



BATCH AND ROLL NO: R08 42435
EXPERIMENT NO.6
TITLE: Design a mobile application to show any website using web view.
DATE OF PERFORMANCE:
DATE OF SUBMISSION:

Title: Design a mobile application to Show any website using web view.

Requirements:

1 Android studio

Theory:

Introduction

The integration of web content into mobile applications has become an integral aspect of enhancing user experiences. In this lab, we will focus on designing a mobile application that incorporates a WebView component. The WebView allows the seamless display of web content within the application, providing users with the convenience of accessing external websites without leaving the app environment.

Objective of the Lab: The primary objective of this lab is to guide you through the process of designing a mobile application that utilizes a WebView to showcase content from external websites. By the end of this lab, you should be adept at implementing and customizing the WebView component, offering users a cohesive experience as they navigate web content within the confines of your mobile application.

Components of the Application:

1. WebView Component:

- The WebView is a versatile component that allows the embedding of web content directly into a mobile application.
- It enables users to interact with and view external websites seamlessly, enhancing the overall application functionality.

Lab Prerequisites:

- Basic understanding of mobile application development concepts.
- Familiarity with the chosen development environment (e.g., Android Studio, Xcode).
- Prior knowledge of programming languages such as Java or Kotlin (for Android) or Swift (for iOS).



Steps:

Step 1: Set Up Your Development Environment

- Ensure that you have Android Studio installed and configured on your machine.

Step 2: Create a New Project

- Open Android Studio and create a new project.
- Choose an appropriate project template, such as "Empty Activity" or "Basic Activity."

Step 3: Design the Main Activity Layout

- Open the XML layout file associated with your main activity (e.g., activity_main.xml).
- Add a WebView component to your layout. You can use the WebView element in your XML file.

Step 4: Implement the Java Code

- Open the Java file associated with your main activity (e.g., MainActivity.java).
- In the onCreate method, retrieve the reference to the WebView from the XML layout using findViewById.
- Configure the WebView settings, such as enabling JavaScript, if required.

Step 5: Test Your Application

- Run your application on an emulator or a physical device.
- Verify that the WebView displays the content from the specified website.

Step 6: Enhance WebView Functionality (Optional)

- Implement additional features, such as handling WebView events (e.g., page loading), managing navigation, or enabling WebView controls.



XML Code:

activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <com.google.android.material.appbar.AppBarLayout
        android:id="@+id/appBarLayout"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        app:layout_constraintTop_toTopOf="parent">

        <androidx.appcompat.widget.Toolbar
            android:id="@+id/toolbar"
            android:layout_width="match_parent"
            android:layout_height="?attr/actionBarSize"
            android:background="?attr/colorPrimary"
            android:theme="@style/ThemeOverlay.AppCompat.Dark.ActionBar">

            <EditText
                android:id="@+id/urlEditText"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_marginEnd="16dp"
                android:background="@android:color/white"
                android:hint="Enter URL"
                android:inputType="textUri"
                android:padding="8dp"
                android:textColor="@android:color/black"
                android:textSize="16sp" />

            </androidx.appcompat.widget.Toolbar>

        </com.google.android.material.appbar.AppBarLayout>

        <ProgressBar
            android:id="@+id/progressBar"
            style="?android:attr/progressBarStyleHorizontal"
            android:layout_width="match_parent"
            android:layout_height="3dp"
            android:visibility="gone"
            app:layout_constraintTop_toBottomOf="@id/appBarLayout" />

        <WebView
            android:id="@+id/webView"
            android:layout_width="match_parent"
            android:layout_height="0dp"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintTop_toBottomOf="@id/progressBar" />

    </androidx.constraintlayout.widget.ConstraintLayout>
```



style.xml:

