

Q6. Develop an app that include broadcast Receiver to receive the miss calls from the Known number and display it to the user using notification services. This same app should also fetch phone number from the inbuilt contacts using the concept of content provider.

- a. How to use broadcast receiver and notifications.
- b. How to use content providers.

6a:

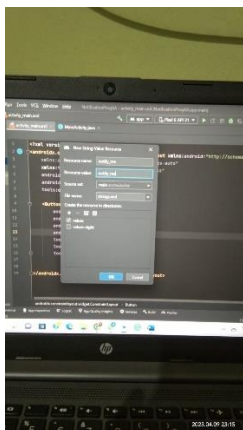
Activity main.xml

```
<?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"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/buttonNotify"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/notify_me"
        tools:layout_editor_absoluteX="33dp"
        tools:layout_editor_absoluteY="40dp"
        tools:ignore="MissingConstraints" />

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

Note: add a resource value



Main_activity.java

```
package com.example.notificationprog6a;

import android.app.Notification;
import android.app.NotificationChannel;
import android.app.NotificationManager;
import android.app.PendingIntent;
import android.app.TaskStackBuilder;
import android.content.Context;
import android.content.Intent;
import android.os.Bundle;
import android.widget.Button;

import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.NotificationCompat;

@SuppressWarnings("ALL")
public class MainActivity extends AppCompatActivity {
    Button but;
    Context context=MainActivity.this;
    String CHANNEL_ID="my_channel_01";
    CharSequence name = "my_channel";
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        but= findViewById(R.id.buttonNotify);
        NotificationManager notificationManager = (NotificationManager)
context.getSystemService(Context.NOTIFICATION_SERVICE);

        but.setOnClickListener(v -> {
            NotificationChannel mChannel = new NotificationChannel(CHANNEL_ID, name,
NotificationManager.IMPORTANCE_HIGH);
            notificationManager.createNotificationChannel(mChannel);

            Intent notificationIntent = new Intent(context, MainActivity.class);

            TaskStackBuilder stackBuilder = TaskStackBuilder.create(context);
            stackBuilder.addParentStack(MainActivity.class);
            stackBuilder.addNextIntent(notificationIntent);

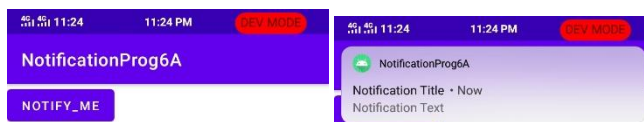
            PendingIntent pendingIntent = stackBuilder.getPendingIntent(0,
PendingIntent.FLAG_IMMUTABLE);
```

```
NotificationCompat.Builder builder = new  
NotificationCompat.Builder(context, CHANNEL_ID);
```

```
Notification notification = builder.setContentTitle("Notification Title")  
    .setContentText("Notification Text")  
    .setTicker("Test!")  
    .setSmallIcon(R.mipmap.ic_launcher)  
    .setAutoCancel(true)  
    .setContentIntent(pendingIntent).build();
```

```
notificationManager.notify(0, notification);  
});  
}  
}
```

Output:



Program 6b:

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"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/button"
        tools:layout_editor_absoluteX="33dp"
        tools:layout_editor_absoluteY="40dp"
        tools:ignore="MissingConstraints" />

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

Main activity.java

```
package com.example.contentprovider6b;

import android.Manifest;
import android.annotation.SuppressLint;
import android.app.Activity;
import android.content.Intent;
import android.database.Cursor;
import android.net.Uri;
import android.os.Bundle;
import android.provider.ContactsContract;
import android.widget.Button;
import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;

@SuppressWarnings("ALL")
public class MainActivity extends AppCompatActivity {

    public static final int RequestPermissionCode = 1 ;
    @Override
```

```

protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    Button button = findViewById(R.id.button);
    EnableRuntimePermission();
    button.setOnClickListener(v -> {
        Intent intent = new Intent(Intent.ACTION_PICK,
ContactsContract.Contacts.CONTENT_URI);
        startActivityForResult(intent, 1);
    });
}

public void EnableRuntimePermission(){

    if (ActivityCompat.shouldShowRequestPermissionRationale(MainActivity.this,
Manifest.permission.READ_CONTACTS))
    {
        Toast.makeText(MainActivity.this,"CONTACTS permission allows us to Access
CONTACTS app", Toast.LENGTH_LONG).show();
    } else {
        ActivityCompat.requestPermissions(MainActivity.this,new String[]{
Manifest.permission.READ_CONTACTS}, RequestPermissionCode);
    }
}

@Override
public void onActivityResult(int requestCode, int resultCode, Intent data){
    super.onActivityResult(requestCode, resultCode, data);
    if (requestCode == 1) {
        if (resultCode == Activity.RESULT_OK) {
            Uri contactData = data.getData();
            try (Cursor c = managedQuery(contactData, null, null, null, null)) {
                if (c.moveToFirst()) {
                    String id =
c.getString(c.getColumnIndexOrThrow(ContactsContract.Contacts._ID));
                    @SuppressWarnings("Range")
                    String hasPhone =
c.getString(c.getColumnIndex(ContactsContract.Contacts.HAS_PHONE_NUMBER));
                    if (hasPhone.equalsIgnoreCase("1")) {
                        Cursor phones =
getContentResolver().query(ContactsContract.CommonDataKinds.Phone.CONTENT_URI,
null, ContactsContract.CommonDataKinds.Phone.CONTACT_ID + " = " + id, null, null);
                        phones.moveToFirst();
                        @SuppressWarnings("Range")
                        String cNumber =
phones.getString(phones.getColumnIndex(ContactsContract.CommonDataKinds.Phone.NU

```

```
MBER));  
        Toast.makeText(getApplicationContext(), cNumber,  
Toast.LENGTH_SHORT).show();  
        phones.close();  
    }  
}  
catch(Exception e)  
{  
    e.printStackTrace();  
}  
}  
}  
}
```

AndriodManifest.xml

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

Output:

