

Android Application Development

version 12



- Covers a wide range of Android development topics.
- Demonstrates visual, behavioral and motion rich Android widgets.
- Displays step-by-step lab exercises to build Android apps.
- Includes guides to build Google Maps and Firebase database apps.
- Presents Android app publishing guidelines.

By Android ATC Team

www.androidatc.com

Note: The answers are on the last page.

Q1-The prerequisite to install Android Studio IDE is to install the Java JDK and Adobe Reader.

a- True

b- False

Q2- Google allows web sites, mobile apps, and other media to connect to its database and import it in JSON format.

a- True

b- False

Q3- An Android Geo-location plug-in is used to get the current location of the device feature.

a- True

b- False

Q4. What is Android Studio?

a- It is Google's official Integrated Development Environment (IDE) for Android app development.

b- It is a free software used to create the SQL database for web development.

c- It is a free software used to create PHP code.

d- It is a free software used to create a web page or more.

Q5- The Android virtual device AVD Manager is an interface that you can launch from Android Studio which helps you create and manage Android virtual devices (Android Emulators).

a- True

b- False

Q6- Only the Android applications which have Google maps have an AndroidManifest.xml file.

a- True

b- False

Q7- When you are creating an Android app using Android Studio, you will have an activity_main.xml file which can be opened in the design and code mode.

a- True

b- False

Q8- You can add an image to your Android app by simply copying the image from the folder where it is stored in your computer, and then pasting it in the images location on your Android Studio.

a- True

b- False

Q9- When you create an Android app using Android Studio, your Android app icon will be a white circle logo by default.

a- True

b- False

Q10- Bottom AppBar is a material widget that is displayed at the bottom of an app for selecting among a small number of views, typically between three and five. This bar consists of multiple items in the form of text labels, icons, or both, laid out on the top of a piece of material.

a- True

b- False

Q11- You use the RecyclerView widget when you have data collections whose elements do Not change at runtime and without any user action or network events.

- a- True
- b- False

Q12- Your Android app needs only a Gmail account to access or connect to the Google Maps servers and display and use the Google maps in your app activity.

- a- True
- b- False

Q13- Android Spinner widget provides a quick way to select one value from a set of choices.

- a- True
- b- False

Q14- Fill in the blank with the best answer to complete the following sentence:

The Developer Registration Fee for Google Play store is

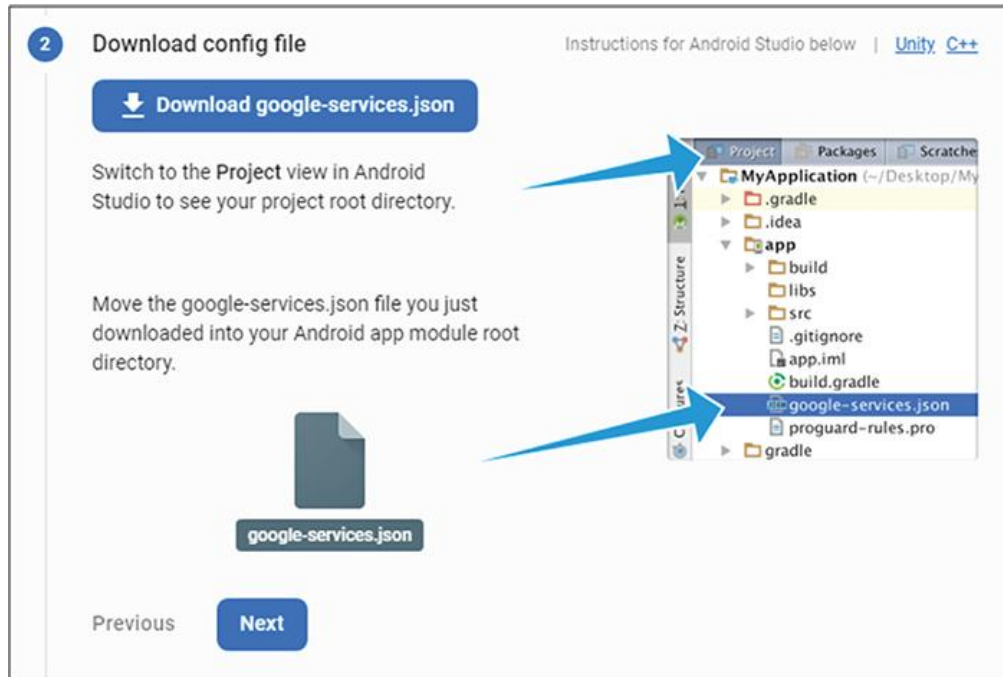
- a- 25 USD for a life time.
- b- 25 USD for each app.
- c- Free.
- d- 750 USD for a life time.

