FINAL EXAM / *PEPERIKSAAN AKHIR*
SEMESTER I – SESSION 2021 / 2022
PROGRAM KERJASAMA

COURSE CODE   : DDWC 2713
KOD KURSUS

COURSE NAME   : MOBILE PROGRAMMING
NAMA KURSUS   PENGATURCARAAN MUDAH ALIH

YEAR / PROGRAMME : 3 DDWZ
TAHUN / PROGRAM

DURATION   : 3 HOURS (INCLUDING SUBMISSION HOUR)
TEMPOH   *3 JAM (TERMASUK MASA PENGHANTARAN)*

DATE   :   JANUARY 2022
TARIKH

INSTRUCTION /*ARAHAN*

1. The question paper consists of 4 sections: A, B, C and D.
    Kertas soalan terdiri daripada 4 bahagian: A, B, C dan D.

2. Answer **ALL** questions in the answer script attachment.
    *Jawab **SEMUA** soalan dalam lampiran skrip jawapan.*

3. Write your name, matric no., identity card no. , course code, course name, section no. and lecturer's name on the first page (in the upper left corner) and every page thereafter on the answer sheet.
    Tulis nama anda, no. matrik, no. kad pengenalan, kod kursus, nama kursus, no. seksyen dan nama pensyarah pada muka surat pertama (penjuru kiri atas) kertas jawapan dan pada setiap muka surat jawapan.

4. Each answer sheet must have a page number written at the bottom right corner.
    Setiap helai kertas jawapan mesti ditulis nombor muka surat pada bahagian bawah penjuru kanan.

5. Answers should be handwriting, neat and clear.
    Jawapan hendaklah ditulis tangan, kemas dan jelas menggunakan huruf cerai.

WARNING / AMARAN
Students caught copying / cheating during the examination will be liable for disciplinary actions and the faculty may recommend the student to be expelled from sitting for exam.
Pelajar yang ditangkap meniru / menipu semasa peperiksaan akan dikenakan tindakan disiplin dan pihak fakulti boleh mengesyorkan pelajar diusir dari menduduki peperiksaan.

This examination paper consists of 21 pages including the cover
Kertas soalan ini mengandungi 21 muka surat termasuk kulit hadapan

ONLINE EXAMINATION RULES AND REGULATIONS
PERATURAN PEPERIKSAAN SECARA DALAM TALIAN

1. Student must carefully listen and follow instructions provided by invigilator.

   Pelajar mesti mendengar dan mengikuti arahan yang diberikan oleh pengawas peperiksaan dengan teliti.

2. Student is allowed to start examination only after confirmation of invigilator if all needed conditions are implemented.

   Pelajar dibenarkan memulakan peperiksaan hanya setelah pengesahan pengawas peperiksaan sekiranya semua syarat yang diperlukan telah dilaksanakan.

3. During all examination session student has to ensure, that he is alone in the room.

   Semasa semua sesi peperiksaan pelajar harus memastikan bahawa dia bersendirian di dalam bilik.

4. During all examination session student is not allowed to use any other devices, applications except other sites permitted by course lecturer.

   Sepanjang sesi peperiksaan pelajar tidak dibenarkan menggunakan peranti dan aplikasi lain kecuali yang dibenarkan oleh pensyarah kursus.

5. After completing the exam student must inform invigilator via the set communication platform (eg. WhatsApp etc.) about completion of exam and after invigilator's confirmation leave examination session.

   Selepas peperiksaan selesai, pelajar mesti memaklumkan kepada pengawas peperiksaan melalui platform komunikasi yang ditetapkan (contoh: Whatsapp dan lain-lain) mengenai peperiksaan yang telah selesai dan meninggalkan sesi peperiksaan selepas mendapat pengesahan daripada pengawas peperiksaan.

6. Any technical issues in submitting answers online have to be informed to respective lecturer within the given 30 minutes. Request for re-examination or appeal will not be entertain if complains are not made by students to their lecturers within the given 30 minutes.

   Sebarang masalah teknikal dalam menghantar jawapan secara dalam talian perlu dimaklumkan kepada pensyarah masing-masing dalam masa 30 minit yang diberikan. Permintaan untuk pemeriksaan semula atau rayuan tidak akan dilayan sekiranya aduan tidak dibuat oleh pelajar kepada pensyarah mereka dalam masa 30 minit yang diberikan.

