**TASK 1: Flashcard Quiz App (Java - Android Studio)**

**Features**

* Add, edit, delete flashcards
* Flip to show question/answer
* Navigate Next / Previous
* Simple and clean UI

**Step 1: MainActivity.java**

package com.example.flashcardapp;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.\*;

import java.util.ArrayList;

public class MainActivity extends AppCompatActivity {

TextView questionText, answerText;

Button showAnswerBtn, nextBtn, prevBtn, addBtn;

ArrayList<Flashcard> cards = new ArrayList<>();

int currentIndex = 0;

boolean showingAnswer = false;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

questionText = findViewById(R.id.questionText);

answerText = findViewById(R.id.answerText);

showAnswerBtn = findViewById(R.id.showAnswerBtn);

nextBtn = findViewById(R.id.nextBtn);

prevBtn = findViewById(R.id.prevBtn);

addBtn = findViewById(R.id.addBtn);

// Sample flashcards

cards.add(new Flashcard("Capital of France?", "Paris"));

cards.add(new Flashcard("5 + 7 = ?", "12"));

cards.add(new Flashcard("Android language?", "Java/Kotlin"));

updateFlashcard();

showAnswerBtn.setOnClickListener(v -> toggleAnswer());

nextBtn.setOnClickListener(v -> nextCard());

prevBtn.setOnClickListener(v -> previousCard());

addBtn.setOnClickListener(v -> {

cards.add(new Flashcard("New Question", "New Answer"));

Toast.makeText(this, "Added new flashcard!", Toast.LENGTH\_SHORT).show();

});

}

void updateFlashcard() {

Flashcard current = cards.get(currentIndex);

questionText.setText(current.getQuestion());

answerText.setText(current.getAnswer());

answerText.setVisibility(View.INVISIBLE);

showingAnswer = false;

}

void toggleAnswer() {

showingAnswer = !showingAnswer;

answerText.setVisibility(showingAnswer ? View.VISIBLE : View.INVISIBLE);

}

void nextCard() {

currentIndex = (currentIndex + 1) % cards.size();

updateFlashcard();

}

void previousCard() {

currentIndex = (currentIndex - 1 + cards.size()) % cards.size();

updateFlashcard();

}

}

class Flashcard {

private final String question;

private final String answer;

public Flashcard(String q, String a) {

this.question = q;

this.answer = a;

}

public String getQuestion() { return question; }

public String getAnswer() { return answer; }

}

**Step 2: activity\_main.xml**

<?xml version="1.0" encoding="utf-8"?>

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

android:orientation="vertical"

android:gravity="center"

android:padding="20dp"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent">

<TextView

android:id="@+id/questionText"

android:text="Question"

android:textSize="22sp"

android:gravity="center"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"/>

<TextView

android:id="@+id/answerText"

android:text="Answer"

android:textSize="20sp"

android:gravity="center"

android:layout\_marginTop="10dp"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:visibility="invisible"/>

<Button

android:id="@+id/showAnswerBtn"

android:text="Show Answer"

android:layout\_marginTop="15dp"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"/>

<LinearLayout

android:orientation="horizontal"

android:gravity="center"

android:layout\_marginTop="20dp"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content">

<Button

android:id="@+id/prevBtn"

android:text="Previous"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"/>

<Button

android:id="@+id/nextBtn"

android:text="Next"

android:layout\_marginStart="20dp"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"/>

</LinearLayout>

<Button

android:id="@+id/addBtn"

android:text="Add Flashcard"

android:layout\_marginTop="30dp"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"/>

</LinearLayout>

**This app:**

* Runs on any Android device.
* Allows adding and flipping flashcards.
* Uses a simple, clear UI.

