Group 3

DBHelper.java

```
package com.example.group3;

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

public class DBHelper extends SQLiteOpenHelper {

    public static final String DB_NAME = "LibraryDB.db";
    public static final int DB_VERSION = 1;

    public DBHelper(Context context) {
        super(context, DB_NAME, null, DB_VERSION);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        // Librarian Table (optional)
        db.execSQL("CREATE TABLE Librarians (id INTEGER PRIMARY KEY
AUTOINCREMENT, username TEXT, password TEXT)");

        // Members Table
        db.execSQL("CREATE TABLE Members (member_id INTEGER PRIMARY KEY
AUTOINCREMENT, member_name TEXT, phone TEXT)");

        // Books Table
        db.execSQL("CREATE TABLE Books (book_id INTEGER PRIMARY KEY
AUTOINCREMENT, title TEXT, author TEXT, available INTEGER)");

        // Transactions Table
        db.execSQL("CREATE TABLE Transactions (transaction_id INTEGER PRIMARY
KEY AUTOINCREMENT, member_id INTEGER, book_id INTEGER, borrow_date TEXT,
return_date TEXT)");
    }

    @Override
    public void onUpgrade(SQLiteDatabase db, int oldV, int newV) {
        db.execSQL("DROP TABLE IF EXISTS Librarians");
        db.execSQL("DROP TABLE IF EXISTS Members");
        db.execSQL("DROP TABLE IF EXISTS Books");
        db.execSQL("DROP TABLE IF EXISTS Transactions");
        onCreate(db);
    }
}
```

Login.java

```
package com.example.group3;
```

```
import android.content.Intent;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;

public class Login extends AppCompatActivity {

    EditText etUsername, etPassword;
    DBHelper dbHelper;

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

        etUsername = findViewById(R.id.etUsername);
        etPassword = findViewById(R.id.etPassword);
        dbHelper = new DBHelper(this);
    }

    public void loginLibrarian(View view) {
        String user = etUsername.getText().toString().trim();
        String pass = etPassword.getText().toString().trim();

        // Check for empty fields
        if (user.isEmpty() || pass.isEmpty()) {
            Toast.makeText(this, "Please fill all fields ",
Toast.LENGTH_SHORT).show();
            return;
        }



        // Proceed to DB check if inputs are valid
        SQLiteDatabase db = dbHelper.getReadableDatabase();
        Cursor c = db.rawQuery("SELECT * FROM Librarians WHERE username=? AND
password=?", new String[]{user, pass});

        if (c.moveToFirst()) {
            Toast.makeText(this, "Login successfully ",
Toast.LENGTH_SHORT).show();
            startActivity(new Intent(this, Dashboard.class));
            finish(); // Optional: close login screen
        } else {
            Toast.makeText(this, "Wrong credentials ",
Toast.LENGTH_SHORT).show();
        }

        c.close();
    }

    public void goToRegister(View view) {
        startActivity(new Intent(this, Register.class));
```

```
    }
}
```

Register.java

```
package com.example.group3;

import android.content.ContentValues;
import android.content.Intent;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;

public class Register extends AppCompatActivity {

    EditText etUsername, etPassword;
    DBHelper dbHelper;

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

        etUsername = findViewById(R.id.etUsername);
        etPassword = findViewById(R.id.etPassword);
        dbHelper = new DBHelper(this);
    }

    public void registerLibrarian(View view) {
        String user = etUsername.getText().toString().trim();
        String pass = etPassword.getText().toString().trim();

        //  1. Check if empty
        if (user.isEmpty() || pass.isEmpty()) {
            Toast.makeText(this, "Please fill all fields ",
Toast.LENGTH_SHORT).show();
            return;
        }



        //  3. Check if username already exists
        SQLiteDatabase db = dbHelper.getReadableDatabase();
        Cursor c = db.rawQuery("SELECT * FROM Librarians WHERE username=?",
new String[]{user});
        if (c.moveToFirst()) {
            Toast.makeText(this, "Username already exists ",
Toast.LENGTH_SHORT).show();
            c.close();
            return;
        }
```

```
        c.close();

        //  4. Insert new user
        SQLiteDatabase writableDb = dbHelper.getWritableDatabase();
        ContentValues cv = new ContentValues();
        cv.put("username", user);
        cv.put("password", pass);

        long result = writableDb.insert("Librarians", null, cv);

        if (result != -1) {
            Toast.makeText(this, "Registered successfully ",
Toast.LENGTH_SHORT).show();
            startActivity(new Intent(this, Login.class));
            finish();
        } else {
            Toast.makeText(this, "Registration failed ",
Toast.LENGTH_SHORT).show();
        }
    }

    public void goToLogin(View view) {
        startActivity(new Intent(this, Login.class));
    }
}
```