7. During online examination, the integrity and honesty of the student is also tested. At any circumstances student is not allowed to cheat during examination session. If any kind of cheating behaviour is observed, UTM have a right to follow related terms and provisions stated in the respective Academic Regulations and apply needed measures.

   Semasa peperiksaan dalam talian, integriti dan kejujuran pelajar juga diuji. Walau apa pun keadaan pelajar tidak dibenarkan menipu semasa sesi peperiksaan. Sekiranya terdapat sebarang salah laku, UTM berhak untuk mengikuti terma yang dinyatakan dalam Peraturan Akademik.

Excerpts from online final exam guidelines

Petikan daripada panduan peperiksaan akhir dalam talian

Universiti Teknologi Malaysia

SECTION A : TRUE FALSE [10 MARKS]

BAHAGIAN A : BENAR SALAH [10 MARKAH]

Instruction: Write your answers True / False in the provided spaces at page 4.

Arahan: Tuliskan jawapan anda Betul / Salah dalam ruangan yang disediakan di halaman 4.

1. The first version of Android was released without an actual phone on the market.

   Versi pertama Android dilancarkan tanpa telefon sebenar di pasaran.

2. You cannot set a custom layout for a **Toast**.

   *Anda tidak dapat menetapkan susun atur khas untuk **Toast**.*

3. Adb is short for **Android Debug Bridge**. Its basic function is to allow and control communication towards and from the database port.

   *Adb adalah kependekan dari **Android Debug Bridge**. Fungsi asasnya adalah untuk membenarkan dan mengawal komunikasi ke dan dari port pangkalan data.*

4. **Gradle** is used to configure a link between two Android activities in the same Android application.

   ***Gradle** digunakan untuk mengkonfigurasi hubungan antara dua aktiviti Android dalam aplikasi Android yang sama.*

5. The following Android code will show the small popup message **"Message saved as draft"** for 3.5 seconds and then automatically disappears:

   *Kod Android berikut akan memaparkan kemunculan mesej kecil **"Message saved as draft"** selama 3.5 saat, dan kemudian hilang secara automatik:*

        Toast.makeText(this, "Message saved as draft", Toast.LENGTH_LONG).show( )

6. There are only two type of menus are supported by Android: **Option menu** and **Context menu**.

   *Hanya ada dua jenis menu yang disokong oleh Android: **Option menu** dan **Context menu**.*

7. In library **android.view** contains the basic classes used for developing graphical user interface and for handling the user's interaction with the user interface.

   *Dalam perpustakaan **android.view** mengandungi kelas asas yang digunakan untuk membangunkan grafik antaramuka pengguna dan untuk menangani interaksi pengguna dengan antaramuka pengguna.*

8. The abbreviation **apk** extension is an abbreviation for **Application Program Kit**.

   *Singkatan sambungan **apk** merupakan penyingkatan kepada **Application Program Kit**.*

9. The **emulator** can emulate and simulate all aspects of a smart phone like the real device.

   ***Emulator** boleh meniru dan mensimulasikan semua aspek telefon pintar seperti peranti sebenar.*

10. Callback method **onPause()** will be call when the *activity is at the background and still visible*.

    *Panggilan balik kaedah **onPause()** akan dipanggil semasa aktiviti berada di latar belakang dan masih dapat dilihat.*

ANSWER SECTION / *RUANGAN JAWAPAN*

Answers for Section A	[10M]
Jawapan untuk Bahagian A:	

Question / *Soalan*	Answer/ *Jawapan*
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Answers for Section B	[30M]
Jawapan untuk Bahagian B:	

Question / *Soalan*	Answer/ *Jawapan*
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

SECTION B: OBJECTIVE [30 MARKS] /

BAHAGIAN B: OBJEKTIF [30 MARKAH]

Instruction: Write your answers in the provided spaces at page 4.

Arahan: Tuliskan jawapan dalam ruangan yang disediakan di halaman 4.