```
<resources>
  <!-- Base application theme -->
  <style name="Theme.WebViewApp"
parent="Theme.MaterialComponents.DayNight.NoActionBar">
    <!-- Primary brand color -->
    <item name="colorPrimary">@color/purple_500</item>
    <item name="colorPrimaryVariant">@color/purple_700</item>
    <item name="colorOnPrimary">@color/white</item>
    <!-- Secondary brand color -->
    <item name="colorSecondary">@color/teal_200</item>
    <item name="colorSecondaryVariant">@color/teal_700</item>
    <item name="colorOnSecondary">@color/black</item>
    <!-- Status bar color -->
    <item name="android:statusBarColor">?attr/colorPrimaryVariant</item>
  </style>
</resources>
```

colors.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<resources>
  <!-- Primary Colors -->
  <color name="purple_200">#FFBB86FC</color>
  <color name="purple_500">#FF6200EE</color>
  <color name="purple_700">#FF3700B3</color>

  <!-- Secondary Colors -->
  <color name="teal_200">#FF03DAC5</color>
  <color name="teal_700">#FF018786</color>

  <!-- Basic Colors -->
  <color name="black">#FF000000</color>
  <color name="white">#FFFFFFFF</color>

  <!-- Additional UI Colors -->
  <color name="gray_light">#FFEEEEEE</color>
  <color name="gray_medium">#FFB0B0B0</color>
  <color name="gray_dark">#FF666666</color>

  <!-- Status Colors -->
  <color name="success_green">#FF4CAF50</color>
  <color name="error_red">#FF443366</color>
  <color name="warning_yellow">#FFFFC107</color>
  <color name="info_blue">#FF2196F3</color>
</resources>
```



AndroidManifest.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.expt06_42441">

    <!-- Internet Permission -->
    <uses-permission android:name="android.permission.INTERNET" />

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportRtl="true"
        android:theme="@style/Theme.WebViewApp">

        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>
</manifest>
```

Java Code:

MainActivity.java:

```
package com.example.expt06_42435;

import android.graphics.Bitmap;
import android.os.Bundle;
import android.view.KeyEvent;
import android.view.View;
import android.view.inputmethod.EditorInfo;
import android.webkit.WebChromeClient;
import android.webkit.WebView;
import android.webkit.WebViewClient;
import android.widget.EditText;
import android.widget.ProgressBar;

import androidx.appcompat.app.AppCompatActivity;
import androidx.appcompat.widget.Toolbar;
```



```
public class MainActivity extends AppCompatActivity {
    private WebView webView;
    private EditText urlEditText;
    private ProgressBar progressBar;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        // Initialize UI components
        webView = findViewById(R.id.webView);
        urlEditText = findViewById(R.id.urlEditText);
        progressBar = findViewById(R.id.progressBar);
        Toolbar toolbar = findViewById(R.id.toolbar);
        setSupportActionBar(toolbar);

        // Configure WebView settings
        configureWebView();

        // Set up URL input handling
        setupUrlInput();

        // Load a default website
        loadUrl("https://www.google.com");
    }

    private void configureWebView() {
        webView.getSettings().setJavaScriptEnabled(true);
        webView.getSettings().setDomStorageEnabled(true);
        webView.getSettings().setLoadWithOverviewMode(true);
        webView.getSettings().setUseWideViewPort(true);
        webView.getSettings().setSupportZoom(true);
        webView.getSettings().setBuiltInZoomControls(true);
        webView.getSettings().setDisplayZoomControls(false);

        webView.setWebViewClient(new WebViewClient() {
            @Override
            public void onPageStarted(WebView view, String url, Bitmap favicon) {
                progressBar.setVisibility(View.VISIBLE);
                urlEditText.setText(url);
            }

