Github

The source code for this assignment, which discussed in this document, is published online @
https://github.com/bradyhouse/ITM455/tree/master/HW6.

Step 5 LogCat Output

For step 5 I used my student id, "A20262734", as the log message prefix. Here is the filtered logcat
output:

```
11-10 19:48:01.139    5091-5091/? D/A20262734-addBook: Book [id=0, title=Professional Android 4 Application Development, author=Reto Meier]

11-10 19:48:01.159    5091-5091/? D/A20262734-addBook: Book [id=0, title=Beginning Android 4 Application Development, author=WeiMeng Lee]

11-10 19:48:01.169    5091-5091/? D/A20262734-addBook: Book [id=0, title=Programming Android, author=Wallace Jackson]

11-10 19:48:01.189    5091-5091/? D/A20262734-addBook: Book [id=0, title=Hello, Android, author=Wallace Jackson]

11-10 19:48:01.209    5091-5091/? D/A20262734-getAllBooks(): [Book [id=6, title=Beginning Android 4 Application Development, author=WeiMeng Lee], Book
[id=7, title=Programming Android, author=Wallace Jackson], Book [id=8, title=Hello, Android, author=Wallace Jackson], Book [id=9, title=Professional
Android 4 Application Development, author=Reto Meier], Book [id=10, title=Beginning Android 4 Application Development, author=WeiMeng Lee], Book [id=11,
title=Programming Android, author=Wallace Jackson], Book [id=12, title=Hello, Android, author=Wallace Jackson], Book [id=13, title=Professional Android 4
Application Development, author=Reto Meier], Book [id=14, title=Beginning Android 4 Application Development, author=WeiMeng Lee], Book [id=15,
title=Programming Android, author=Wallace Jackson], Book [id=16, title=Hello, Android, author=Wallace Jackson], Book [id=17, title=Professional Android 4
Application Development, author=Reto Meier], Book [id=18, title=Beginning Android 4 Application Development, author=WeiMeng Lee], Book [id=19,
title=Programming Android, author=Wallace Jackson], Book [id=20, title=Hello, Android, author=Wallace Jackson], Book [id=21, title=Professional Android 4
Application Development, author=Reto Meier], Book [id=22, title=Beginning Android 4 Application Development, author=WeiMeng Lee], Book [id=23,
title=Programming Android, author=Wallace Jackson], Book [id=24, title=Hello, Android, author=Wallace Jackson]]

11-10 19:48:01.209    5091-5091/? D/A20262734-UpdateBook: Book [id=6, title=Beginning Android 4 Application Development, author=WeiMeng Lee]

11-10 19:48:01.229    5091-5091/? D/A20262734-deleteBook: Book [id=6, title=Beginning Android 4 Application Development, author=WeiMeng Lee]

11-10 19:48:01.229    5091-5091/? D/A20262734-getAllBooks(): [Book [id=7, title=Programming Android, author=Wallace Jackson], Book [id=8, title=Hello,
Android, author=Wallace Jackson], Book [id=9, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=10, title=Beginning
Android 4 Application Development, author=WeiMeng Lee], Book [id=11, title=Programming Android, author=Wallace Jackson], Book [id=12, title=Hello,
Android, author=Wallace Jackson], Book [id=13, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=14, title=Beginning
Android 4 Application Development, author=WeiMeng Lee], Book [id=15, title=Programming Android, author=Wallace Jackson], Book [id=16, title=Hello,
Android, author=Wallace Jackson], Book [id=17, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=18, title=Beginning
Android 4 Application Development, author=WeiMeng Lee], Book [id=19, title=Programming Android, author=Wallace Jackson], Book [id=20, title=Hello,
Android, author=Wallace Jackson], Book [id=21, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=22, title=Beginning
Android 4 Application Development, author=WeiMeng Lee], Book [id=23, title=Programming Android, author=Wallace Jackson], Book [id=24, title=Hello,
Android, author=Wallace Jackson]]
```

