

```
import android.content.Intent;
import android.os.Bundle;
import android.speech.RecognitionService;
import android.speech.RecognizerIntent;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ArrayAdapter;
import android.widget.ImageView;
import android.widget.Spinner;
import android.widget.TableLayout;
import android.widget.TextView;
import android.widget.Toast;

import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.appcompat.app.AppCompatActivity;

import com.google.android.gms.tasks.OnFailureListener;
import com.google.android.gms.tasks.OnSuccessListener;
import com.google.android.material.button.MaterialButton;
import com.google.android.material.textfield.TextInputEditText;
import com.google.firebase.ml.common.modeldownload.FirebaseModelDownloadConditions;
import com.google.firebase.ml.naturallanguage.FirebaseNaturalLanguage;
import com.google.firebase.ml.naturallanguage.translate.FirebaseTranslateLanguage;
import com.google.firebase.ml.naturallanguage.translate.FirebaseTranslator;
import com.google.firebase.ml.naturallanguage.translate.FirebaseTranslatorOptions;

import java.util.ArrayList;
import java.util.Locale;

public class MainActivity extends AppCompatActivity {

    private Spinner fromSpinner, toSpinner;
    private TextInputEditText sourceEdt;
    private ImageView micIV;
    private MaterialButton translateBtn;
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private TextView translatedTV;

String[] fromLanguages = {"from", "English", "Telugu", "Arabic", "Tamil", "Bengali", "Marathi", "Czech", "Welsh",
"Hindi", "Urdu"};

String[] toLanguages = {"to", "English", "Telugu", "Arabic", "Tamil", "Bengali", "Marathi", "Czech", "Welsh", "Hindi",
"Urdu"};

private static final int REQUEST_PERMISSION_CODE = 1;
int languageCode, fromLanguageCode, toLanguageCode = 0;

@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

    fromSpinner = findViewById(R.id.idFromSpinner);
    toSpinner = findViewById(R.id.idToSpinner);
    sourceEdt = findViewById(R.id.idEdtSource);
    micIV = findViewById(R.id.idIVMic);
    translateBtn = findViewById(R.id.idBtnTranslate);
    translatedTV = findViewById(R.id.idTvTranslatedTV);

    fromSpinner.setOnItemClickListener(new AdapterView.OnItemClickListener() {
        @Override
        public void onItemClick(AdapterView<?> parent, View view, int position, long id) {
            fromLanguageCode = getLanguageCode(fromLanguages[position]);
        }

        @Override
        public void onNothingSelected(AdapterView<?> parent) {

        }
    });
    ArrayAdapter fromAdapter = new ArrayAdapter<String>(this, R.layout.spinner_item, fromLanguages);
    fromAdapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
    fromSpinner.setAdapter(fromAdapter);

    toSpinner.setOnItemClickListener(new AdapterView.OnItemClickListener() {
        @Override
        public void onItemClick(AdapterView<?> parent, View view, int position, long id) {
            toLanguageCode = getLanguageCode(toLanguages[position]);
        }

        @Override
        public void onNothingSelected(AdapterView<?> parent) {

        }
    });
    ArrayAdapter toAdapter = new ArrayAdapter<String>(this, R.layout.spinner_item, toLanguages);
    toAdapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
    toSpinner.setAdapter(toAdapter);

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translateBtn.setOnClickListener(new View.OnClickListener(){

    @Override
    public void onClick(View view){
        translatedTV.setText("");
        if(sourceEdt.getText().toString().isEmpty()){
            Toast.makeText(MainActivity.this, "Please enter your text to translate", Toast.LENGTH_SHORT).show();
        }else if(fromLanguageCode == 0){
            Toast.makeText(MainActivity.this, "Please select source language", Toast.LENGTH_SHORT).show();
        }else if(toLanguageCode == 0){
            Toast.makeText(MainActivity.this, "Please language to translate", Toast.LENGTH_SHORT).show();
        }else{
            translateText(fromLanguageCode, toLanguageCode, sourceEdt.getText().toString());
        }

    }

});

micIV.setOnClickListener(new View.OnClickListener(){
    @Override
    public void onClick(View v){
        Intent i = new Intent(RecognizerIntent.ACTION_RECOGNIZE_SPEECH);
        i.putExtra(RecognizerIntent.EXTRA_LANGUAGE_MODEL,
RecognizerIntent.LANGUAGE_MODEL_FREE_FORM);
        i.putExtra(RecognizerIntent.EXTRA_LANGUAGE, Locale.getDefault());
        i.putExtra(RecognizerIntent.EXTRA_PROMPT, "Speak to convert into text");
        try{
            startActivityForResult(i, REQUEST_PERMISSION_CODE);
        }catch (Exception e){
            e.printStackTrace();
            Toast.makeText(MainActivity.this, ""+e.getMessage(), Toast.LENGTH_SHORT).show();
        }

    }

});

}

@Override
protected void onActivityResult(int requestCode, int resultCode, @Nullable Intent data){
    super.onActivityResult(requestCode, resultCode, data);
    if(requestCode == REQUEST_PERMISSION_CODE){
        if(resultCode == RESULT_OK && data != null){
            ArrayList<String> result = data.getStringArrayListExtra(RecognizerIntent.EXTRA_RESULTS);
            sourceEdt.setText(result.get(0));
        }
    }
}

private void translateText(int fromLanguageCode, int toLanguageCode, String src) {
    translatedTV.setText("Downloading Modal...");
    FirebaseTranslatorOptions options = new
FirebaseTranslatorOptions.Builder().setSourceLanguage(fromLanguageCode).setTargetLanguage(toLanguageCode).build