---

1. "A set of libraries and APIs that provide necessary classes, methods and interfaces to develop Android applications and allow you to compile your code". This statement is refering to _____ .

   "Satu set perpustakaan dan API yang menyediakan kelas, kaedah dan antara muka yang diperlukan untuk mengembangkan aplikasi Android dan membolehkan anda menyusun kod anda". Penyataan ini merujuk kepada _____ .

   A. JAVA SDK

   B. Android SDK

   C. Android Studio

   D. Google Library

2. Which file specifies the minimum required Android SDK version that the application will supports?

   A. Manifest.xml

   B. dimens.xml

   C. build.gradle

   D. R.java
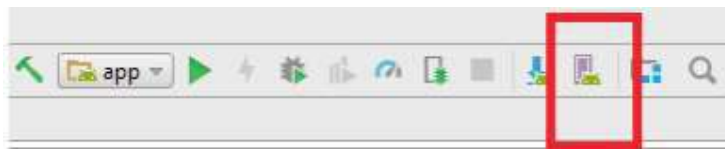
3. What method should be call to shut down an activity?

   Kaedah apa yang harus dipanggil untuk menghentikan aktiviti?

   A. onDestroy()

   B. exit()

   C. finish()

   D. close()

4. The image below displays part of Android Studio tool bar. What does the button illustrated with a red rectangle represent?

   Gambar dibawah memaparkan bahagian bar alat Android Studio. Apakah perwakilan butang yang digambarkan dengan segiempat merah?

   A. AVD Manager

   B. SDK Manager

   C. Device File Explorer

   D. Emulator

5. A state when an activity lost the focus and not visible anymore. The system can also kill it if there is a situation of extremely low memory. This is referring to _____.

    Suatu keadaan apabila aktiviti hilang tumpuan dan tidak kelihatan lagi. Sistem juga boleh mematikannya jika terdapat keadaan memori yang sangat rendah. Ini merujuk kepada _____.

    A. onCreate()

    B. onPause()

    C. onStop()

    D. onDestroy()

6. The following image shows part of the content inside file **activity_main.xml** in an Android application. Which of the following options is CORRECT?

    *Gambar berikut menunjukkan sebahagian kandungan di dalam file **activity_main.xml** dalam aplikasi Android. Antara pilihan berikut yang manakah BENAR?*

    ```
    <RadioGroup>
        <RadioButton
        android:id="@+id/ radioYes "
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"/>

        <RadioButton
        android:id="@+id/ radioNo "
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"/>
    </RadioGroup>
    ```

    A. The app user can select one radio button only at a time.

    Pengguna aplikasi hanya boleh memilih satu butang radio dalam satu masa.

    B. The app user can select the two radio buttons at the same time.

    Pengguna aplikasi boleh memilih dua butang radio pada masa yang sama.

    C. The app user can deselect the two radio buttons at the same time.

    Pengguna aplikasi boleh membatalkan pilihan kedua butang radio pada masa yang sama.

    D. There is error inside this code.

    Terdapat ralat di dalam kod ini.

7. The _____ is a layout that arranges view either _____ in a single column or _____ in a single row.

    _____ adalah susun atur yang menyusun pandangan sama ada _____ dalam satu lajur atau _____ dalam satu baris.

    A. TableLayout, vertically, horizontally

    B. TableLayout, horizontally, vertically

    C. LinearLayout, vertically, horizontally

    D. LinearLayout, horizontally, vertically

8. Attribute **android:textSize** use to change the font size of a text in Android layout. Which of the following choices is the recommended syntax to change the font size to 20?

   *Atribut **android: textSize** use untuk mengubah saiz fon teks dalam susun atur Android. Antara pilihan berikut yang manakah sintaks yang disarankan untuk menukar saiz fon menjadi 20?*

   A. android:textSize="20point"

   B. android:textSize="20dp"

   C. android:textSize="20sp"

   D. android:textSize="20sd"

9. If Android application creates a SQLite database, which of the following is the default directory to save this database file?

   Sekiranya aplikasi Android membuat pangkalan data SQLite, yang manakah berikut adalah direktori lalai untuk menyimpan fail pangkalan data ini?