Step 6 part 1 Logcat Output

```
11-10 20:18:18.903    5921-5921/? D/A20262734-addBook: Book [id=0, title=Professional Android 4 Application Development, author=Reto Meier]

11-10 20:18:18.923    5921-5921/? D/A20262734-addBook: Book [id=0, title=Beginning Android 4 Application Development, author=WeiMeng Lee]

11-10 20:18:18.933    5921-5921/? D/A20262734-addBook: Book [id=0, title=Programming Android, author=Wallace Jackson]

11-10 20:18:18.943    5921-5921/? D/A20262734-addBook: Book [id=0, title=Hello, Android, author=Wallace Jackson]

11-10 20:18:18.963    5921-5921/? D/A20262734-getAllBooks(): [Book [id=8, title=Hello, Android, author=Wallace Jackson], Book [id=9,
title=Professional Android 4 Application Development, author=Reto Meier], Book [id=10, title=Beginning Android 4 Application Development,
author=WeiMeng Lee], Book [id=11, title=Programming Android, author=Wallace Jackson], Book [id=12, title=Hello, Android, author=Wallace Jackson], Book
[id=13, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=14, title=Beginning Android 4 Application Development,
author=WeiMeng Lee], Book [id=15, title=Programming Android, author=Wallace Jackson], Book [id=16, title=Hello, Android, author=Wallace Jackson], Book
[id=17, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=18, title=Beginning Android 4 Application Development,
author=WeiMeng Lee], Book [id=19, title=Programming Android, author=Wallace Jackson], Book [id=20, title=Hello, Android, author=Wallace Jackson], Book
[id=21, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=22, title=Beginning Android 4 Application Development,
author=WeiMeng Lee], Book [id=23, title=Programming Android, author=Wallace Jackson], Book [id=24, title=Hello, Android, author=Wallace Jackson], Book
[id=25, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=26, title=Beginning Android 4 Application Development,
author=WeiMeng Lee], Book [id=27, title=Programming Android, author=Wallace Jackson], Book [id=28, title=Hello, Android, author=Wallace Jackson], Book
[id=29, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=30, title=Beginning Android 4 Application Development,
author=WeiMeng Lee], Book [id=31, title=Programming Android, author=Wallace Jackson], Book [id=32, title=Hello, Android, author=Wallace Jackson]]

11-10 20:18:18.963    5921-5921/? D/A20262734-UpdateBook: Book [id=8, title=Hello, Android, author=Wallace Jackson]

11-10 20:18:18.973    5921-5921/? D/A20262734-deleteBook: Book [id=8, title=Hello, Android, author=Wallace Jackson]

11-10 20:18:18.983    5921-5921/? D/A20262734-getAllBooks(): [Book [id=9, title=Professional Android 4 Application Development, author=Reto Meier],
Book [id=10, title=Beginning Android 4 Application Development, author=WeiMeng Lee], Book [id=11, title=Programming Android, author=Wallace Jackson],
Book [id=12, title=Hello, Android, author=Wallace Jackson], Book [id=13, title=Professional Android 4 Application Development, author=Reto Meier], Book
[id=14, title=Beginning Android 4 Application Development, author=WeiMeng Lee], Book [id=15, title=Programming Android, author=Wallace Jackson], Book
[id=16, title=Hello, Android, author=Wallace Jackson], Book [id=17, title=Professional Android 4 Application Development, author=Reto Meier], Book
[id=18, title=Beginning Android 4 Application Development, author=WeiMeng Lee], Book [id=19, title=Programming Android, author=Wallace Jackson], Book
[id=20, title=Hello, Android, author=Wallace Jackson], Book [id=21, title=Professional Android 4 Application Development, author=Reto Meier], Book
[id=22, title=Beginning Android 4 Application Development, author=WeiMeng Lee], Book [id=23, title=Programming Android, author=Wallace Jackson], Book
[id=24, title=Hello, Android, author=Wallace Jackson], Book [id=25, title=Professional Android 4 Application Development, author=Reto Meier], Book
[id=26, title=Beginning Android 4 Application Development, author=WeiMeng Lee], Book [id=27, title=Programming Android, author=Wallace Jackson], Book
[id=28, title=Hello, Android, author=Wallace Jackson], Book [id=29, title=Professional Android 4 Application Development, author=Reto Meier], Book
[id=30, title=Beginning Android 4 Application Development, author=WeiMeng Lee], Book [id=31, title=Programming Android, author=Wallace Jackson], Book
[id=32, title=Hello, Android, author=Wallace Jackson]]
```