Q15- The image in this question includes a part of Android Studio tools bar. Which of the following choices is correct about the name of the missing icon name (represented by question marks)?



- a- AVD Manager (Android Virtual Device Manager).
- b- SDK Update.
- c- SDK Manager.
- d- Insert Image.

Q16- While configuring your Android app on Firebase web site, you should download the google-services.json file from Firebase web site and add it to your Android app files as illustrated in the image below.



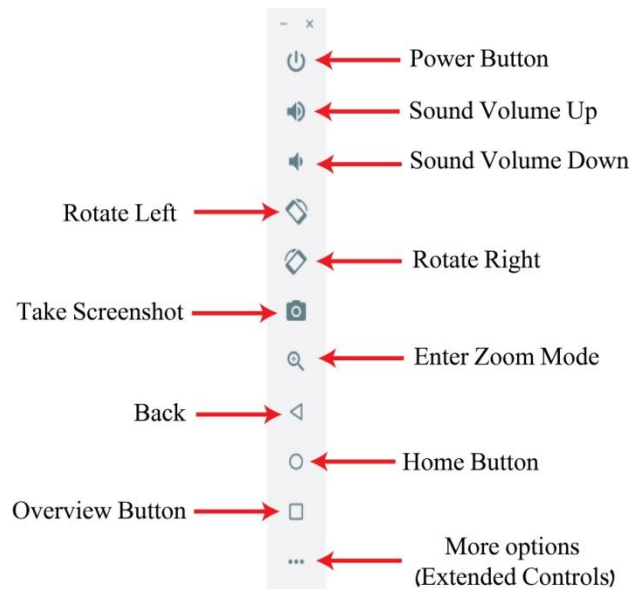
What is the main role of this file for your app?

- a- This configuration file includes the https connection settings between your Android app and Firebase services.
- b- This file includes your user name and password for Firebase web site.
- c- The role of this file is to import the last security updates from Firebase web site to app users.
- d- This file checks if the app user's device has Internet connection each time the app user starts it.

Q17- Which tools Android Studio uses to generate the apps' icons from material icons, custom images, and text strings ?

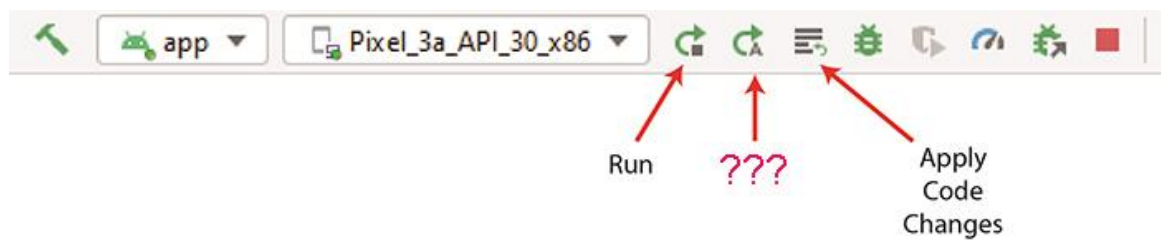
- a- Image Asset Studio.
- b- Android illustrator.
- c- Android Studio Bitmap Editor.
- d- Android Studio Icon illustrator.

Q18- What is in the following image?



- a- The Firebase toolbar.
- b- The Google Maps plug-in toolbar.
- c- The Android emulator toolbar.
- d- The Android Firefox toolbar.

Q19- The image in this question includes a part of Android Studio tools bar. Which of the following choices is correct about the name of the missing icon name (represented by question marks)?



- a- SDK Update
- b- SDK Manager
- c- Insert Image
- d- Apply changes and restart activity.

