Experiment 05: Write a program to implement date and time picker

Learning Objective: Student should be able to write a program to implement date and time picker in Android Studio.

Tools: Android Studio

Theory:

Android Studio:

Android Studio is the official integrated development environment (IDE) for Android application development. Every project in Android Studio has one or more modalities with source code and resource files. These modalities include Android app modules, Library modules, and Google App Engine modules. It is an open source software platform and operating system for mobile devices which is based on the Linux kernel. It allows writing managed code in the Java language and Kotlin language. Android apps are built as a combination of components that can be invoked individually. For example, an activity is a type of app component that provides a user interface (UI). The "main" activity starts when the user taps the application's icon. One can also direct the user to an activity from elsewhere, such as from a notification or even from a different app. Other components, such as broadcast receivers and services, allow the application to perform background tasks without a UI.

Data and Time Picker:

Android Date Picker allows coder to select the date consisting of day, month and year in the custom user interface. For this functionality android provides DatePicker and DatePickerDialog components.
The DatePickerDialog class consists of a 5 argument constructor with the parameters listed below.

- Context: It requires the application context
  - CallBack Function: onDateSet() is invoked when the user sets the date with thefollowing parameters:
    - int year : It will be store the current selected year from the dialog
    - int monthOfYear : It will be store the current selected month from the dialog
    - int dayOfMonth : It will be store the current selected day from the dialog
    - int mYear : It shows the the current year that's visible when the dialog pops up
    - int mMonth : It shows the the current month that's visible when the dialog pops up
    - int mDay : It shows the the current day that's visible when the dialog pops up

- The TimePickerDialog class consists of a 5 argument constructor with the parameters listedbelow.
  - Context: It requires the application context
  - CallBack Function: onTimeSet() is invoked when the user sets the time with thefollowing parameters:
  - int hourOfDay : It will be store the current selected hour of the day from the dialog
  - int minute : It will be store the current selected minute from the dialog
  - int mHours : It shows the the current Hour that's visible when the dialog pops up
  - int mMinute : It shows the the current minute that's visible when the dialog pops up
  - boolean false : If its set to false it will show the time in 24 hour format else not

MainActivity.java:

```
package com.example.experiment5;
import  android.app.DatePickerDialog;
import android.app.TimePickerDialog;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.DatePicker;
import android.widget.TimePicker;
import android.widget.TextView;
import
androidx.appcompat.app.AppCompatActi
vity;
import java.util.Calendar;
public class MainActivity extends
AppCompatActivity {
  // on below line we are creating
variables.
  private Button pickDateBtn;
  private TextView selectedDateTV;
  private Button pickTimeBtn;
  private TextView selectedTimeTV;
  @Override
  protected void onCreate(Bundle
savedInstanceState) {
    super.onCreate(savedInstanceState);

setContentView(R.layout.activity_main);

    // on below line we are initializing
our variables.
    pickDateBtn =
findViewById(R.id.idBtnPickDate);
    selectedDateTV =
findViewById(R.id.idTVSelectedDate);
    pickTimeBtn =
findViewById(R.id.idBtnPickTime);
    selectedTimeTV =
findViewById(R.id.idTVSelectedTime);
    pickDateBtn.setOnClickListener(new
View.OnClickListener() {
      @Override
      public void onClick(View v) {
        // on below line we are getting
        // the instance of our calendar.
        final Calendar c =
Calendar.getInstance();
        // on below line we are getting
        // our day, month and year.
        int year =
c.get(Calendar.YEAR);
        int month =
c.get(Calendar.MONTH);
        int day =
c.get(Calendar.DAY_OF_MONTH);
        // on below line we are creating
a variable for date picker dialog.
        DatePickerDialog
datePickerDialog = new
DatePickerDialog(
            // on below line we are
passing context.
            MainActivity.this,
            new
DatePickerDialog.OnDateSetListener() {
              @Override
              public void
```

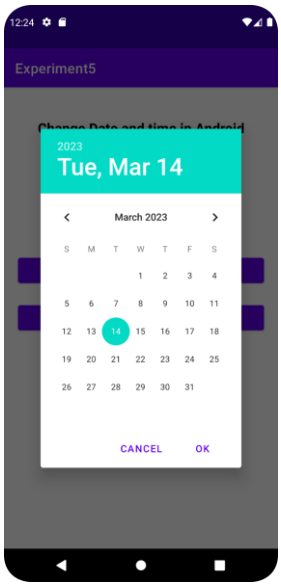
```
   onDateSet(DatePicker view, int year,
int monthOfYear, int dayOfMonth) {
// on below line we aresetting date to our text
view.
selectedDateTV.setText(dayOfMonth + "-" +
(monthOfYear + 1) + "-" + year);
}},
// on below line we are  // on below line we are
adding clicklistener for our pick date button
passing year,
// month and day for selected date in our date
picker.
} });
        year, month, day);
 // at last we are calling show to
 // display our date picker dialog.
 datePickerDialog.show();
                    TimePickerDialog
          timePickerDialog = new
          TimePickerDialog(MainActivity.this,
                        new
          TimePickerDialog.OnTimeSetListener() {
                            @Override
                            public void
          onTimeSet(TimePicker view, int
    pickTimeBtn.setOnClickListener(new
    View.OnClickListener() {
              @Override
              public void onClick(View v) {
    hourOfDay,
    {
int minute)
// on below line we are the
// on below line we are getting
// instance of our calendar.final Calendar c =
setting selected time
// in our text view.
    selectedTimeTV.setText(hourOfDay +
    ":"Calendar.getInstance();
                // on below line we are gettingour
    hour, minute.
                int hour =
    c.get(Calendar.HOUR_OF_DAY);
                int minute =
    c.get(Calendar.MINUTE);
    + minute);
                        }
                    }, hour, minute, false);
                // at last we are calling show to
                // display our time picker dialog.
                timePickerDialog.show();
                    }
                });
    }// on below line we are  }
initializing our Time Picker Dialog
```