Dashboard.java

```
package com.example.group3;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import androidx.appcompat.app.AppCompatActivity;

public class Dashboard extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_dashboard);
    }

    public void goToMember(View view) {
        startActivity(new Intent(this, RegisterMember.class));
    }

    public void goToBooks(View view) {
        startActivity(new Intent(this, ManageBooks.class));
    }

    public void goToBorrow(View view) {
        startActivity(new Intent(this, BorrowReturn.class));
    }

    public void goToReport(View view) {
```

```
        startActivity(new Intent(this, LendingReport.class));
    }
}
```

Register member.java

```
package com.example.group3;

import android.annotation.SuppressLint;
import android.content.ContentValues;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;

public class RegisterMember extends AppCompatActivity {

    EditText etMemberName, etPhone;
    DBHelper dbHelper;

    @SuppressLint("MissingInflatedId")
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_register_member);

        etMemberName = findViewById(R.id.etMemberName);
        etPhone = findViewById(R.id.etPhone);
        dbHelper = new DBHelper(this);
    }

    public void registerMember(View view) {
        String name = etMemberName.getText().toString();
        String phone = etPhone.getText().toString();

        if (name.isEmpty() || phone.isEmpty()) {
            Toast.makeText(this, "All fields required ",
Toast.LENGTH_SHORT).show();
            return;
        }

        SQLiteDatabase db = dbHelper.getWritableDatabase();
        ContentValues cv = new ContentValues();
        cv.put("member_name", name);
        cv.put("phone", phone);

        long result = db.insert("Members", null, cv);
        if (result != -1) {
            Toast.makeText(this, "Member Registered successfully",
Toast.LENGTH_SHORT).show();
        } else {
            Toast.makeText(this, "Registration Failed ",
Toast.LENGTH_SHORT).show();
```

```
        }
    }
}
```

Manage book.java

```
package com.example.group3;

import android.annotation.SuppressLint;
import android.content.ContentValues;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;

public class ManageBooks extends AppCompatActivity {

    EditText etBookID, etTitle, etAuthor;
    DBHelper dbHelper;

    @SuppressLint("MissingInflatedId")
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_manage_books);

        etBookID = findViewById(R.id.etBookID);
        etTitle = findViewById(R.id.etTitle);
        etAuthor = findViewById(R.id.etAuthor);
        dbHelper = new DBHelper(this);
    }

    public void addBook(View view) {
        String title = etTitle.getText().toString();
        String author = etAuthor.getText().toString();

        SQLiteDatabase db = dbHelper.getWritableDatabase();
        ContentValues cv = new ContentValues();
        cv.put("title", title);
        cv.put("author", author);
        cv.put("available", 1);

        long result = db.insert("Books", null, cv);
        Toast.makeText(this, result != -1 ? "Book Added successfully" :
"Failed ", Toast.LENGTH_SHORT).show();
    }

    public void updateBook(View view) {
        String id = etBookID.getText().toString();
        String title = etTitle.getText().toString();
        String author = etAuthor.getText().toString();

        SQLiteDatabase db = dbHelper.getWritableDatabase();
```

```
        ContentValues cv = new ContentValues();
        cv.put("title", title);
        cv.put("author", author);

        int result = db.update("Books", cv, "book_id=?", new String[]{id});
        Toast.makeText(this, result > 0 ? "Book Updated successfully " : "Not
Found ", Toast.LENGTH_SHORT).show();
    }

    public void deleteBook(View view) {
        String id = etBookID.getText().toString();
        SQLiteDatabase db = dbHelper.getWritableDatabase();

        int result = db.delete("Books", "book_id=?", new String[]{id});
        Toast.makeText(this, result > 0 ? "Book Deleted successfully" : "Not
Found ", Toast.LENGTH_SHORT).show();
    }
}
```