Q20- The XML code of this question is for a button widget. Which of the following choices is correct about the id of this widget?

```
<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="156dp"
    android:layout_marginTop="156dp"
    android:text="Button"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```

- a- This id must be unique in your application.
- b- You can't change this id if you run your app on an Android emulator.
- c- All the buttons in this app must have the same id.
- d- The id must start with small letter and without numbers.

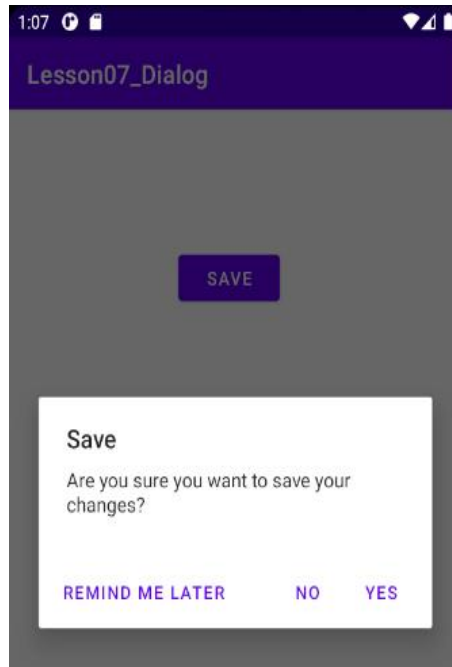
Q21- This Android layout allows Android developers to specify constraints (Margins) that would decide the position of each sub element such as text, button, radio box, check box or other widgets within the Android activity layout. Which Android layout type of choices below we are talking about?

- a- Linear Layout.
- b- Relative Layout.
- c- Table Layout.
- d- Constraint Layout.

Q22- When you pass data from an Android activity called Activity1 to another Android activity called Activity2 using Intent class configuration, which Intent's method do you use in Activity1 configuration? select the best answer of the following choices:

- a- sendExtra()
- b- pushExtra()
- c- getExtra()
- d- putExtra()

Q23- As illustrated in the image below, when the app user taps the SAVE button in this Android app, this user gets a message with three buttons. Which of the choices below is correct about the Kotlin code of this app?



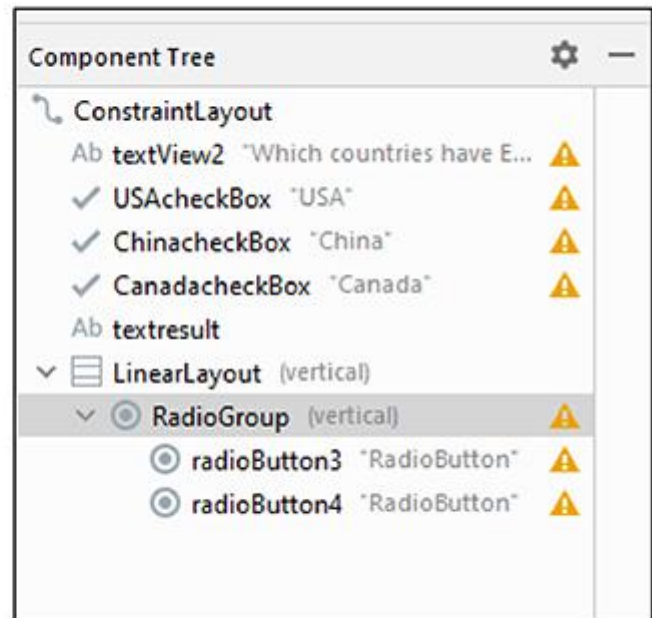
- a- The Android developer used the AlertDialog subclass to display the dialog box, dialog title, and these three buttons.
- b- The Android developer used the Snackbar class to display the Snackbar dialog box dialog title, and these three buttons.
- c- The Android developer used the pushDialog subclass to display the dialog box, dialog title, and these three buttons.
- d- The Android developer used the Notification class to display the notification box, notification title, and these three buttons.

Q24- Complete the following sentence using one of the choices below:

To navigate from Android activity to another in an Android app, you need to configure a/an class.

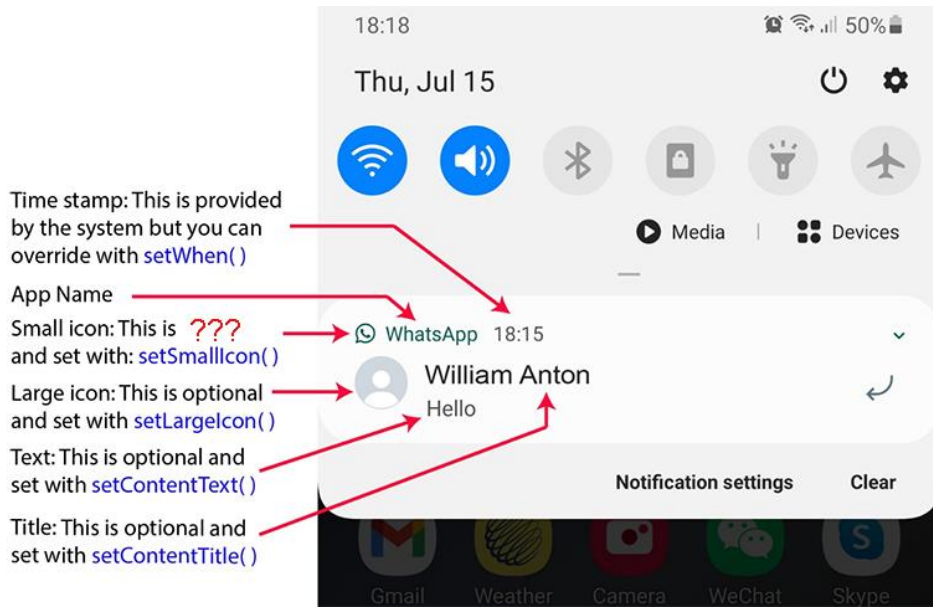
- a- go2secondActivity
- b- Browser
- c- Hyperlink
- d- Intent