Step 6 part 2 Logcat output

```
11-10 20:24:04.210    6080-6080/? D/A20262734-addBook: Book [id=0, title=Professional Android 4 Application Development, author=Reto Meier]

11-10 20:24:04.220    6080-6080/? D/A20262734-addBook: Book [id=0, title=Beginning Android 4 Application Development, author=WeiMeng Lee]

11-10 20:24:04.230    6080-6080/? D/A20262734-addBook: Book [id=0, title=Programming Android, author=Wallace Jackson]

11-10 20:24:04.250    6080-6080/? D/A20262734-addBook: Book [id=0, title=Hello, Android, author=Wallace Jackson]

11-10 20:24:04.270    6080-6080/? D/A20262734-getAllBooks(): [Book [id=10, title=Beginning Android 4 Application Development, author=WeiMeng Lee],
Book [id=11, title=Programming Android, author=Wallace Jackson], Book [id=12, title=Hello, Android, author=Wallace Jackson], Book [id=13,
title=Professional Android 4 Application Development, author=Reto Meier], Book [id=14, title=Beginning Android 4 Application Development,
author=WeiMeng Lee], Book [id=15, title=Programming Android, author=Wallace Jackson], Book [id=16, title=Hello, Android, author=Wallace Jackson], Book
[id=17, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=18, title=Beginning Android 4 Application Development,
author=WeiMeng Lee], Book [id=19, title=Programming Android, author=Wallace Jackson], Book [id=20, title=Hello, Android, author=Wallace Jackson], Book
[id=21, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=22, title=Beginning Android 4 Application Development,
author=WeiMeng Lee], Book [id=23, title=Programming Android, author=Wallace Jackson], Book [id=24, title=Hello, Android, author=Wallace Jackson], Book
[id=25, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=26, title=Beginning Android 4 Application Development,
author=WeiMeng Lee], Book [id=27, title=Programming Android, author=Wallace Jackson], Book [id=28, title=Hello, Android, author=Wallace Jackson], Book
[id=29, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=30, title=Beginning Android 4 Application Development,
author=WeiMeng Lee], Book [id=31, title=Programming Android, author=Wallace Jackson], Book [id=32, title=Hello, Android, author=Wallace Jackson], Book
[id=33, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=34, title=Beginning Android 4 Application Development,
author=WeiMeng Lee], Book [id=35, title=Programming Android, author=Wallace Jackson], Book [id=36, title=Hello, Android, author=Wallace Jackson], Book
[id=37, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=38, title=Beginning Android 4 Application Development,
author=WeiMeng Lee], Book [id=39, title=Programming Android, author=Wallace Jackson], Book [id=40, title=Hello, Android, author=Wallace Jackson]]

11-10 20:24:04.270    6080-6080/? D/A20262734-UpdateBook: Book [id=10, title=Beginning Android 4 Application Development, author=WeiMeng Lee]

11-10 20:24:04.280    6080-6080/? D/A20262734-deleteBook: Book [id=10, title=Beginning Android 4 Application Development, author=WeiMeng Lee]

11-10 20:24:04.290    6080-6080/? D/A20262734-getAllBooks(): [Book [id=11, title=Programming Android, author=Wallace Jackson], Book [id=12,
title=Hello, Android, author=Wallace Jackson], Book [id=13, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=14,
title=Beginning Android 4 Application Development, author=WeiMeng Lee], Book [id=15, title=Programming Android, author=Wallace Jackson], Book [id=16,
title=Hello, Android, author=Wallace Jackson], Book [id=17, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=18,
title=Beginning Android 4 Application Development, author=WeiMeng Lee], Book [id=19, title=Programming Android, author=Wallace Jackson], Book [id=20,
title=Hello, Android, author=Wallace Jackson], Book [id=21, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=22,
title=Beginning Android 4 Application Development, author=WeiMeng Lee], Book [id=23, title=Programming Android, author=Wallace Jackson], Book [id=24,
title=Hello, Android, author=Wallace Jackson], Book [id=25, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=26,
title=Beginning Android 4 Application Development, author=WeiMeng Lee], Book [id=27, title=Programming Android, author=Wallace Jackson], Book [id=28,
title=Hello, Android, author=Wallace Jackson], Book [id=29, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=30,
title=Beginning Android 4 Application Development, author=WeiMeng Lee], Book [id=31, title=Programming Android, author=Wallace Jackson], Book [id=32,
title=Hello, Android, author=Wallace Jackson], Book [id=33, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=34,
title=Beginning Android 4 Application Development, author=WeiMeng Lee], Book [id=35, title=Programming Android, author=Wallace Jackson], Book [id=36,
title=Hello, Android, author=Wallace Jackson], Book [id=37, title=Professional Android 4 Application Development, author=Reto Meier], Book [id=38,
title=Beginning Android 4 Application Development, author=WeiMeng Lee], Book [id=39, title=Programming Android, author=Wallace Jackson], Book [id=40,
title=Hello, Android, author=Wallace Jackson]]

11-10 20:24:04.290    6080-6080/? D/A20262734-getIds: 30
```