Borrow AND return.java

```
package com.example.group3;

import android.annotation.SuppressLint;
import android.content.ContentValues;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
import java.text.SimpleDateFormat;
import java.util.Date;
import java.util.Locale;

public class BorrowReturn extends AppCompatActivity {

    EditText etMemberID, etBookID;
    DBHelper dbHelper;

    @SuppressLint("MissingInflatedId")
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_borrow_return);

        etMemberID = findViewById(R.id.etMemberID);
        etBookID = findViewById(R.id.etBookID);
        dbHelper = new DBHelper(this);
    }

    public void borrowBook(View view) {
        String memberID = etMemberID.getText().toString();
        String bookID = etBookID.getText().toString();
```

```
        String date = new SimpleDateFormat("yyyy-MM-dd",
Locale.getDefault()).format(new Date());

        SQLiteDatabase db = dbHelper.getWritableDatabase();

        Cursor check = db.rawQuery("SELECT available FROM Books WHERE
book_id=?", new String[]{bookID});
        if (check.moveToFirst()) {
            int isAvailable = check.getInt(0);
            if (isAvailable == 0) {
                Toast.makeText(this, "Book already borrowed ",
Toast.LENGTH_SHORT).show();
                return;
            }
        } else {
            Toast.makeText(this, "Book not found ",
Toast.LENGTH_SHORT).show();
            return;
        }

        ContentValues cv = new ContentValues();
        cv.put("member_id", memberID);
        cv.put("book_id", bookID);
        cv.put("borrow_date", date);

        long result = db.insert("Transactions", null, cv);
        db.execSQL("UPDATE Books SET available=0 WHERE book_id=?", new
String[]{bookID});

        Toast.makeText(this, result != -1 ? "Book Borrowed successfully" :
"Failed ", Toast.LENGTH_SHORT).show();
    }

    public void returnBook(View view) {
        String bookID = etBookID.getText().toString();
        String date = new SimpleDateFormat("yyyy-MM-dd",
Locale.getDefault()).format(new Date());

        SQLiteDatabase db = dbHelper.getWritableDatabase();

        Cursor c = db.rawQuery("SELECT * FROM Transactions WHERE book_id=?
AND return_date IS NULL", new String[]{bookID});
        if (c.moveToFirst()) {
            @SuppressLint("Range") int transactionID =
c.getInt(c.getColumnIndex("transaction_id"));

            ContentValues cv = new ContentValues();
            cv.put("return_date", date);
            db.update("Transactions", cv, "transaction_id=?", new
String[]{String.valueOf(transactionID)});

            db.execSQL("UPDATE Books SET available=1 WHERE book_id=?", new
String[]{bookID});
            Toast.makeText(this, "Book Returned successfully",
Toast.LENGTH_SHORT).show();
        } else {
            Toast.makeText(this, "Book is not borrowed ",
```

```
Toast.LENGTH_SHORT).show();
        }
    }
}
```

Lending Report.java

```
package com.example.group3;

import android.annotation.SuppressLint;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.widget.ArrayAdapter;
import android.widget.ListView;
import androidx.appcompat.app.AppCompatActivity;
import java.util.ArrayList;

public class LendingReport extends AppCompatActivity {

    ListView listViewReport;
    DBHelper dbHelper;

    @SuppressLint("MissingInflatedId")
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_lending_report);

        listViewReport = findViewById(R.id.listViewReport);
        dbHelper = new DBHelper(this);

        loadReport();
    }

    private void loadReport() {
        ArrayList<String> reportList = new ArrayList<>();
        SQLiteDatabase db = dbHelper.getReadableDatabase();

        String query = "SELECT t.transaction_id, m.member_name, b.title,
t.borrow_date, t.return_date " +
                "FROM Transactions t " +
                "JOIN Members m ON t.member_id = m.member_id " +
                "JOIN Books b ON t.book_id = b.book_id";

        Cursor c = db.rawQuery(query, null);
        while (c.moveToNext()) {
            String line = "ID: " + c.getInt(0) +
                    "\nMember: " + c.getString(1) +
                    "\nBook: " + c.getString(2) +
                    "\nBorrowed: " + c.getString(3) +
                    "\nReturned: " + (c.getString(4) == null ? "Not yet" :
c.getString(4));
            reportList.add(line);
        }
```

```
        c.close();

        ArrayAdapter<String> adapter = new ArrayAdapter<>(this,
android.R.layout.simple_list_item_1, reportList);
        listViewReport.setAdapter(adapter);
    }
}
```