PRACTICAL: 13

AIM: Create an application to play video using YouTube API in PIP mode.

THEORY:

PIP : Android 8.0 (API level 26) allows activities to launch in picture-in-picture (PIP) mode. PIP is a special type of multi-window mode mostly used for video playback. It lets the user watch a video in a small window pinned to a corner of the screen while navigating between apps or browsing content on the main screen. The PIP window appears in the top-most layer of the screen, in a corner chosen by the system. You can drag the PIP window to another location. When you tap on the window two special controls appear: a full-screen toggle (in the center of the window) and a close button (an "X" in the upper right corner).

CODE:

```
activity_main.xml
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:background="@color/colorAccent"
   tools:context=".MainActivity">
  <VideoView
     android:id="@+id/videoView"
     android:layout_width="match_parent"
     android:layout_height="543dp"
     android:layout_marginTop="0dp">
  </VideoView>
  <Button
     android:id="@+id/button"
     style="@style/Widget.AppCompat.Button.Borderless"
     android:layout_width="wrap_content"
     android:layout_height="wrap_content"
     android:layout_alignParentEnd="true"
     android:layout_alignParentRight="true"
     android:layout_alignParentBottom="true"
     android:layout_marginEnd="165dp"
     android:layout_marginRight="165dp"
     android:layout_marginBottom="7dp"
     android:text="Enter PIP Node"
     android:textColor="#ffffff" />
  </RelativeLayout>
```

MainActivity.java

```java
package com.example.pr13_17it005;
import androidx.appcompat.app.ActionBar;
import androidx.appcompat.app.AppCompatActivity;
import android.app.PictureInPictureParams;
import android.content.res.Configuration;
import android.graphics.Point;
import android.net.Uri;
import android.os.Build;
import android.os.Bundle;
import android.util.Rational;
import android.view.Display;
import android.view.View;
import android.webkit.WebView;
import android.widget.Button;
import android.widget.MediaController;
import android.widget.VideoView;
public class MainActivity extends AppCompatActivity {
    ActionBar actionBar;
    VideoView videoView;
    MediaController mediaC;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        actionBar = getSupportActionBar();
        Button button = (Button)findViewById(R.id.button);
        videoView = (VideoView)findViewById(R.id.videoView);
        mediaC = new MediaController(this);
        String videopath = "android.resource://com.example.PR13_17IT005/"+R.raw.cloud;
        Uri uri = Uri.parse(videopath);
        videoView.setVideoURI(uri);
        videoView.setMediaController(mediaC);
        mediaC.setAnchorView(videoView);
        videoView.start();
        button.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
              if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.O) {
                  Display display = getWindowManager().getDefaultDisplay();
                  Point size = new Point();
                  display.getSize(size);
                  int width = size.x;
                  int height = size.y;
                  Rational aspectRatio = new Rational(width,height);
                  PictureInPictureParams.Builder mPictureInPictureParamsBuilder = new
PictureInPictureParams.Builder();
                    mPictureInPictureParamsBuilder.setAspectRatio(aspectRatio).build();
                    enterPictureInPictureMode(mPictureInPictureParamsBuilder.build());
                }
```

```
            }
        });
    }
    @Override
    public void onPictureInPictureModeChanged(boolean isInPictureInPictureMode, Configuration
newConfig) {
        if(isInPictureInPictureMode){
            actionBar.hide();
        }else{
            actionBar.show();
        }
    }
}
```

OUTPUT:
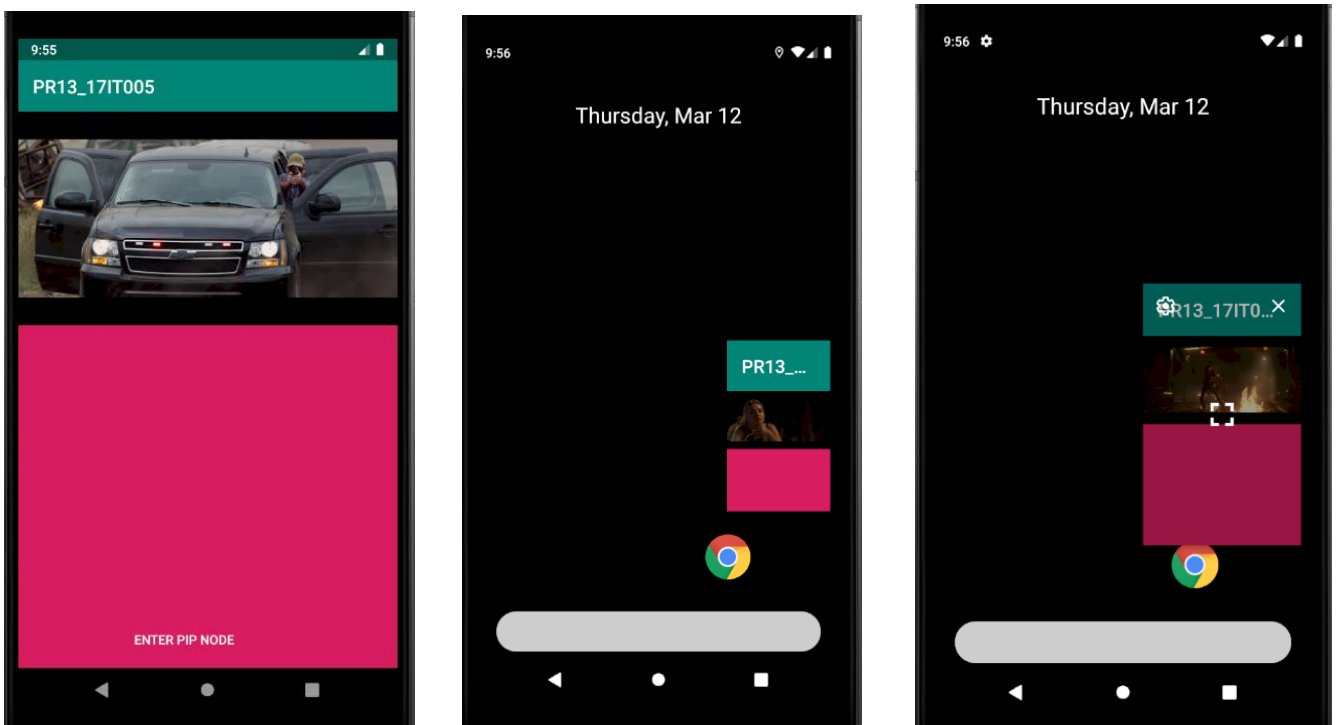
When we press the button "Enter PIP Mode" on the top of the screen, the application will enter pip mode and screen would look as in figure 2.

LATEST APPLICATIONS: Google Maps have recently updated their application where Google Maps can now enter PIP mode making it easier to navigate and also not interrupting any other activity. We can also observe PIP when we play some YouTube video through link in whtasapp or any other application.

LEARNING OUTCOME: To apply PIP Mode in application we have altered Android Menifest Files and allowed permission for the same (**android:supportsPictureInPicture to true**), also we have implemented PIP Mode along with Mode Change method where we can control the displayed elements once the application enters the pip Mode.