   A. /data/data/APP_NAME/databases/DATABASE_FILE

   B. /dataSQL/data/APP_NAME/databases/DATABASE_FILE

   C. /database/data/APP_NAME/databases/DATABASE_FILE_SQLApp

   D. /database/SQLite_Data/APP_NAME/databases/DATABASE_FILE

10. Which configuration file holds the permission to access the camera?

    Fail konfigurasi yang memegang kebenaran untuk mengakses kamera?

    A. Manifest file

    B. Layout file

    C. Property file

    D. Java source file

11. Which of these is the INCORRECT method for an application to save local data?

    Manakah antara berikut adalah kaedah yang SALAH untuk aplikasi menyimpan data setempat?

    A. Extend PreferencesActivity and save in an XML file.

       Extend PreferencesActivity dan simpan dalam fail XML.

    B. Save as a file in the local file system.

       Simpan sebagai fail dalam sistem fail setempat.

    C. Save in the database using SQLite.

       Simpan dalam pangkalan data menggunakan SQLite.

    D. All Above is CORRECT method.

       Kesemua di atas adalah kaedah yang BETUL.

12. Which of the following is a CORRECT statement permission to access internet?

 Manakah antara berikut adalah BENAR untuk penyataan membenarkan pencapaian internet?

 A. <uses-permission android:name ="android.permission.Internet">

 B. <uses-permission android:name ="android. permission .Internet"/>

 C. <uses-permission android:name ="android.Internet"/>

 D. <uses-permission android:name ="android.Internet"></uses-permission>

13. Assume that there are two activities in an application named as FirstActivity and SecondActivity. A website address will be send from FirstActivity to Second Activity. What should the code look like? The website url is "https://kl.utm.my".

 Andaikan terdapat dua aktiviti dalam aplikasi yang dinamakan FirstActivity dan SecondActivity. Alamat laman web akan dihantar dari FirstActivity ke Second Activity. Seperti apa kod itu?

 Url laman web adalah "https://kl.utm.my".

 A. Intent intent=new Intent (FirstActivity.class, SecondActivity.class);
    intent.putExtra("url", "https://kl.utm.my");
    startActivity(intent);

 B. Intent intent=new Intent (FirstActivity.this, SecondActivity.class);
    intent.putExtra("url", "https://kl.utm.my");
    startActivity(intent);

 C. Intent intent=new Intent (FirstActivity.this, SecondActivity.class);
    intent.putString("url", "https://kl.utm.my");
    startActivity(intent);

 D. Intent intent=new Intent (FirstActivity.this, SecondActivity.class);
    intent.putString("https://kl.utm.my");
    startActivity(intent);

14. By referring the Figure below, if having an images with the size of 800*800 in XXXHDPI, what is the size of the images in HDPI?

    *Dengan merujuk Gambar di bawah, jika terrdapat satu gambar dengan ukuran 800 * 800 dalam XXXHDPI, berapakah ukuran gambar dalam HDPI?.*

    A. 150x150.
    B. 200x200
    C. 300x300
    D. 400x400

15. Which format data below that use to store data using SharedPreferences?

    Data format manakah di bawah yang digunakan untuk menyimpan data SharedPreferences?

    A. xml
    B. txt
    C. doc
    D. tif

SECTION C: STRUCTURE [30 MARKS]
BAHAGIAN C: STRUKTUR [30 MARKAH]

Instruction: Write your answers in the spaces provided in attachment answer script.

Arahan: Tuliskan jawapan di ruang yang disediakan di dalam kertas jawapan yang di lampirkan.

QUESTION / *SOALAN* 1

a) What is Android?   **[1M]**

   Apa itu Android?

b)   Describe TWO (2) characteristics of mobile application.   **[2M]**

   Huraikan DUA (2) ciri-ciri aplikasi mudah alih.

c)   What is the Google Android SDK.   **[2M]**

   Apa itu Google Android SDK.

d) Android devices come supplied with several hardware features such as camera that can use to build apps. List **ONE (1)** other android hardware features and describe what it can do.   **[2M]**

   *Peranti Android dibekalkan dengan beberapa ciri perkakasan seperti kamera yang boleh digunakan untuk membina aplikasi. Senaraikan **SATU (1)** ciri perkakasan android yang lain dan terangkan apa yang boleh dilakukannya.*

e) What is the latest version android API codename?   **[1M]**

   Apakah kod nama android API paling terkini?