```

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());

FirebaseTranslator translator = FirebaseNaturalLanguage.getInstance().getTranslator(options);

FirebaseModelDownloadConditions conditions = new FirebaseModelDownloadConditions.Builder().build();

translator.downloadModelIfNeeded(conditions).addOnSuccessListener(new OnSuccessListener<Void>() {
    @Override
    public void onSuccess(Void unused) {
        translatedTV.setText("Translating...");
        translator.translate(src).addOnSuccessListener(new OnSuccessListener<String>() {
            @Override
            public void onSuccess(String s) {
                translatedTV.setText(s);
            }
        }).addOnFailureListener(new OnFailureListener() {
            @Override
            public void onFailure(@NonNull Exception e) {
                Toast.makeText(MainActivity.this, "Fail to translate: " + e.getMessage(), Toast.LENGTH_SHORT).show();
            }
        });
    }
}).addOnFailureListener(new OnFailureListener() {
    @Override
    public void onFailure(@NonNull Exception e) {
        Toast.makeText(MainActivity.this, "Fail to download the language: " + e.getMessage(),
        Toast.LENGTH_SHORT).show();
    }
});
}

private int getLanguageCode(String language) {

    int LanguageCode = 0;

    switch (language){
        case "English":
            LanguageCode = FirebaseTranslateLanguage.EN;
            break;
        case "Telugu":
            LanguageCode = FirebaseTranslateLanguage.TE;
            break;
        case "Arabic":
            LanguageCode = FirebaseTranslateLanguage.AR;
            break;
        case "Tamil":
            LanguageCode = FirebaseTranslateLanguage.TA;
            break;
        case "Bengali":
            LanguageCode = FirebaseTranslateLanguage.BN;
            break;
        case "Marathi":
            LanguageCode = FirebaseTranslateLanguage.MR;
            break;
        case "Czech":

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        LanguageCode = FirebaseTranslateLanguage.CS;
        break;
    case "Welsh":
        LanguageCode = FirebaseTranslateLanguage.CY;
        break;
    case "Hindi":
        LanguageCode = FirebaseTranslateLanguage.HI;
        break;
    case "Urdu":
        LanguageCode = FirebaseTranslateLanguage.UR;
        break;
    default:
        LanguageCode = 0;
    }
    return LanguageCode;
}