Source Code

MainActivity.java

```java
package hw6.itm455.iit.com.bookreviews;

import java.util.List;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        SqlHelper db = new SqlHelper(this);
        /** CRUD Operations **/
        // add Books
        db.addBook(new Book("Professional Android 4 Application Development",
                "Reto Meier"));
        db.addBook(new Book("Beginning Android 4 Application Development", "WeiMeng Lee"));
                db.addBook(new Book("Programming Android", "Wallace Jackson"));
        db.addBook(new Book("Hello, Android", "Wallace Jackson"));

        // get all books
        List<Book> list = db.getAllBooks();

        // update one book
        int j = db.updateBook(list.get(0), "Hello, Android", "Ben Wallace");
        // delete one book
        db.deleteBook(list.get(0));
        // get all books
        db.getAllBooks();
        // get the book count
        db.getIds(list.get(0));
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.menu_main, menu);
        return true;
    }

    @Override
```

```
    public boolean onOptionsItemSelected(MenuItem item) {
        // Handle action bar item clicks here. The action bar will
        // automatically handle clicks on the Home/Up button, so long
        // as you specify a parent activity in AndroidManifest.xml.
        int id = item.getItemId();

        //noinspection SimplifiableIfStatement
        if (id == R.id.action_settings) {
            return true;
        }

        return super.onOptionsItemSelected(item);
    }
}
```

Book.java

```
package hw6.itm455.iit.com.bookreviews;


public class Book {
    private int id;
    private String title;
    private String author;

    public Book() {
    }

    public Book(String title, String author) {
        super();
        this.title = title;
        this.author = author;
    }
    //getters & setters

    public int getId() {
        return id;
    }

    public void setId(int id) {
        this.id = id;
    }

    public String getTitle() {
        return title;
```

```
    }

    public void setTitle(String title) {
        this.title = title;
    }

    public String getAuthor() {
        return author;
    }

    public void setAuthor(String author) {
        this.author = author;
    }

    @Override
    public String toString() {
        return "Book [id=" + id + ", title=" + title + ", author=" + author
                + "]";
    }
}
```

