

Setting Up Dependencies (build.gradle):

```
dependencies {  
    implementation 'org.tensorflow:tensorflow-lite:2.6.0'  
    implementation 'org.opencv:opencv-android:4.5.3'  
    implementation 'com.google.mlkit:text-recognition:16.3.0'  
    implementation 'com.google.cloud:google-cloud-  
translate:1.98.0'  
    implementation 'androidx.appcompat:appcompat:1.3.1'  
    implementation  
'com.google.android.material:material:1.4.0'  
}
```

Recognize and Extract Text from Image:

```
import android.graphics.Bitmap;
import com.google.mlkit.vision.common.InputImage;
import com.google.mlkit.vision.text.Text;
import com.google.mlkit.vision.text.TextRecognition;
import com.google.mlkit.vision.text.latin.TextRecognizerOptions;

public void recognizeTextFromImage(Bitmap bitmap) {
    InputImage image = InputImage.fromBitmap(bitmap, 0);
    TextRecognizer recognizer =
TextRecognition.getClient(TextRecognizerOptions.DEFAULT_OPTIO
NS);

    recognizer.process(image)
        .addOnSuccessListener(new OnSuccessListener<Text>() {
            @Override
            public void onSuccess(Text visionText) {
                // Process the recognized text
                String extractedText = visionText.getText();
                // Translate the text if needed
            }
        })
        .addOnFailureListener(new OnFailureListener() {
            @Override
            public void onFailure(@NonNull Exception e) {
                // Handle the error
            }
        });
}
```

Translating Text:

```
import com.google.cloud.translate.Translate;
import com.google.cloud.translate.TranslateOptions;
import com.google.cloud.translate.Translation;

public String translateText(String text, String targetLanguage) {
    Translate translate = TranslateOptions.getDefaultInstance().getService();
    Translation translation = translate.translate(text,
    Translate.TranslateOption.targetLanguage(targetLanguage));
    return translation.getTranslatedText();
}
```

NCERT Database (SQLite Example):

```
import android.content.Context;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

public class NCERTDatabaseHelper extends SQLiteOpenHelper {
    private static final String DATABASE_NAME = "ncert.db";
    private static final int DATABASE_VERSION = 1;

    public NCERTDatabaseHelper(Context context) {
        super(context, DATABASE_NAME, null, DATABASE_VERSION);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        // Create tables and populate with NCERT data
        db.execSQL("CREATE TABLE explanations (id INTEGER PRIMARY KEY, line TEXT,
explanation TEXT)");
        // Insert data
    }

    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {
        db.execSQL("DROP TABLE IF EXISTS explanations");
        onCreate(db);
    }
}
```

Personal Assistant(Chatbot):

```
import ai.api.AListener;
import ai.api.AIServiceException;
import ai.api.android.AIConfiguration;
import ai.api.android.AIDataService;
import ai.api.model.AIRequest;
import ai.api.model.AIResponse;

public class PersonalAssistant implements AListener {
    private AIDataService aiDataService;

    public PersonalAssistant(Context context) {
        final AIConfiguration config = new AIConfiguration("YOUR_CLIENT_ACCESS_TOKEN",
            AIConfiguration.SupportedLanguages.English,
            AIConfiguration.RecognitionEngine.System);
        aiDataService = new AIDataService(context, config);
    }

    public void sendQuery(String query) {
        AIRequest aiRequest = new AIRequest();
        aiRequest.setQuery(query);

        new AsyncTask<AIRequest, Void, AIResponse>() {
            @Override
            protected AIResponse doInBackground(AIRequest... requests) {
                try {
                    return aiDataService.request(requests[0]);
                } catch (AIServiceException e) {
                    e.printStackTrace();
                }
                return null;
            }

            @Override
            protected void onPostExecute(AIResponse aiResponse) {
                if (aiResponse != null) {
                    // Handle the response
                }
            }
        }.execute(aiRequest);
    }

    @Override
    public void onResult(AIResponse result) {
        // Handle the result
    }

    @Override
    public void onError(ai.api.model.AIError error) {
        // Handle the error
    }
}
```

UI/UX design(activity_main.xml):

```
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context=".MainActivity">
```

```
<ImageView
    android:id="@+id/bookImage"
    android:layout_width="match_parent"
    android:layout_height="200dp"
    android:contentDescription="@string/book_image" />
```

```
<Button
    android:id="@+id/recognizeButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="@string/recognize_text" />
```

```
<TextView
    android:id="@+id/extractedText"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="" />
```

```
</LinearLayout>
```