f)   List **TWO (2)** advantages of android.   **[2M]**

   *Senaraikan **DUA (2)** kebaikan android.*

QUESTION / *SOALAN* 2

a) Android app can be run on several ways in Android Studio. Explain one of the way how to run the apps and give one advantages of using it.   **[3M]**

   App Android boleh dilarikan dengan beberapa cara dalam Android Studio. Terangkan salah satu cara bagaimana untuk melarikan app dan berikan satu kelebihan penggunaannya.

b) There are differences between **Activity** and **Fragment**. Explain why these differences exist.   **[2M]**

   *Terdapat perbezaan di antara **Activity** dan **Fragment**. Terangkan kenapa wujudnya perbezaan ini.*

QUESTION / *SOALAN* 3

a) Explain what is a **View** and a **ViewGroup**. Give 1 example each.   **[3M]**

   *Terangkan apakah **View** dan **ViewGroup**. Berikan 1 contoh setiap satu.*

b)   What is the difference between **linear** layout and **constraint** layout?   **[2M]**

   *Apakah perbezaan antara susun atur **linear** dan susun atur **constraint**?*

c) During runtime, XML UI **signup_activity.xml** is load in the onCreate() method handler in Activity class. Show this statement in below code. **1M]**

*Semasa masa larian, **signup_activity.xml** XML UI dimuatkan ke dalam fungsi pengendali onCreate() dalam kelas Aktiviti. Tunjukkan pernyataan ini dalam kod di bawah.*

```
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);

}
```

QUESTION / *SOALAN* 4

Given below the **layout** UI XML. Answer question a and b.

*Bawah diberikan **layout** UI XML. Jawap soalan a dan b.*

```
activity_input.xml
```

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:orientation="vertical">

    <TextView
        android:id="@+id/textView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="@string/text_name1" />

    <EditText android:id="@+id/edit_message"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="@string/text_name2" />

    <Button android:id="@+id/button_send"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/text_name4"
        android:layout_gravity="center"
        android:onClick="sendMessage" />
</LinearLayout>
```

```
strings.xml
```

```xml
<resources>
    <string name="app_name">My Test</string>
    <string name="text_name1">Enter Your Name Here</string>
    <string name="text_name2">type here</string>
    <string name="text_name3">Name:</string>
    <string name="text_name4">Click When Done</string>
</resources>
```

a) What function will be call when user click button inside above layout. **[1M]**

Fungsi apakah yang dipanggil apabila pengguna menekan butang di dalam paparan di atas.

b)   Complete the java file below.   **[3M]**

  Lengkapkan fail java berikut.

```
public class InputActivity extends AppCompatActivity {

   @Override

   protected void onCreate(Bundle savedInstanceState) {

     super.onCreate(savedInstanceState);