Q25- The image in this question displays the Android app uses of check boxes and radio buttons. As you see in the component Tree, why the Android developer added the two radio buttons to a parent Radio group? Select the best answer of the choices below.



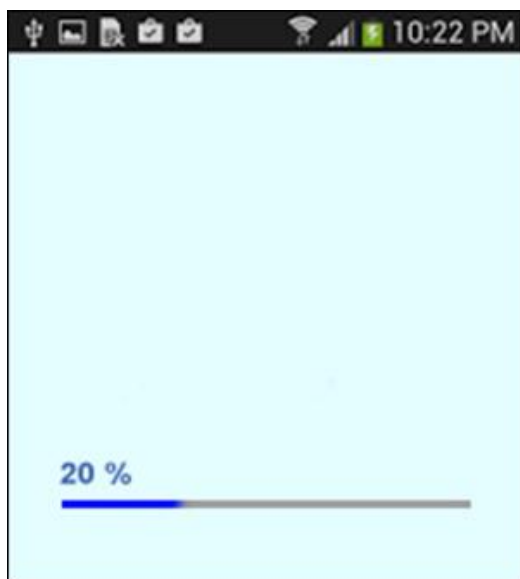
- a- Because this helps Android developers to set all these radio buttons vertically with the same format.
- b- Because using a radio group as a parent for these radio buttons, the app user can only check one radio button from a group of radio buttons.
- c- Because this is easier so that when Android developer moves a radio button, all the other radio buttons belonging to the same radio group will move together.
- d- Because we can't publish any Android app to Google Play store if it includes radio buttons that do not belong to any radio button group.

Q26- The image in this question about an Android notification components. Which of the choices below is correct about the small icon in this notification?



- a- It is required in the Android notification configuration.
- b- it is optional in the Android notification configuration.
- c- It is required only for Android 10 devices.
- d- it is optional only for Android 12 devices.

Q27- Which Android class can produce the activity illustrated in the image below?



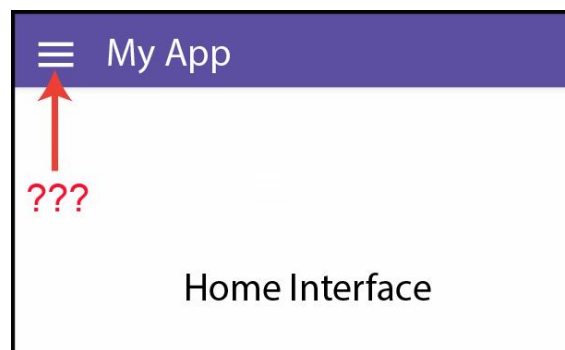
- a- Rating Bar.
- b- Progress Bar with Indeterminate mode.
- c- Progress Bar with determinate mode.
- d- Seek Bar.

Q28- Which Android class can produce the activity illustrated in the image below?



- a- Rating Bar.
- b- Progress Bar with Indeterminate mode.
- c- Progress Bar with determinate mode.
- d- Seek Bar.

Q29- Select one choice of the answers below. What is the name of the part which is represented by three question marks in this question image?



- a- Drawer
- b- Menu
- c- Spinner
- d- Map

Q30- If you created an Android app using the Firebase services, the app users login to this App using Firebase user accounts (email and password). Which of the following Firebase products store these app users' accounts?

- a- Database
- b- Authentication
- c- Storage
- d- Hosting

Q31- The code in the image blow is for the AndroidManifest.xml file and for a style code called: ATCTheme2030. This Android app uses the formats which are in the ATCTheme2030 style and inherits the other theme from: Theme.AppCompat.DayNight theme.