            @Override
            public void onPageFinished(WebView view, String url) {
                progressBar.setVisibility(View.GONE);
            }
        });

        webView.setWebChromeClient(new WebChromeClient() {
            @Override
            public void onProgressChanged(WebView view, int newProgress) {
                progressBar.setProgress(newProgress);
            }
        });
    }
}
```

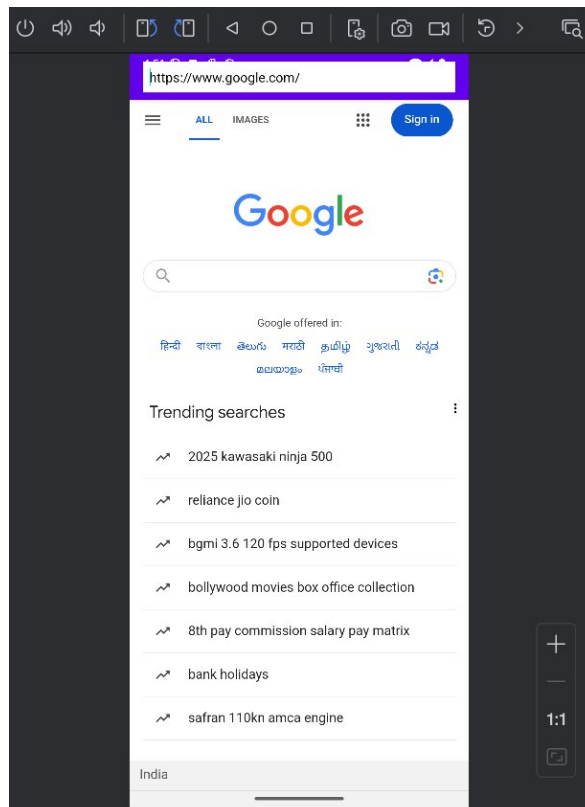


```
private void setupUrlInput() {
    urlEditText.setOnEditorActionListener((v, actionId, event) -> {
        if (actionId == EditorInfo.IME_ACTION_GO ||
            (event != null && event.getKeyCode() == KeyEvent.KEYCODE_ENTER)) {
            loadUrl(urlEditText.getText().toString());
            return true;
        }
        return false;
    });
}

private void loadUrl(String url) {
    if (!url.startsWith("http://") && !url.startsWith("https://")) {
        url = "https://" + url;
    }
    webView.loadUrl(url);
}

@Override
public void onBackPressed() {
    if (webView.canGoBack()) {
        webView.goBack();
    } else {
        super.onBackPressed();
    }
}
}
```

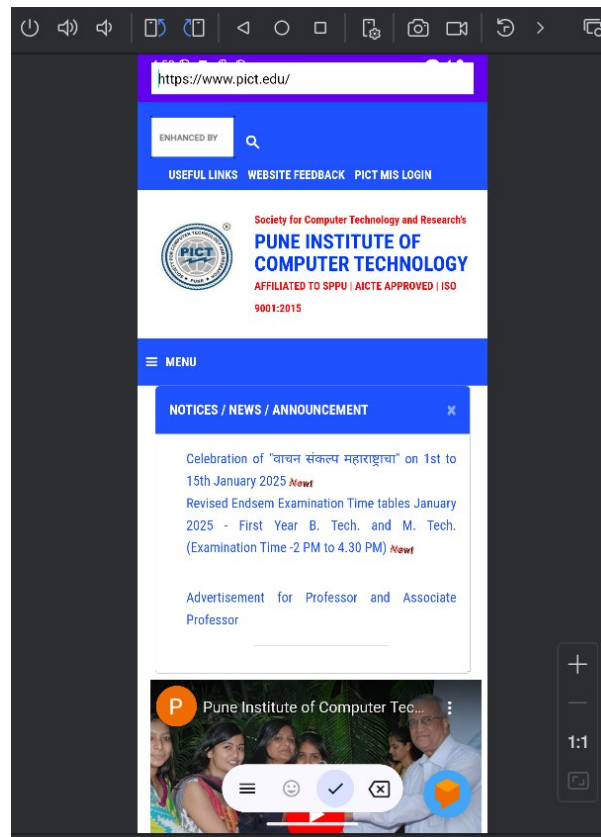
Output:





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Conclusion:

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