     _____i_____//initiate display layout activity

                                             //mulakan paparan susun atur aktiviti

     EditText editText = _____ii_____ //initiate edittext

                                             //mulakan kekotak teks


     Button saveBtn = _____iii_____ //initiate button

                                             //mulakan butang

   }
}
```

QUESTION / *SOALAN* 5

a)   What make the app become a problem to user. Choose and describe only one factor of bad app, give example of it and purpose suggestion how to solve the problem.   **[5M]**
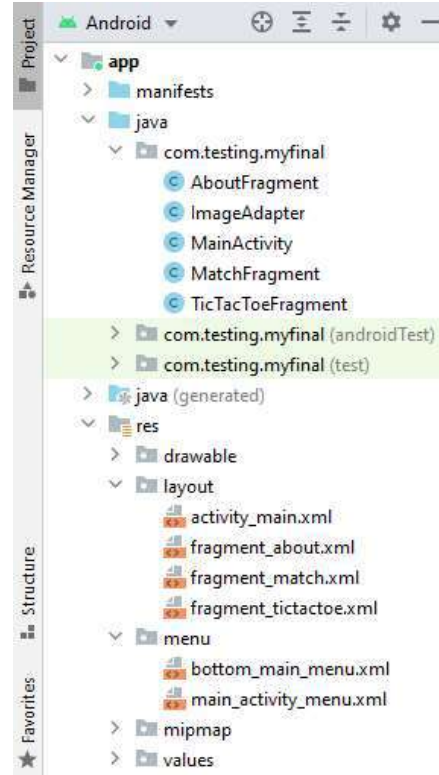
  Apa yang menjadikan app menjadi masalah kepada pengguna. Pilih dan terangkan hanya satu faktor app yang tidak baik, berikan contohnya dan cadangkan bagaimana menyelesaikan masalah itu.

SECTION D: PROGRAMMING [30 MARKS]

BAHAGIAN D: PENGATURCARAAN [30 MARKAH]

a) Complete the following codes to produce the app below.

   Lengkapkan kod-kod berikut untuk menghasilkan app di bawah.

Inside AndroidManifest.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package=                  (1) - [1M]

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

                              (2) - [4M]



    </application>
</manifest>
```

Inside MainActivity.java

```java
public class MainActivity extends AppCompatActivity {
    private BottomNavigationView bottomNavigation;

    [ (3) - [3M] ]

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        openFragment(game1Fragment);
        bottomNavigation = findViewById(R.id.navigation);
        bottomNavigation.setOnItemSelectedListener(new NavigationBarView.OnItemSelectedListener() {
            @Override
            public boolean onNavigationItemSelected(@NonNull MenuItem item) {
                switch (item.getItemId()) {
                    case  (4) - [1M]
                        openFragment(game1Fragment);
                        return true;
                    case  (5) - [1M]
                        openFragment(game2Fragment);
                        return true;
                }
                return false;
            }
        });
    }

    @Override
    public boolean  (6) - [1M]  {
        getMenuInflater().inflate(R.menu.main_activity_menu, menu);
        return true;
    }

    @Override
    public boolean  (7) - [1M]  {
        switch (item.getItemId()) {
            case  (8) - [1M]
                if (game2Fragment.isVisible()){
                    if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.N) {
                        getSupportFragmentManager() FragmentManager
                                .beginTransaction() FragmentTransaction
                                .detach(game2Fragment)
                                .commitNow();
                        getSupportFragmentManager() FragmentManager
                                .beginTransaction() FragmentTransaction
                                .attach(game2Fragment)
                                .commitNow();

                    } else {
                        getSupportFragmentManager() FragmentManager
                                .beginTransaction() FragmentTransaction
                                .detach(game2Fragment)
                                .attach(game2Fragment)
                                .commit();
                    }
                }
```

```java
                return true;
            case          (9) - [1M]
                openFragment(aboutFragment);
                return true;
            default:
                return super.onOptionsItemSelected(item);
        }
    }

    private boolean openFragment(Fragment fragment) {
        if (fragment != null) {
            getSupportFragmentManager()  FragmentManager
                    .beginTransaction()  FragmentTransaction
                    .replace(R.id.fragment_container, fragment)
                    .commit();
            return true;
        }
        return false;
    }
}
```

Inside activity_main.xml

```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"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/container"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <FrameLayout
        android:id="@+id/fragment_container"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_marginBottom="56dp"
        android:text="Tic Tac Toe Game"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <com.google.android.material.bottomnavigation.BottomNavigationView
        android:id="@+id/navigation"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:menu="@menu/bottom_main_menu" />

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

Inside bottom_main_menu.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/tictactoe_game1"
        android:icon="@drawable/ic_game2"
        android:title="Tic Tac Toe Game" />
    <item
        android:id="@+id/memory_game2"
        android:icon="@drawable/ic_game1"
        android:title="Memory Game" />
</menu>
```

(10) - [1M]

(11) - [1M]

Inside main_activity_menu.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:app="http://schemas.android.com/apk/res-auto"
      xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/refresh_menu"
        android:icon="@drawable/ic_refresh"
        android:title="refresh"
        app:showAsAction="always" />
    <item
        android:id="@+id/about_menu"
        android:title="About" />
</menu>
```

Inside strings.xml

```xml
<resources>
    <string name="app_name">Final Game</string>
    <string name="TittleTicTacToe">Tic Tac Toe Game</string>
    <string name="TittleMemory">Memory Game</string>
</resources>
```

Inside MatchFragment.java