}

```

activity_main.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"
    tools:context=".MainActivity"
    style="@style/AppTheme.MaterialTheme">

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Language Translator"
        android:textAlignment="center"
        android:layout_marginTop="20dp"
        android:textSize="20sp"
        android:textColor="@color/black_shade_1"
        android:gravity="center"
        android:textStyle="bold"
        android:padding="4dp"
    />

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:weightSum="3"
        android:layout_marginStart="20dp"
        android:layout_marginEnd="20dp"
        android:layout_marginTop="10dp">

        <Spinner
            android:layout_width="0dp"

```

```
android:layout_height="wrap_content"
android:layout_weight="1"
android:id="@+id/idFromSpinner"
android:layout_margin="3dp"
android:padding="3dp"
android:layout_gravity="center"/>
```

<ImageView

```
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:src="@drawable/ic_right_arrow"
android:tint="@color/black"
android:layout_gravity="center"/>
```

<Spinner

```
android:layout_width="0dp"
android:layout_height="wrap_content"
android:layout_weight="1"
android:id="@+id/idToSpinner"
android:layout_margin="3dp"
android:padding="3dp"
android:layout_gravity="center"/>
```

</LinearLayout>

<com.google.android.material.textfield.TextInputLayout

```
android:layout_width="match_parent"
android:layout_height="100dp"
style="@style/Widget.MaterialComponents.TextInputLayout.OutlinedBox"
android:layout_marginStart="10dp"
android:layout_marginTop="10dp"
android:layout_marginEnd="20dp"
android:hint="Source Text"
android:padding="5dp"
android:textColorHint="@color/black"
app:hintTextColor="@color/black">
```

<com.google.android.material.textfield.TextInputEditText

```
android:layout_width="match_parent"
android:layout_height="match_parent"
android:id="@+id/idEdtSource"
android:ems="10"
android:layout_marginTop="20dp"
android:importantForAutofill="no"
android:inputType="textImeMultiLine|textMultiLine"
android:textColorHint="@color/black"
android:textColor="@color/black"
android:textSize="14sp"/>
```

</com.google.android.material.textfield.TextInputLayout>

<TextView

```
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="OR"
android:textAllCaps="true"
android:textColor="@color/black"
android:textSize="20sp"
android:textAlignment="center"
android:layout_gravity="center"
android:layout_marginTop="5dp"/>
```

<ImageView

```
android:layout_width="70dp"
android:layout_height="70dp"
android:layout_gravity="center"
android:layout_marginTop="10dp"
android:src="@drawable/ic_mic"
app:tint="@color/black_shade_1"
android:id="@+id/idIVMic"/>
```

<TextView

```
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="Say Something"
android:textAlignment="center"
android:textColor="@color/black"
android:textSize="15sp"
android:layout_gravity="center"/>
```

<com.google.android.material.button.MaterialButton

```
android:id="@+id/idBtnTranslate"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_marginStart="20dp"
android:layout_marginTop="20dp"
android:layout_marginEnd="20dp"
android:text="Translate"
android:textAllCaps="false"
/>
```

<TextView

```
android:id="@+id/idTvTranslatedTV"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_gravity="center"
android:layout_marginTop="30dp"
android:text="Translated Text"
android:textStyle="bold"
android:textAlignment="center"
android:textAllCaps="false"
android:textColor="@color/black_shade_1"
android:textSize="18sp"/>
```

<TextView

```
android:id="@+id/textView"
android:layout_width="match_parent"
```

```
        android:layout_height="52dp"
        android:text=" Sindhu Gayathri Tunuguntla-20MIS7007"
        android:textStyle="bold"
        android:textSize="20dp"
        android:textColor="@color/purple_700"/>
```

