLET TO PRINT “Hello World!”

HelloWorldServlet.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;

@WebServlet("/hello")
public class HelloWorldServlet extends HttpServlet {
   private static final long serialVersionUID = 1L;

   @Override
   protected void doGet(HttpServletRequest request, HttpServletResponse response)
         throws ServletException, IOException {
      response.setContentType("text/html");
      PrintWriter out = response.getWriter();
      out.println("<html><body>");
      out.println("<h1>Hello World</h1>");
      out.println("</body></html>");
   }
}
```

EX.NO: 5	SERVLET TO PROCESS FORM DATA AND DISPLAY ON BROWSER

FormServlet.java

```
package com.example;
import java.io.IOException;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
@WebServlet("/form")
public class FormServlet extends HttpServlet {
   protected void doPost(HttpServletRequest request, HttpServletResponse response)
         throws ServletException, IOException {
      String name = request.getParameter("name");
      String email = request.getParameter("email");
      response.setContentType("text/html");
      response.getWriter().println("<h1>Form Submitted</h1>");
      response.getWriter().println("<p>Name: " + name + "</p>");
      response.getWriter().println("<p>Email: " + email + "</p>");
   }
}
```

index.html

```
<!DOCTYPE html>
<html>
<head>
```

```
    <title>Form Example</title>
</head>
<body>
    <h1>Submit Your Information</h1>
    <form action="form" method="post">
        <label for="name">Name:</label><br>
        <input type="text" id="name" name="name"><br><br>
        <label for="email">Email:</label><br>
        <input type="email" id="email" name="email"><br><br>
        <input type="submit" value="Submit">
    </form>
</body>
</html>
```

EX.NO: 6	SERVLET TO DIFFERENTIATE BETWEEN HTTP GET AND POST

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;

@WebServlet("/formDemo")
public class Form2 extends HttpServlet {
   private static final long serialVersionUID = 1L;

   protected void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {
      response.setContentType("text/html");
      PrintWriter out = response.getWriter();

      // Handle GET request
      String name = request.getParameter("name");
      if (name != null) {
         out.println("<h3>You submitted via GET: " + name + "</h3>");
      }

      out.close();
```

```
    }

    protected void doPost(HttpServletRequest request, HttpServletResponse response) throws
ServletException, IOException {
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();

        // Handle POST request
        String name = request.getParameter("name");
        if (name != null) {
            out.println("<h3>You submitted via POST: " + name + "</h3>");
        }

        out.close();
    }
}
```

index.html

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Form Demo</title>
</head>
<body>
    <h2>Submit Data Using GET Method</h2>
```

```
    <form method="GET" action="formDemo">
        Name: <input type="text" name="name"><br>
        <input type="submit" value="Submit via GET">
    </form>

    <h2>Submit Data Using POST Method</h2>
    <form method="POST" action="formDemo">
        Name: <input type="text" name="name"><br>
        <input type="submit" value="Submit via POST">
    </form>
</body>
</html>
```

EX.NO: 7	SERVLET TO DEMONSTRATE SESSION TRACKING USING HttpSession

index.html

```
<!DOCTYPE html>
<html lang="en">
<head>
   <meta charset="UTF-8">
   <meta name="viewport" content="width=device-width, initial-scale=1.0">
   <title>Login</title>
</head>
<body>
   <h2>Login Form</h2>
   <form action="login" method="post">
      <label for="username">Username:</label>
      <input type="text" id="username" name="username" required>
      <br><br>
      <label for="password">Password:</label>
      <input type="password" id="password" name="password" required>
      <br><br>
      <input type="submit" value="Login">
   </form>
</body>
</html>
```

LoginServlet.java

```
import java.io.IOException;
import javax.servlet.ServletException;
```

```
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;

@WebServlet("/login")
public class LoginServlet extends HttpServlet {
   private static final long serialVersionUID = 1L;

   protected void doPost(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {
      String username = request.getParameter("username");
      String password = request.getParameter("password");
      if ("admin".equals(username) && "password".equals(password)) {
         HttpSession session = request.getSession();
         session.setAttribute("username", username);
         response.sendRedirect("welcome.jsp");
      } else {
         response.sendRedirect("index.html?error=Invalid credentials");
      }
   }
}
```

LogoutServlet.java

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

```
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;