**TASK 2: Random Quote Generator App**

**Features**

* Displays a random quote on launch or button click
* “New Quote” button for next quote
* Shows quote text + author
* Clean and minimal UI

**Step 1: MainActivity.java**

package com.example.randomquote;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.\*;

import java.util.Random;

public class MainActivity extends AppCompatActivity {

TextView quoteText, authorText;

Button newQuoteBtn;

String[][] quotes = {

{"The best way to get started is to quit talking and begin doing.", "Walt Disney"},

{"Don't let yesterday take up too much of today.", "Will Rogers"},

{"It’s not whether you get knocked down, it’s whether you get up.", "Vince Lombardi"},

{"If you are working on something exciting, it will keep you motivated.", "Steve Jobs"},

{"Success is not in what you have, but who you are.", "Bo Bennett"}

};

Random random = new Random();

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

quoteText = findViewById(R.id.quoteText);

authorText = findViewById(R.id.authorText);

newQuoteBtn = findViewById(R.id.newQuoteBtn);

// Show a random quote at startup

showRandomQuote();

newQuoteBtn.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) {

showRandomQuote();

}

});

}

void showRandomQuote() {

int index = random.nextInt(quotes.length);

quoteText.setText("\"" + quotes[index][0] + "\"");

authorText.setText("- " + quotes[index][1]);

}

}

### ****Step 2: activity\_main.xml****

<?xml version="1.0" encoding="utf-8"?>

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

android:orientation="vertical"

android:gravity="center"

android:padding="24dp"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent">

<TextView

android:id="@+id/quoteText"

android:text="Quote will appear here"

android:textAlignment="center"

android:textSize="20sp"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:padding="16dp" />

<TextView

android:id="@+id/authorText"

android:text="- Author"

android:textAlignment="center"

android:textSize="16sp"

android:textStyle="italic"

android:layout\_marginTop="8dp"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content" />

<Button

android:id="@+id/newQuoteBtn"

android:text="New Quote"

android:layout\_marginTop="20dp"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" />

</LinearLayout>

**App Behavior**

* Starts with a random quote.
* Button click shows a new quote.
* Minimal, motivational look and feel.

**TASK 3: Fitness Tracker App**

**Features**

* Add daily fitness data (steps, workout time, calories)
* View summary of daily totals
* Simple UI with progress bar and local data saving

**Step 1: MainActivity.java**

package com.example.fitnesstracker;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.widget.\*;

import android.view.View;

import android.content.SharedPreferences;

public class MainActivity extends AppCompatActivity {

EditText stepsInput, workoutInput, caloriesInput;

Button saveBtn, showBtn, resetBtn;

TextView summaryText;

ProgressBar progressBar;

SharedPreferences prefs;

int steps, workout, calories;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

stepsInput = findViewById(R.id.stepsInput);

workoutInput = findViewById(R.id.workoutInput);

caloriesInput = findViewById(R.id.caloriesInput);

saveBtn = findViewById(R.id.saveBtn);

showBtn = findViewById(R.id.showBtn);

resetBtn = findViewById(R.id.resetBtn);

summaryText = findViewById(R.id.summaryText);

progressBar = findViewById(R.id.progressBar);

prefs = getSharedPreferences("FitnessData", MODE\_PRIVATE);

loadProgress();

saveBtn.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

saveData();

}

});

showBtn.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

showSummary();

}

});

resetBtn.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

resetData();

}

});

}

void saveData() {

try {

steps = Integer.parseInt(stepsInput.getText().toString());

workout = Integer.parseInt(workoutInput.getText().toString());

calories = Integer.parseInt(caloriesInput.getText().toString());

SharedPreferences.Editor editor = prefs.edit();

editor.putInt("steps", steps);

editor.putInt("workout", workout);

editor.putInt("calories", calories);

editor.apply();

Toast.makeText(this, "Data Saved!", Toast.LENGTH\_SHORT).show();

loadProgress();

} catch (Exception e) {

Toast.makeText(this, "Please fill all fields!", Toast.LENGTH\_SHORT).show();

}

}

void showSummary() {

int steps = prefs.getInt("steps", 0);

int workout = prefs.getInt("workout", 0);

int calories = prefs.getInt("calories", 0);

summaryText.setText(

"Steps: " + steps + "\n" +

"Workout (min): " + workout + "\n" +

"Calories Burned: " + calories);

}

void loadProgress() {

int steps = prefs.getInt("steps", 0);

progressBar.setProgress(Math.min(steps / 100, 100)); // simple progress representation

