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Submitted to: Professor Jameel

Subject: Android Development

Assignment: 04

Topic: Dictionary

**Description**

**MainActivity.java:**

* The class has instance variables dbHelper, db, and adapter:
  + dbHelper is an instance of DictionaryDatabaseHelper, which is used to interact with the SQLite database on the go.
  + db is an instance of SQLiteDatabase obtained from dbHelper to perform database operations to store and retrieve words.
  + adapter is an instance of SimpleCursorAdapter, which is responsible for populating the data from the cursor into the ListView and display the data.
* In the onCreate method, which is called when the activity is created:
  + The layout file activity\_main.xml is set as the content view on screen for the activity using setContentView.
  + An instance of DictionaryDatabaseHelper is created and a readable database object is retrieved using getReadableDatabase.
  + A query is executed using db.rawQuery to fetch or retrieve all rows from the "words" table. The cursor object cursor is used to access the query results.
  + If the cursor does not contain any rows (cursor.getCount() == 0), it means the "words" table is empty. In that case, sample data including words and there meanings is inserted into the table using db.execSQL.
  + Two arrays, fromColumns and toViews, are defined. fromColumns specifies the column names from the cursor, and toViews specifies the respective unique view IDs in the list item layout.
  + A SimpleCursorAdapter is created with the current layout activity context, the list item layout list\_item\_word.xml, the cursor, and the mapping arrays.
  + The ListView with the ID listViewWords is retrieved using findViewById, and the adapter is set on the ListView to display the data on screen.
* The onDestroy method is overridden to release database resources by closing the database (db) connection and the database helper (dbHelper).

**DictionaryDatabaseHelper.java:**

* DictionaryDatabaseHelper is a helper class that extends SQLiteOpenHelper. It is responsible for managing the creation and upgradation of the SQLite database.
* It has constants defining the database name, version, table name, and column names, etc.
* The CREATE\_TABLE constant stores the SQL statement to create the "words" table.
* The constructor takes a Context object and passes the database name and version to the superclass constructor on the go.
* The onCreate method is called when the database is created for the first time. It executes the SQL statement to create the "words" table using db.execSQL.
* The onUpgrade method is called when the database version is incremented. In this implementation, it drops the existing "words" table and calls onCreate to recreate it again.

**Word.java:**

* Word is a simple Java class representing a word and its meaning.
* It has instance variables word and meaning to store the word and its corresponding meaning.
* The class gives a constructor to initialize the word and meaning, as well as getters to fetch the values.

**activity\_main.xml:**

* activity\_main.xml is an XML layout file defining the user interface for the main activity and showing it on the screen.
* It contains a LinearLayout as the root view with vertical orientation and padding.
* Inside the LinearLayout, there is a TextView displaying the app title and a ListView with the ID listViewWords displaying the words and their meanings.

**list\_item\_word.xml:**

* list\_item\_word.xml is an XML layout file defining the appearance of each item in the ListView (words and Meanings).
* The layout can be customized based on the desired appearance for each word and meaning entry in the list.

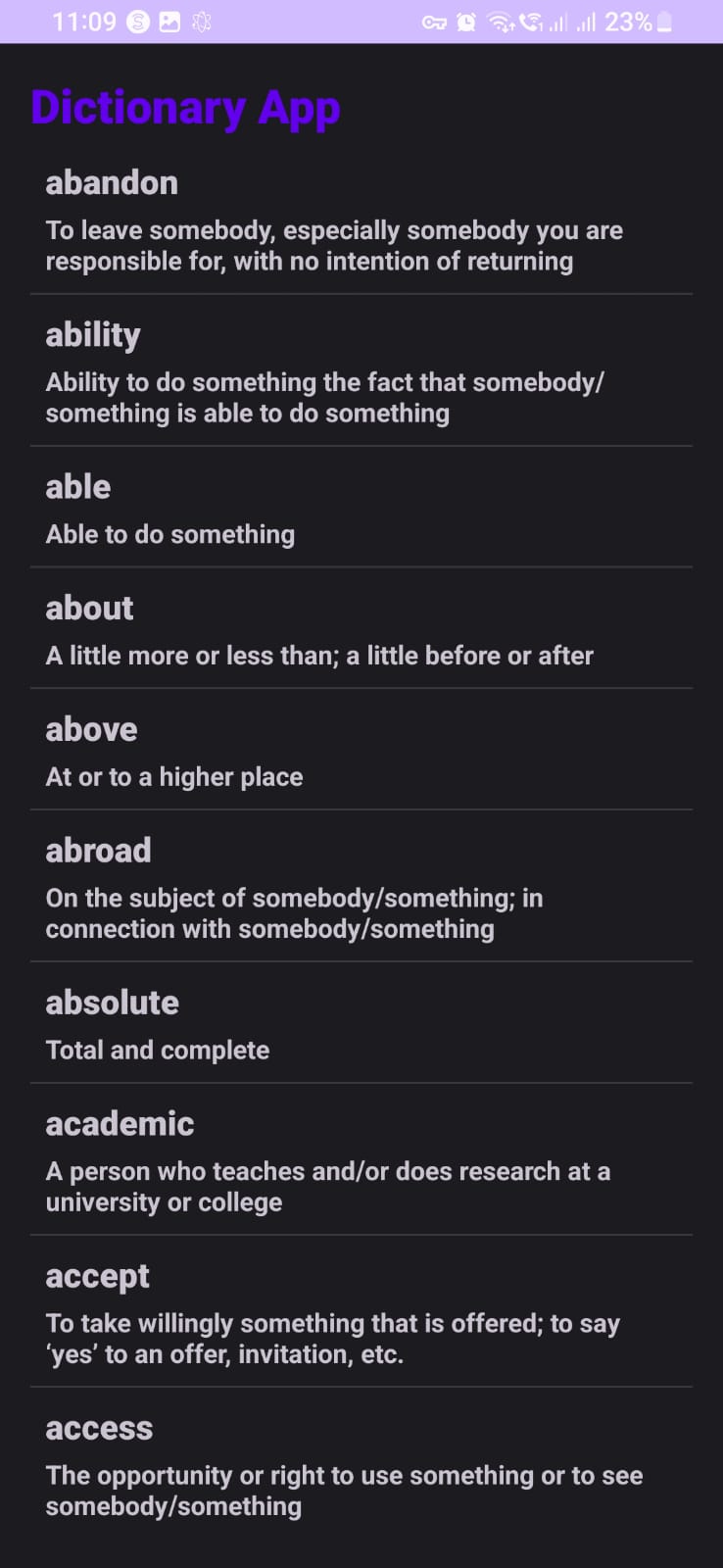
Overall, the code sets up the SQLite database using DictionaryDatabaseHelper, inserts sample data if necessary or cursor is empty, and displays the words and meanings in a ListView using a SimpleCursorAdapter. The layout files define the structure and appearance of the user interface components.

**Code**

Complete code can be found on my [GitHub](https://github.com/MatrixUsman/BSITM2/tree/main/Semester%206/Android%20Devlopment/Assignment_4/Dictionary/Dict).

Link to [APK](https://github.com/MatrixUsman/BSITM2/blob/main/Semester%206/Android%20Devlopment/Assignment_4/Dictionary/Dictionary.apk)

[Compressed Code zip](https://github.com/MatrixUsman/BSITM2/blob/main/Semester%206/Android%20Devlopment/Assignment_4/Dictionary/Dictionary.zip)

**Screenshots  
  
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