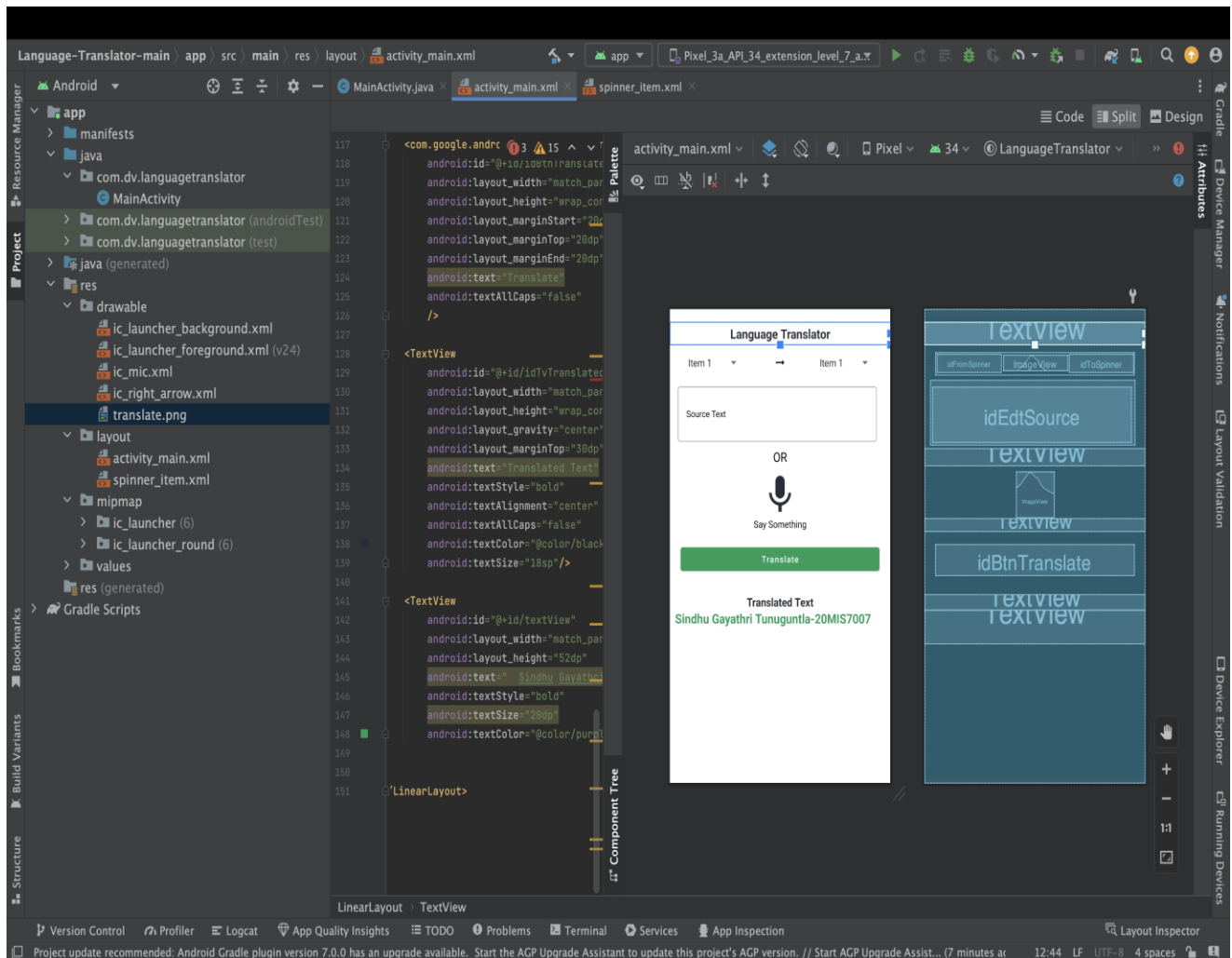
```
</LinearLayout>
```

Spinner_item.xml

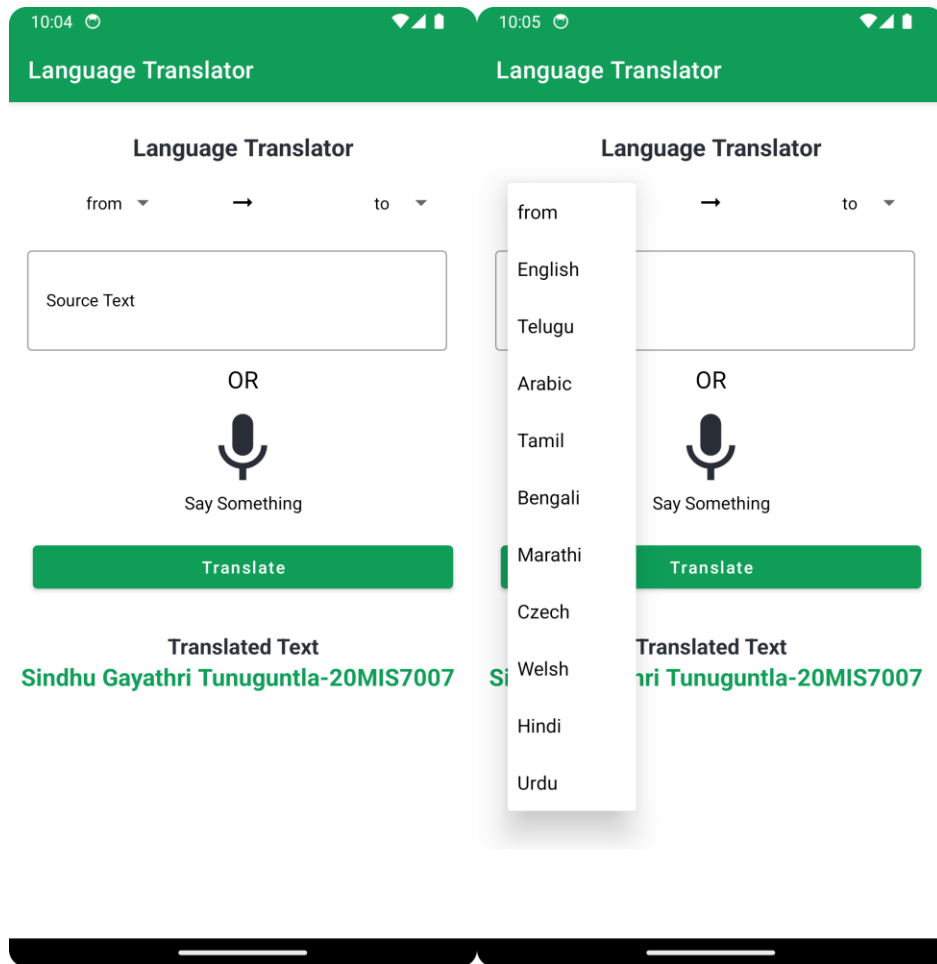
```
<?xml version="1.0" encoding="utf-8"?>
<TextView xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center"
    android:padding="4dp"
    android:textAlignment="center"
    android:textColor="@color/black"
    >
```