```java
public class MatchFragment extends Fragment {
    ImageView curView = null;
    private int countPair = 0;
    final int[] drawable = new int[] {
            R.drawable.sample_0,
            R.drawable.sample_1,
            R.drawable.sample_2,
            R.drawable.sample_3,
            R.drawable.sample_4,
            R.drawable.sample_5,
            R.drawable.sample_6,
            R.drawable.sample_7
    };
    int[] pos = {0,1,2,3,4,5,6,7,0,1,2,3,4,5,6,7};
    int currentPos = -1;

    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                             Bundle savedInstanceState) {
        // Inflate the layout for this fragment
```

(12) - [2M]

```java
        ImageAdapter imageAdapter = new ImageAdapter(getActivity());
        GridView gridView = (GridView)root.findViewById(R.id.gridView);
        gridView.setAdapter(imageAdapter);
        gridView.setOnItemClickListener(new AdapterView.OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> parent, View view, int position, long id) {
                if (currentPos < 0 ) {
                    currentPos = position;
                    curView = (ImageView) view;
                    ((ImageView) view).setImageResource(drawable[pos[position]]);
                }
                else {
                    if (currentPos == position) {
                        ((ImageView) view).setImageResource(R.drawable.hidden);
```

Inside fragment_tictactoe.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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:orientation="vertical">
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal">
        <TextView
            android:id="@+id/text_view_p1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:padding="10dp"
            android:freezesText="true"
            android:text="Player 1: 0"
            android:textSize="30sp" />
        <TextView
            android:id="@+id/text_view_p2"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:padding="10dp"
            android:freezesText="true"
            android:text="Player 2: 0"
            android:textSize="30sp" />

    </LinearLayout>
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="1">
        <Button
            android:id="@+id/button_00"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_margin="5dp"
            android:layout_weight="1"
            android:freezesText="true"
            android:textSize="60sp"
            tools:ignore="SpeakableTextPresentCheck" />
```

```xml
    <Button
        android:id="@+id/button_01"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_margin="5dp"
        android:layout_weight="1"

    <Button
        android:id="@+id/button_02"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_margin="5dp"
        android:layout_weight="1"
        android:freezesText="true"
        android:textSize="60sp"
        tools:ignore="SpeakableTextPresentCheck" />
</LinearLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="0dp"
    android:layout_weight="1">
    <Button
        android:id="@+id/button_10"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_margin="5dp"
        android:layout_weight="1"
        android:freezesText="true"
        android:textSize="60sp"
        tools:ignore="SpeakableTextPresentCheck" />

    <Button
        android:id="@+id/button_11"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_margin="5dp"
        android:layout_weight="1"
        android:freezesText="true"
        android:textSize="60sp"
        tools:ignore="SpeakableTextPresentCheck" />
```

```xml
        <Button
            android:id="@+id/button_12"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_margin="5dp"
            android:layout_weight="1"
            android:freezesText="true"
            android:textSize="60sp"
            tools:ignore="SpeakableTextPresentCheck" />
    </LinearLayout>
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="1">

        <Button
            android:id="@+id/button_20"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_margin="5dp"
            android:layout_weight="1"
            android:freezesText="true"
            android:textSize="60sp"
            tools:ignore="SpeakableTextPresentCheck" />

        <Button
            android:id="@+id/button_21"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_margin="5dp"
            android:layout_weight="1"
            android:freezesText="true"
            android:textSize="60sp"
            tools:ignore="SpeakableTextPresentCheck" />

        <Button
            android:id="@+id/button_22"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_margin="5dp"
            android:layout_weight="1"
            android:freezesText="true"
            android:textSize="60sp"
            tools:ignore="SpeakableTextPresentCheck" />
    </LinearLayout>
</LinearLayout>
```

b) Display the **layout** UI **fragment_tictactoe.xml** above when it appears on the screen.   **[12M]**

   *Paparkan **layout** UI **fragment_tictactoe.xml** di atas apabila ianya.muncul di atas skrin.*

END OF QUESTIONS/ *SOALAN TAMAT* –