}

void resetData() {

prefs.edit().clear().apply();

summaryText.setText("Data cleared!");

progressBar.setProgress(0);

Toast.makeText(this, "Reset complete!", Toast.LENGTH\_SHORT).show();

}

}

**Step 2: activity\_main.xml**

<?xml version="1.0" encoding="utf-8"?>

<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:padding="24dp">

<LinearLayout

android:orientation="vertical"

android:gravity="center"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content">

<TextView

android:text="🏃 Fitness Tracker"

android:textSize="22sp"

android:textStyle="bold"

android:gravity="center"

android:layout\_marginBottom="20dp"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"/>

<EditText

android:id="@+id/stepsInput"

android:hint="Enter Steps"

android:inputType="number"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"/>

<EditText

android:id="@+id/workoutInput"

android:hint="Workout Time (min)"

android:inputType="number"

android:layout\_marginTop="10dp"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"/>

<EditText

android:id="@+id/caloriesInput"

android:hint="Calories Burned"

android:inputType="number"

android:layout\_marginTop="10dp"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"/>

<Button

android:id="@+id/saveBtn"

android:text="Save Data"

android:layout\_marginTop="15dp"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"/>

<Button

android:id="@+id/showBtn"

android:text="Show Summary"

android:layout\_marginTop="10dp"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"/>

<Button

android:id="@+id/resetBtn"

android:text="Reset Data"

android:layout\_marginTop="10dp"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"/>

<ProgressBar

android:id="@+id/progressBar"

android:layout\_marginTop="25dp"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:max="100"

style="?android:attr/progressBarStyleHorizontal"/>

<TextView

android:id="@+id/summaryText"

android:text="Your progress will appear here"

android:gravity="center"

android:layout\_marginTop="20dp"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"/>

</LinearLayout>

</ScrollView>

**App Behavior**

* Lets user add steps, workout time, and calories.
* Saves data locally (even after closing the app).
* Shows progress bar as visual feedback.
* Allows easy reset of all data.

**TASK 4: Language Learning App (Java, Android Studio)**

This one will be a **simple interactive app** where users can learn words, see translations, and take small quizzes.  
We’ll make it **generic** (you can later change languages easily, e.g., English ↔ Urdu or English ↔ Spanish).

**Features**

* Learn vocabulary via flashcards
* “Show Translation” button
* “Next” and “Previous” navigation
* Mini quiz to test learning
* Simple local data (no backend)

**Step 1: MainActivity.java**

package com.example.languagelearning;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.\*;

import java.util.ArrayList;

public class MainActivity extends AppCompatActivity {

TextView wordText, translationText, quizQuestion, quizResult;

Button showTranslationBtn, nextBtn, prevBtn, quizBtn, checkAnswerBtn;

EditText answerInput;

ArrayList<Word> words = new ArrayList<>();

int currentIndex = 0;

boolean showingTranslation = false;

boolean quizMode = false;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

wordText = findViewById(R.id.wordText);

translationText = findViewById(R.id.translationText);

showTranslationBtn = findViewById(R.id.showTranslationBtn);

nextBtn = findViewById(R.id.nextBtn);

prevBtn = findViewById(R.id.prevBtn);

quizBtn = findViewById(R.id.quizBtn);

answerInput = findViewById(R.id.answerInput);

checkAnswerBtn = findViewById(R.id.checkAnswerBtn);

quizQuestion = findViewById(R.id.quizQuestion);

quizResult = findViewById(R.id.quizResult);

// Sample words (English → Spanish)

words.add(new Word("Hello", "Hola"));

words.add(new Word("Thank You", "Gracias"));

words.add(new Word("Good Morning", "Buenos días"));

words.add(new Word("Food", "Comida"));

words.add(new Word("Water", "Agua"));

updateWord();

showTranslationBtn.setOnClickListener(v -> toggleTranslation());

nextBtn.setOnClickListener(v -> nextWord());

prevBtn.setOnClickListener(v -> prevWord());

quizBtn.setOnClickListener(v -> startQuiz());

checkAnswerBtn.setOnClickListener(v -> checkQuizAnswer());