@WebServlet("/logout")
public class LogoutServlet extends HttpServlet {
    private static final long serialVersionUID = 1L;

    protected void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {
        HttpSession session = request.getSession(false);
        if (session != null) {
            session.invalidate();
        }
        response.sendRedirect("index.html");
    }
}
```

EX.NO: 8	ANDROID APPLICATION - BASIC CALCULATOR

MainActivity.kt

```
package com.example.calculatorapp

import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.*

class MainActivity : AppCompatActivity() {

    lateinit var num1: EditText
    lateinit var num2: EditText
    lateinit var resultView: TextView
    lateinit var addBtn: Button
    lateinit var subBtn: Button
    lateinit var mulBtn: Button
    lateinit var divBtn: Button

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

        num1 = findViewById(R.id.num1)
        num2 = findViewById(R.id.num2)
        resultView = findViewById(R.id.resultView)
```

```
    addBtn = findViewById(R.id.addBtn)
    subBtn = findViewById(R.id.subBtn)
    mulBtn = findViewById(R.id.mulBtn)
    divBtn = findViewById(R.id.divBtn)

    addBtn.setOnClickListener { calculate('+') }
    subBtn.setOnClickListener { calculate('-') }
    mulBtn.setOnClickListener { calculate('*') }
    divBtn.setOnClickListener { calculate('/') }
}

private fun calculate(operator: Char) {
    val input1 = num1.text.toString()
    val input2 = num2.text.toString()

    if (input1.isEmpty() || input2.isEmpty()) {
        resultView.text = "Please enter both numbers."
        return
    }

    val a = input1.toDouble()
    val b = input2.toDouble()
    val result = when (operator) {
        '+' -> a + b
        '-' -> a - b
        '*' -> a * b
        '/' -> {
            if (b == 0.0) {
```

```
                resultView.text = "Cannot divide by zero."
                return
            } else a / b
        }
        else -> 0.0
    }

    resultView.text = "Result: $result"
  }
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
  xmlns:android="http://schemas.android.com/apk/res/android"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  android:orientation="vertical"
  android:padding="20dp">

  <EditText
    android:id="@+id/num1"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Enter first number"
    android:inputType="numberDecimal"/>
```

```
<EditText
    android:id="@+id/num2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Enter second number"
    android:inputType="numberDecimal"/>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:gravity="center"
    android:layout_marginTop="20dp">

    <Button
        android:id="@+id/addBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="+" />

    <Button
        android:id="@+id/subBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="-" />

    <Button
        android:id="@+id/mulBtn"
```

```
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="×" />

    <Button
        android:id="@+id/divBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="÷" />
  </LinearLayout>

  <TextView
    android:id="@+id/resultView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Result will be shown here"
    android:textSize="18sp"
    android:layout_marginTop="30dp"/>
</LinearLayout>
```

EX.NO: 9	ANDROID APPLICATION - SD CARD WRITER

MainActivity.kt

```
package com.example.sdcard

import android.content.ContentValues
import android.net.Uri
import android.os.Bundle
import android.provider.MediaStore
import android.widget.Button
import android.widget.Toast
import androidx.activity.ComponentActivity

class MainActivity : ComponentActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

        val writeButton = findViewById<Button>(R.id.buttonWrite)

        writeButton.setOnClickListener {
            writeToExternalStorage("Hello World!")
        }
    }
```

```
    private fun writeToExternalStorage(data: String) {
        val values = ContentValues().apply {
            put(MediaStore.Files.FileColumns.DISPLAY_NAME, "sample.txt")
            put(MediaStore.Files.FileColumns.MIME_TYPE, "text/plain")
            put(MediaStore.Files.FileColumns.RELATIVE_PATH, "Documents/MyAppFolder")
        }

        val uri: Uri? = contentResolver.insert(MediaStore.Files.getContentUri("external"), values)

        uri?.let {
            try {
                val outputStream = contentResolver.openOutputStream(it)
                outputStream?.write(data.toByteArray())
                outputStream?.close()
                Toast.makeText(this, "Data written to $it", Toast.LENGTH_LONG).show()
            } catch (e: Exception) {
                Toast.makeText(this, "Error: ${e.message}", Toast.LENGTH_LONG).show()
            }
        } ?: run {
            Toast.makeText(this, "Error creating file", Toast.LENGTH_LONG).show()
        }
    }
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
```

```
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="center"
    android:padding="16dp">

    <Button
        android:id="@+id/buttonWrite"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Write to SD Card" />
</LinearLayout>
```