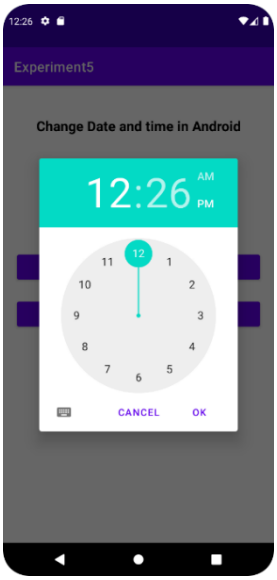
activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
<!--on below line we are creating a textview-
xmlns:android="http://schemas.android.co
m/apk/res/android"
xmlns:tools="http://schemas.android.com/tools"
  android:id="@+id/idRLContainer"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  android:orientation="vertical"
  tools:context=".MainActivity">
  <!--on below line we are creatinga text
     for our app-->
  <!--on below line we are creatinga
     button for date picker-->
  <TextView android:id="@+id/idTVHeading"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_above="@id/idTVSelecte
dDate"
      android:layout_centerInParent="true"
      android:layout_marginStart="20dp"
      android:layout_marginTop="20dp"
      android:layout_marginEnd="20dp"
      android:layout_marginBottom="0dp"
      android:gravity="center"
      android:padding="10dp"
      android:text="Change Date and time
in Android"
      android:textAlignment="center"
      android:textColor="@color/black"
      android:textSize="20sp"
      android:textStyle="bold" />
  <TextView
      android:layout_marginStart="20dp"
      android:layout_marginTop="20dp"
      android:layout_marginEnd="20dp"
      android:text="Change Date"
```

```
    android:textAllCaps="false" />
  <TextView
android:id="@+id/idTVSelectedTime"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:id="@+id/idTVSelectedDate"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_above="@id/idBtnPickDate"
    android:layout_centerInParent="true"
    android:layout_marginStart="20dp"
    android:layout_marginTop="10dp"
    android:layout_marginEnd="20dp"
android:layout_marginBottom="80dp"
    android:gravity="center"
    android:padding="10dp"
    android:text="00-00-0000"
    android:textAlignment="center"
    android:textColor="@color/black"
    android:textSize="20sp"
    android:textStyle="bold" />
  <Button
    android:id="@+id/idBtnPickDate"

android:layout_width="match_parent"

android:layout_height="wrap_content"

android:layout_above="@+id/idBtnPickTime"
    android:layout_centerInParent="true"
android:layout_above="@id/idBtnPickDate"
    android:layout_centerInParent="true"
    android:layout_marginStart="20dp"
    android:layout_marginTop="20dp"
    android:layout_marginEnd="20dp"
android:layout_marginBottom="19dp"
    android:gravity="center"
    android:padding="10dp"
    android:text="00:00"
    android:textAlignment="center"
    android:textColor="@color/black"
    android:textSize="20sp"
    android:textStyle="bold" />
  <Button
    android:id="@+id/idBtnPickTime"

android:layout_width="match_parent"

android:layout_height="wrap_content"
    android:layout_centerInParent="true"
    android:layout_marginStart="20dp"
    android:layout_marginTop="20dp"
    android:layout_marginEnd="20dp"
android:layout_marginBottom="20dp"
    android:text="Change Time"
    android:textAllCaps="false" />
</RelativeLayout>
```

Implementation:





Result and Discussion: We successfully implemented a program to implement date and time picker in Android Studio.

Learning Outcomes: The student should have the ability to
LO1: explain how a date and time picker can be implemented in Android Studio.
LO2: execute a simple program to implement date and time picker in Android Studio

Course Outcomes: Upon completion of the course students will be able to to implement date and time picker in Android Studio

Conclusion:

We understood in this experiment the concept of date and time picker in android studios. Furthermore, the DatePickerDialog class and TimePickerDialog class along with their respective parameters were understood. We implemented program that allows user to pick their date of birth and select a particulartime slot. The program was executed on the Android Virtual Device.

For Faculty Use

Correction Parameters	**Formative Assessment [40%]**	**Timely completion of Practical [40%]**	**Attendance / Learning Attitude [20%]**	
Marks Obtained				