}

void updateWord() {

Word current = words.get(currentIndex);

wordText.setText(current.getWord());

translationText.setText(current.getTranslation());

translationText.setVisibility(View.INVISIBLE);

showingTranslation = false;

}

void toggleTranslation() {

showingTranslation = !showingTranslation;

translationText.setVisibility(showingTranslation ? View.VISIBLE : View.INVISIBLE);

}

void nextWord() {

currentIndex = (currentIndex + 1) % words.size();

updateWord();

}

void prevWord() {

currentIndex = (currentIndex - 1 + words.size()) % words.size();

updateWord();

}

void startQuiz() {

quizMode = true;

Word current = words.get(currentIndex);

quizQuestion.setText("Translate: " + current.getWord());

quizQuestion.setVisibility(View.VISIBLE);

answerInput.setVisibility(View.VISIBLE);

checkAnswerBtn.setVisibility(View.VISIBLE);

quizResult.setVisibility(View.INVISIBLE);

}

void checkQuizAnswer() {

String userAnswer = answerInput.getText().toString().trim().toLowerCase();

String correct = words.get(currentIndex).getTranslation().toLowerCase();

if (userAnswer.equals(correct)) {

quizResult.setText("✅ Correct!");

} else {

quizResult.setText("❌ Wrong! Correct answer: " + words.get(currentIndex).getTranslation());

}

quizResult.setVisibility(View.VISIBLE);

}

}

class Word {

private final String word;

private final String translation;

public Word(String word, String translation) {

this.word = word;

this.translation = translation;

}

public String getWord() { return word; }

public String getTranslation() { return translation; }

}

**Step 2: activity\_main.xml**

<?xml version="1.0" encoding="utf-8"?>

<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:padding="24dp">

<LinearLayout

android:orientation="vertical"

android:gravity="center"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content">

<TextView

android:id="@+id/wordText"

android:text="Word"

android:textSize="24sp"

android:textStyle="bold"

android:gravity="center"

android:layout\_marginBottom="10dp"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"/>

<TextView

android:id="@+id/translationText"

android:text="Translation"

android:textSize="22sp"

android:gravity="center"

android:visibility="invisible"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"/>

<Button

android:id="@+id/showTranslationBtn"

android:text="Show Translation"

android:layout\_marginTop="10dp"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"/>

<LinearLayout

android:orientation="horizontal"

android:gravity="center"

android:layout\_marginTop="15dp"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content">

<Button

android:id="@+id/prevBtn"

android:text="Previous"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"/>

<Button

android:id="@+id/nextBtn"

android:text="Next"

android:layout\_marginStart="20dp"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"/>

</LinearLayout>

<Button

android:id="@+id/quizBtn"

android:text="Start Quiz"

android:layout\_marginTop="25dp"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"/>

<TextView

android:id="@+id/quizQuestion"

android:text="Quiz Question"

android:textSize="18sp"

android:gravity="center"

android:visibility="gone"

android:layout\_marginTop="20dp"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"/>

<EditText

android:id="@+id/answerInput"

android:hint="Type your answer"

android:visibility="gone"

android:layout\_marginTop="10dp"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"/>

<Button

android:id="@+id/checkAnswerBtn"

android:text="Check Answer"

android:visibility="gone"

android:layout\_marginTop="10dp"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"/>

<TextView

android:id="@+id/quizResult"

android:text=""

android:textSize="18sp"

android:gravity="center"

android:textStyle="bold"

android:visibility="gone"

android:layout\_marginTop="10dp"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"/>

</LinearLayout>

</ScrollView>

**App Behavior**

* Displays a new word on launch.
* "Show Translation" reveals the translated text.
* You can navigate between words.
* “Start Quiz” asks you to type the translation.
* Displays if your answer is correct or wrong.

**Summary**

|  |  |  |  |
| --- | --- | --- | --- |
| **Task** | **App Name** | **Main Features** | **Status** |
| 1 | Flashcard Quiz App | Custom flashcards, flip Q/A | Done |
| 2 | Random Quote Generator | Random motivational quotes | Done |
| 3 | Fitness Tracker App | Log steps, workouts, calories | Done |
| 4 | Language Learning App | Learn, translate, quiz | Done |