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

PROGRAM:-

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");
    }
}
```

OUTPUT:-

RESULT:-

Thus the given program is executed successfully and output is verified

EX.NO: 8	ANDROID APPLICATION - BASIC CALCULATOR

PROGRAM:-

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('+') }
```

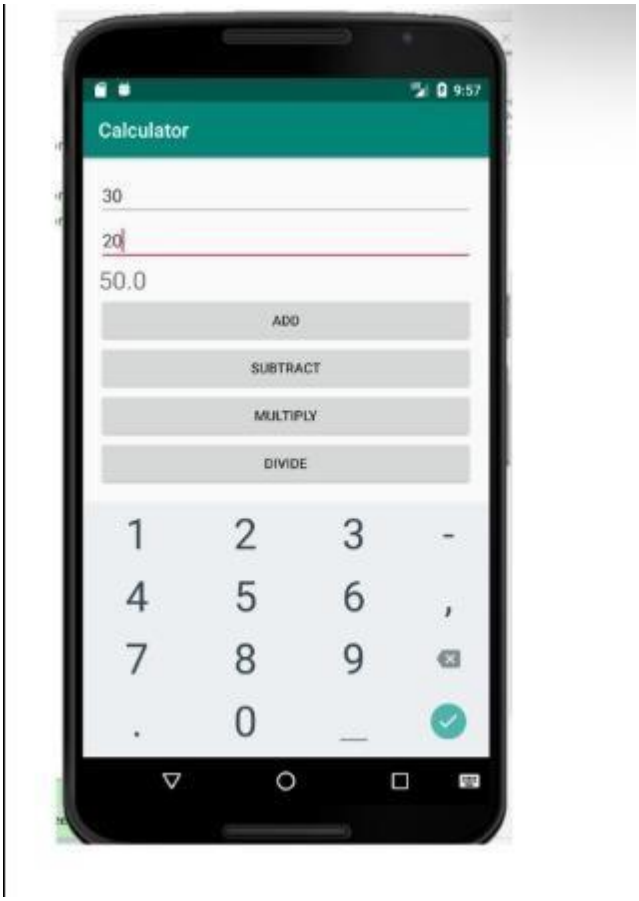
```
        subBtn.setOnClickListener { calculate('-') }
        mulBtn.setOnClickListener { calculate('*') }
        divBtn.setOnClickListener { calculate('/') }
    }

    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>
```

OUTPUT:-



RESULT:-

Thus the given program is executed successfully and output is verified

EX.NO: 10	ANDROID APPLICATION TO CHANGE FONT AND COLOR OF TEXT

PROGRAM:-

MainActivity.kt

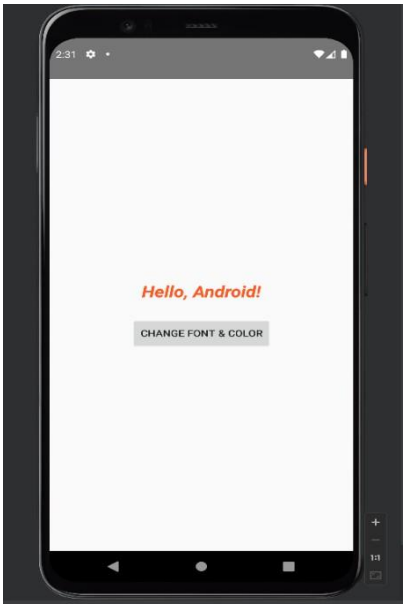
```
package com.example.fontchange

import android.graphics.Typeface
import android.os.Bundle
import android.widget.Button
import android.widget.TextView
import android.widget.Toast
import androidx.activity.ComponentActivity
import androidx.core.content.ContextCompat

class MainActivity : ComponentActivity() {

private lateinit var textView: TextView
private lateinit var buttonChange: Button

override fun onCreate(savedInstanceState: Bundle?) {
super.onCreate(savedInstanceState)
setContentView(R.layout.activity_main)
textView = findViewById(R.id.textView)
buttonChange = findViewById(R.id.buttonChange)
buttonChange.setOnClickListener { changeTextStyle()
showToastMessage()
} }

private fun changeTextStyle() {
```

```
textView.typeface = Typeface.create("sans-serif-medium", Typeface.NORMAL)
textView.setTextColor(ContextCompat.getColor(this, android.R.color.holo_blue_light))
}

private fun showToastMessage() {
Toast.makeText(this, "Text style changed!", Toast.LENGTH_SHORT).show()
}
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android&amp;quot;
        android:layout_width="match_parent"
        android:layout_height="match_parent">

        <TextView
                android:id="@+id/textView"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="Hello, World!"
                android:textSize="24sp"
                android:layout_centerInParent="true"
                android:textColor="@android:color/black”/>

        <Button
                android:id="@+id/buttonChange"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:text="Change Font and Color"
                android:layout_below="@id/textView"
                android:layout_centerHorizontal="true"
                android:layout_marginTop="20dp”/>
</RelativeLayout>
```

OUTPUT:-



RESULT:-

Thus the given program is executed successfully and output is verified

EX.NO: 10	ANDROID APPLICATION - SD CARD WRITER

PROGRAM:-

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>
```

OUTPUT:-

RESULT:-

Thus the given program is executed successfully and output is verified