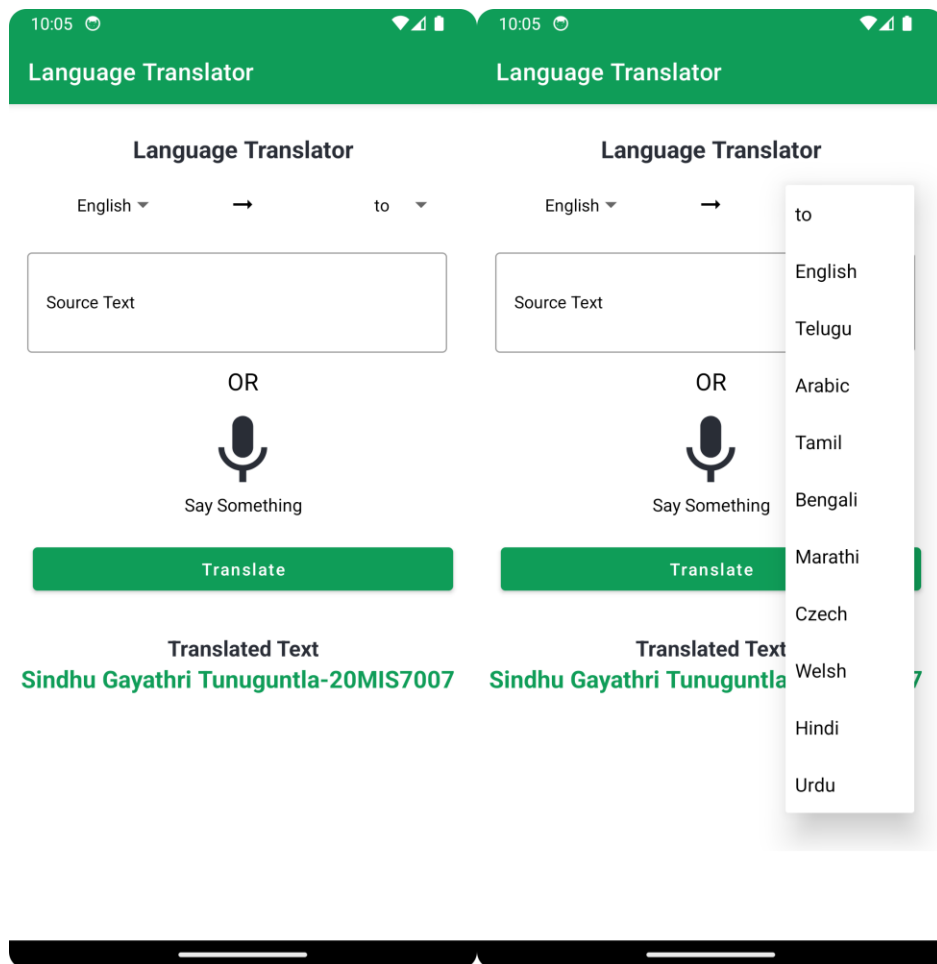
```
</TextView>
```

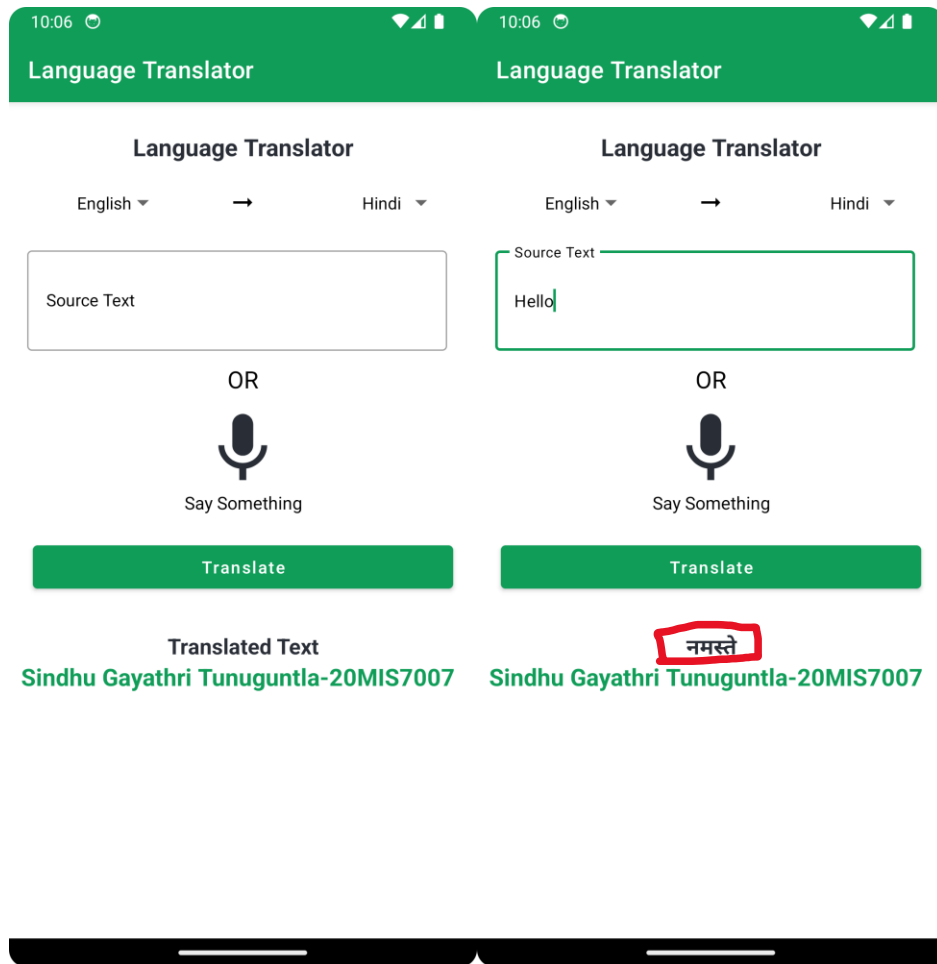
OUTPUT:

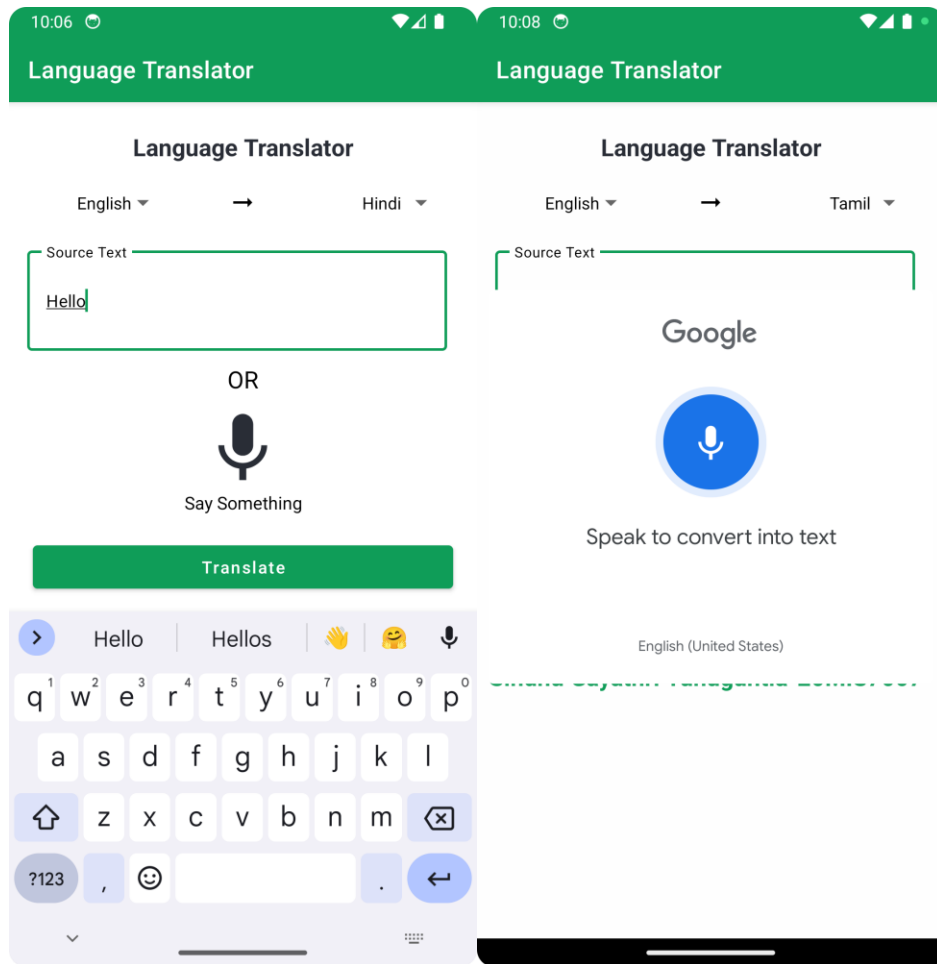


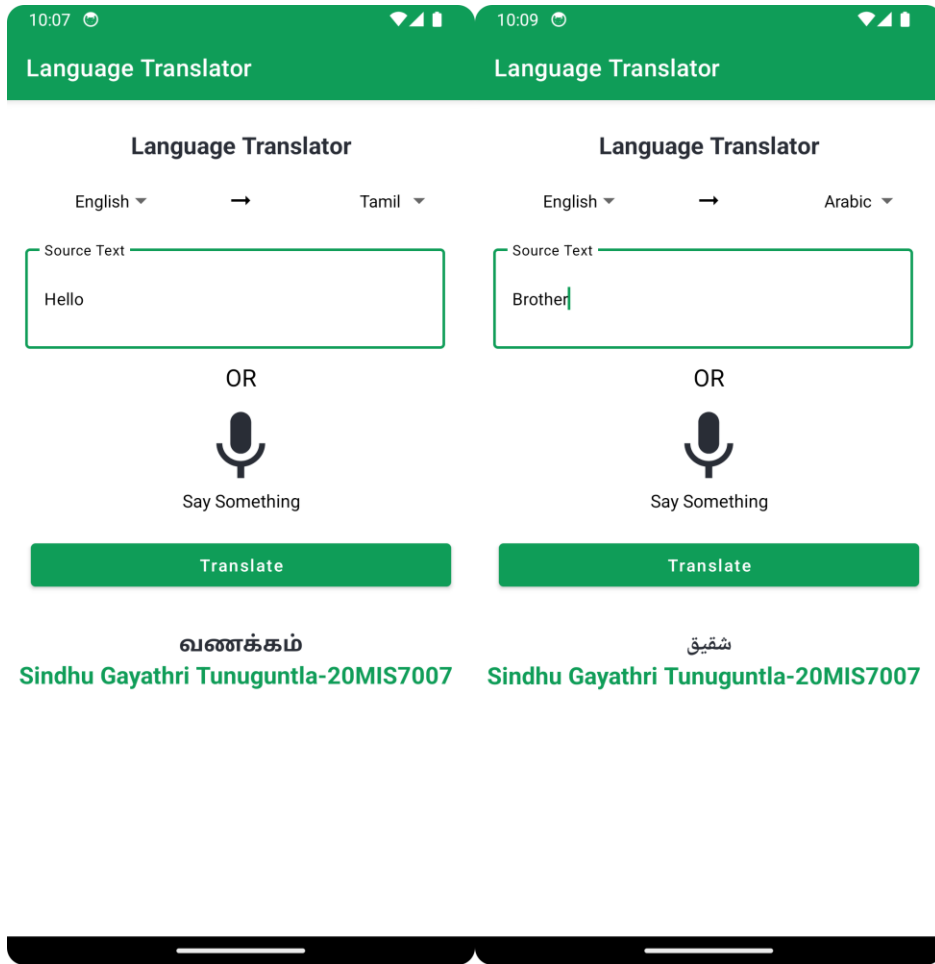
- Open the Language Translator App
- Click on **from** and select the Language from the Spinner (you selected English)
- Click on **to** and select the Language from the Spinner (selected Hindi)
- Now enter the Source Text like **hello** and click on Translate button (Or)
- Click on the mic and speak and click on Translate
- Then it loads and translates the source text provided and shows the output on the Text View named as **Translated Text**











Similarly in Tamil and Arabic.