```
<application
  android:allowBackup="true"
  android:icon="@mipmap/ic_launcher"
  android:label="Lesson06_Styles"
  android:roundIcon="@mipmap/ic_launcher_round"
  android:supportsRtl="true"
  android:theme="@style/ATC">
  <activity android:theme="@style/ATC2030"
    <intent-filter android:theme="@style/ATCTheme2030"
      <action android:theme="@style/MaterialAlertDialog.MaterialComponents.Title.Icon..."
        android:theme="@style/MaterialAlertDialog.MaterialComponents.Title.Panel..."
      <category android:theme="@style/MaterialAlertDialog.MaterialComponents.Title.Text..."
    </intent-filter>
  </activity>
</application>
```

AndroidManifest.xml

```
<style name="ATCTheme2030" parent="Theme.AppCompat.DayNight">
  <item name="android:textSize">14sp</item>
  <item name="android:textColor">#00ff00</item>
  <item name="android:fontFamily">cursive</item>
</style>
```

Which Android file includes this ATCTheme2030 style code?
Select the best choice of the following answers:

- a- AndroidManifest.xml
- b- themes.xml
- c- strings.xml
- d- styles.xml

Q32- Firebase offers two cloud-based, client-accessible database solutions. Which of the following choices is a Firebase database type?

- a- SQL and MySQL
- b- Realtime Database and Cloud Firestore
- c- Cloud Firestore and MySQL
- d- Realtime Database and SQL

Q33- Fill in the blank with the best answer to complete the following sentence:

To use or add Google Maps to your Android app, your application needs to access or connect to Google Maps servers.

- a- an API key.
- b- a user name and password.
- c- To disable Wi-Fi connection on app user's device.
- d- An HTML widget to your app code.

Q34- Which of the following Android widgets you should use to configure your app interface to display Google map?

- a-SelectMap
- b-MapNow
- c- MapAPI
- d- GoogleMap

Q35- If you want to use a font color many times in your app design, it is a good idea to configure this color as a color tag as illustrated in this question image.

```
<color name="ATCtext">#05ff90</color>
```

Where you should add this tag to use this font color name: ATCtext in the app activities? Select the best answer of the following choices:

- a- activity_main.xml
- b- format.xml
- c- colors.xml
- d- css.xml

Q36- In the code illustrated in the following image for Android Snackbar,

```
fun mgSnack(view: View) {
    Snackbar.make(
        findViewById(R.id. sendMessage),
        "Your Email has been sent
        successfully", Snackbar.LENGTH_LONG).show()
}
```

what is the meaning of : LENGTH_LONG part of this code?

- a- This message will not show on Android tablets.
- b- This code is for phone devices which have long screens only.
- c- This code is related to how long the Snackbar message will appear.
- d- This Snackbar message will not disappear automatically after a timeout.

Q37- The image in this question includes the AndroidManifest.xml file for an Android app. How many activities does this Android app have?

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3 package="com.example.myapplication">
4
5 <application
6     android:allowBackup="true"
7     android:icon="@mipmap/ic_launcher"
8     android:label="@string/app_name"
9     android:roundIcon="@mipmap/ic_launcher_round"
10    android:supportsRtl="true"
11    android:theme="@style/AppTheme">
12    <activity android:name=".Second">
13        <intent-filter>
14            <action android:name="android.intent.action.MAIN" />
15
16            <category android:name="android.intent.category.LAUNCHER" />
17        </intent-filter>
18    </activity>
19    <activity android:name=".MainActivity">
20
21    </activity>
22 </application>
23
24 </manifest>
```

- a- One.
- b- Two.
- c- Three
- d- Four

Q38- The image in this question includes the AndroidManifest.xml file for an Android app. What is the name of the launcher (startup) activity of this Android app?

```
1  <?xml version="1.0" encoding="utf-8"?>
2  <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3  package="com.example.myapplication">
4
5  <application
6      android:allowBackup="true"
7      android:icon="@mipmap/ic_launcher"
8      android:label="@string/app_name"
9      android:roundIcon="@mipmap/ic_launcher_round"
10     android:supportsRtl="true"
11     android:theme="@style/AppTheme">
12     <activity android:name=".Second">
13         <intent-filter>
14             <action android:name="android.intent.action.MAIN" />
15
16             <category android:name="android.intent.category.LAUNCHER" />
17         </intent-filter>
18     </activity>
19     <activity android:name=".MainActivity">
20
21     </activity>
22 </application>
23
24 </manifest>
```

- a- MainActivity
- b- Second
- c- Root
- d- Launcher

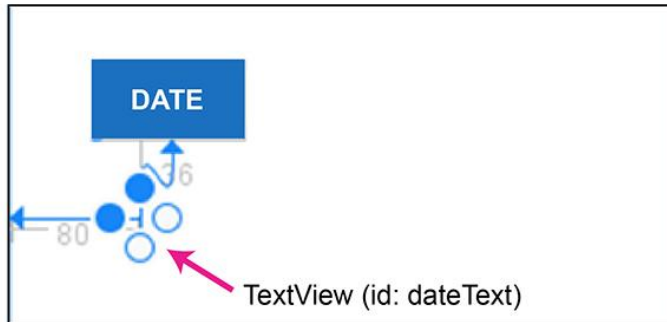
Q39- If a company asked you to create an Android app for a restaurant menu. This restaurant customers will use the menu to select their order. This menu consists of a list of items and each item includes an image, item name, and some details about it. Also, the customer can search about the item which he/she would like to order. The customer can scroll this restaurant menu vertically.

Which of the following Android widgets you will use in designing this restaurant menu?

- a- Bottom AppBar and SearchView widgets.
- b- RecyclerView and SearchView widgets.
- c- CardView and SearchView widgets.
- d- RecyclerView and FindView widgets.

Q40- The image in this question includes a code for an Android app which consists of one activity called MainActivity. This activity includes a DatePickerDialog class (Date Picker). Which of the choices below represents the red question marks in the MainActivity code file?

activity_main.xml File:



The MainActivity File:

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

        dateBtn.setOnClickListener {
            val c = Calendar.getInstance()
            val day= c.get(Calendar.DAY_OF_MONTH)
            val month =c.get(Calendar.MONTH)
            val year =c.get(Calendar.YEAR)

            val myDatePicker =
            DatePickerDialog( this,android.R.style.ThemeOverlay ,DatePickerDialog.On
            DateSetListener { DatePicker, Year,Month,Day ->
                dateText.text = "$ Day / ${ Month+ 1 } / $ Year " ,year,month,day)
                myDatePicker. ??? ( )
            }
        }
    }
}
```

- a- push
- b- get
- c- show
- d- send

Q41- The XML code in the image below must be added to your Android app to allow permissions to display the user’s app location on Google map.

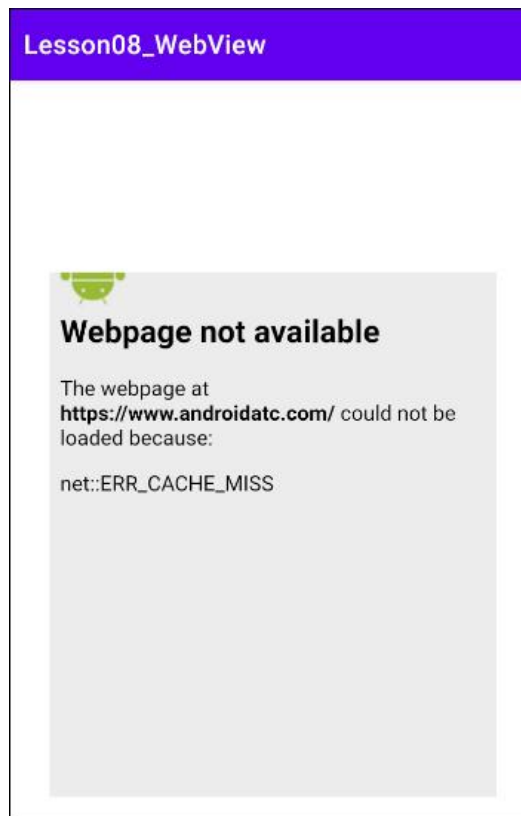
```
<uses-permissionandroid:name="android.permission.ACCESS_FINE_LOCATION"/>
```

Where this code must be added? Select the best answer of the choices below:

- a- maps.xml file
- b- activity_main.xml file
- c- AndroidManifest.xml file.
- d- APIkeys.xml file

Q42- An Android developer has added a webview class to an Android app to display an Internet web site inside an app activity. However, when he runs this Android app, he gets the run result illustrated in this question image.

If this developer asked your help, which of the choice below you will select to troubleshoot this problem?



a- Ask the developer to add the following tag to the **AndroidManifest** file in this app:

