Expt 3

MainActivity.java

package com.example.expt3;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.util.Patterns;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.Toast;

import java.util.regex.Pattern;

public class MainActivity extends AppCompatActivity {

EditText username, password;

Button login, signup;

DBHelper DB;

// Define regex patterns

private static final Pattern USERNAME\_PATTERN = Pattern.compile("^[a-zA-Z0-9\_]{4,}$");

private static final Pattern PASSWORD\_PATTERN = Pattern.compile("^(?=.\*[a-z])(?=.\*[A-Z])(?=.\*\\d).{6,}$");

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

username = findViewById(R.id.username);

password = findViewById(R.id.password);

login = findViewById(R.id.btnLogin);

signup = findViewById(R.id.btnSignup);

DB = new DBHelper(this);

signup.setOnClickListener(v -> {

String user = username.getText().toString().trim();

String pass = password.getText().toString().trim();

if (!isValidInput(user, pass)) return;

if (DB.checkUsername(user)) {

Toast.makeText(MainActivity.this, "User already exists! Please log in.", Toast.LENGTH\_SHORT).show();

} else {

boolean insert = DB.insertData(user, pass);

if (insert) {

Toast.makeText(MainActivity.this, "Registered successfully", Toast.LENGTH\_SHORT).show();

} else {

Toast.makeText(MainActivity.this, "Registration failed", Toast.LENGTH\_SHORT).show();

}

}

});

login.setOnClickListener(v -> {

String user = username.getText().toString().trim();

String pass = password.getText().toString().trim();

if (!isValidInput(user, pass)) return;

if (DB.checkUsernamePassword(user, pass)) {

Toast.makeText(MainActivity.this, "Login successful", Toast.LENGTH\_SHORT).show();

// Navigate to next screen (optional)

} else {

Toast.makeText(MainActivity.this, "Invalid credentials", Toast.LENGTH\_SHORT).show();

}

});

}

private boolean isValidInput(String user, String pass) {

if (user.isEmpty() || pass.isEmpty()) {

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

return false;

}

if (!USERNAME\_PATTERN.matcher(user).matches()) {

Toast.makeText(this, "Username must be at least 4 characters and contain only letters, digits, or \_", Toast.LENGTH\_LONG).show();

return false;

}

if (!PASSWORD\_PATTERN.matcher(pass).matches()) {

Toast.makeText(this, "Password must be at least 6 characters with uppercase, lowercase, and digit", Toast.LENGTH\_LONG).show();

return false;

}

return true;

}

}

Activity\_main.xml

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

<LinearLayout

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

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:orientation="vertical"

android:padding="16dp"

android:gravity="center">

<EditText

android:id="@+id/username"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Username"

android:padding="10dp"

android:layout\_marginBottom="10dp"

android:inputType="text" />

<EditText

android:id="@+id/password"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Password"

android:padding="10dp"

android:layout\_marginBottom="20dp"

android:inputType="textPassword" />

<Button

android:id="@+id/btnLogin"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Login"

android:layout\_marginBottom="10dp" />

<Button

android:id="@+id/btnSignup"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Sign Up" />

</LinearLayout>

DbHelper.java (in the same folder as MainActivity.java right-click on the folder-> new class-> name.java->enter )

package com.example.expt3;

import android.content.ContentValues;

import android.content.Context;

import android.database.Cursor;

import android.database.sqlite.SQLiteDatabase;

import android.database.sqlite.SQLiteOpenHelper;

public class DBHelper extends SQLiteOpenHelper {

public static final String DBNAME = "Login.db";

public DBHelper(Context context) {

super(context, DBNAME, null, 1);

}

@Override

public void onCreate(SQLiteDatabase DB) {

DB.execSQL("CREATE TABLE users(username TEXT PRIMARY KEY, password TEXT)");

}

@Override

public void onUpgrade(SQLiteDatabase DB, int oldVersion, int newVersion) {

DB.execSQL("DROP TABLE IF EXISTS users");

}

public Boolean insertData(String username, String password) {

SQLiteDatabase DB = this.getWritableDatabase();

ContentValues contentValues = new ContentValues();

contentValues.put("username", username);

contentValues.put("password", password);

long result = DB.insert("users", null, contentValues);

return result != -1;

}

public Boolean checkUsername(String username) {

SQLiteDatabase DB = this.getWritableDatabase();

Cursor cursor = DB.rawQuery("SELECT \* FROM users WHERE username = ?", new String[]{username});

return cursor.getCount() > 0;

}

public Boolean checkUsernamePassword(String username, String password) {

SQLiteDatabase DB = this.getWritableDatabase();

Cursor cursor = DB.rawQuery("SELECT \* FROM users WHERE username = ? AND password = ?", new String[]{username, password});

return cursor.getCount() > 0;

}

}