SqlHelper.java

```java
package hw6.itm455.iit.com.bookreviews;

import java.util.LinkedList;
import java.util.List;
import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import android.util.Log;

public class SqlHelper extends SQLiteOpenHelper {

    // Log Prefix
    private static final String LOG_PREFIX = "A20262734-";

    // Database Version
    private static final int DATABASE_VERSION = 1;
    // Database Name
    private static final String DATABASE_NAME = "BookDB";

    // Books table name
    private static final String TABLE_BOOKS = "books";
```

```java
    // Books Table Columns names
    private static final String KEY_ID = "id";
    private static final String KEY_TITLE = "title";
    private static final String KEY_AUTHOR = "author";

    public SqlHelper(Context context) {
        super(context, DATABASE_NAME, null, DATABASE_VERSION);
    }
    @Override
    public void onCreate(SQLiteDatabase db) {
        // SQL statement to create book table
        String CREATE_BOOK_TABLE = "CREATE TABLE books ( " +
                "id INTEGER PRIMARY KEY AUTOINCREMENT, " +
                "title TEXT, "+
                "author TEXT )";
        // create books table
        db.execSQL(CREATE_BOOK_TABLE);
    }
    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {
        // Drop older books table if existed
        db.execSQL("DROP TABLE IF EXISTS books");
        // create fresh books table
        this.onCreate(db);
    }

    public void addBook(Book book){
        Log.d(this.LOG_PREFIX + "addBook", book.toString());
        // 1. get reference to writable DB
        SQLiteDatabase db = this.getWritableDatabase();
        // 2. create ContentValues to add key "column"/value
        ContentValues values = new ContentValues();
        values.put(KEY_TITLE, book.getTitle()); // get title
        values.put(KEY_AUTHOR, book.getAuthor()); // get author
        // 3. insert
        db.insert(TABLE_BOOKS, // table
                null, //nullColumnHack
                values); // key/value -> keys = column names/values
        // 4. Close dbase
        db.close();

    }

    // Get All Books
    public List<Book> getAllBooks() {
        List<Book> books = new LinkedList<Book>();
        // 1. build the query
        String query = "SELECT * FROM " + TABLE_BOOKS;
        // 2. get reference to writable DB
        SQLiteDatabase db = this.getWritableDatabase();
```

```
        Cursor cursor = db.rawQuery(query, null);
        // 3. go over each row, build book and add it to list
        Book book = null;
        if (cursor.moveToFirst()) {
            do {
                book = new Book();
                book.setId(Integer.parseInt(cursor.getString(0)));
                book.setTitle(cursor.getString(1));
                book.setAuthor(cursor.getString(2));
                // Add book to books
                books.add(book);
            } while (cursor.moveToNext());
        }
        Log.d(this.LOG_PREFIX + "getAllBooks()", books.toString());

        return books; // return books
    }

    // Updating single book
    public int updateBook(Book book, String newTitle, String newAuthor) {
        // 1. get reference to writable DB
        SQLiteDatabase db = this.getWritableDatabase();
        // 2. create ContentValues to add key "column"/value
        ContentValues values = new ContentValues();
        values.put("title", newTitle); // get title
        values.put("author", newAuthor); // get author
        // 3. updating row
        int i = db.update(TABLE_BOOKS, //table
                values, // column/value
                KEY_ID+" = ?", // selections
                new String[] { String.valueOf(4) }); //selection args
        // 4. close dbase
        db.close();
        Log.d(this.LOG_PREFIX + "UpdateBook", book.toString());
        return i;
    }

    // Deleting single book
    public void deleteBook(Book book) {
        // 1. get reference to writable DB
        SQLiteDatabase db = this.getWritableDatabase();
        // 2. delete
        db.delete(TABLE_BOOKS,
                KEY_ID+" = ?",
                new String[] { String.valueOf(book.getId()) });
        // 3. close
        db.close();
        Log.d(this.LOG_PREFIX + "deleteBook", book.toString());
    }

    public int getIds(Book book)
```

```
    {
        String selectQuery = "SELECT id FROM books";
        SQLiteDatabase database = this.getReadableDatabase();
        Cursor c = database.rawQuery(selectQuery, null);
        c.moveToFirst();
        int total = c.getCount();

        Log.d(this.LOG_PREFIX + "getIds", Integer.toString(total));

        return total;
    }


}
```