```
<uses-permission android:name="android.permission.INTERNET" />
```

b- Ask the developer to restart his app.

c- Ask the developer to disable the WiFi and use mobile data for the Android device or emulator to access internet connection.

d- Ask the developer to enable the GPS location

Q43- When you build an Android app, you can use an Android emulator to test your app UI (user interface) and its work flow. However, you can NOT test this app on a real Android device before publishing your app on Google Play store.

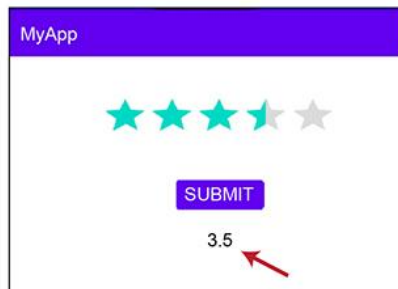
a- True

b- False

Q44- The MainActivity Kotlin file in this question is for an Android app. The run result of this app displays a rating bar. When the app user selects the number of stars then clicks the SUBMIT button, he will get the rating as value below the SUBMIT button as illustrated in the image of this question.

Which of the choices below describes the rateText in this MainActivity file?

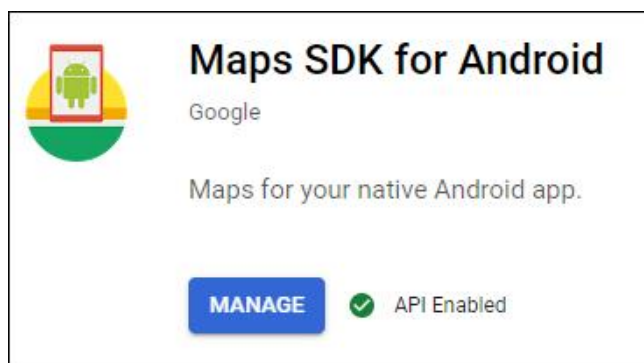
```
class MainActivity : AppCompatActivity() {  
    override fun onCreate(savedInstanceState: Bundle?) {  
        super.onCreate(savedInstanceState)  
        setContentView(R.layout.activity_main)  
  
        submitBtn.setOnClickListener {  
            rateText.text = myRatingBar.rating.toString()  
        }  
    }  
}
```



- a- rateText is a class used to display the five stars in the rating bar.
- b- rateText is the id value of the TextView widget which is used to display the rating bar value.
- c- rateText is a method used to display the SUBMIT button.
- d- rateText is the text value of the TextView widget which is used to display the rating bar value.

Q45- Assume that you have generated a Google API key and enabled the Maps SDK for Android at the Google cloud platform web server as illustrated in the image below.

Where will you add your Google API key in your Android app ? Select the best answer of the choices below:



- a- maps.xml
- b- activity_main.xml
- c- MainActivity
- d- AndroidManifest.xml

Question Number	Answer
Q1	B
Q2	A
Q3	A
Q4	A
Q5	A
Q6	B
Q7	A
Q8	A
Q9	B
Q10	A
Q11	B
Q12	B
Q13	A
Q14	A
Q15	A
Q16	A
Q17	A
Q18	C
Q19	D
Q20	A
Q21	D
Q22	D
Q23	A
Q24	D
Q25	B
Q26	A
Q27	B
Q28	D
Q29	A
Q30	B
Q31	B
Q32	B
Q33	A
Q34	D
Q35	C
Q36	C
Q37	B
Q38	B
Q39	B
Q40	C
Q41	C
Q42	A
Q43	B
Q44	B
Q45	D