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CSE-A

**Ex. No. 4 Android Application Development using Database**

**Aim:** Develop a Product information application in Android that enables to perform CRUD operations on data stored in SQLite Database.

**Layout Used:** Linear Layout, Table Layout

**Intents:** Insert, Retrieve, Retrieve All, Update, Delete and Main **Code:**

**MainActivity.java:**

package com.example.ex4;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

public class MainActivity extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

final Database[] db = new Database[1];

Button create = findViewById(R.id.create);

create.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) {

db[0] = new Database(MainActivity.this);

}

});

Button insert = findViewById(R.id.insert);

insert.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) {

Intent intent = new Intent(MainActivity.this, Insert.class); startActivity(intent);

}

});

Button delete = findViewById(R.id.delete);

delete.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) {

Intent intent = new Intent(MainActivity.this,Delete.class); startActivity(intent);

}

});

Button retrieve = findViewById(R.id.read);

retrieve.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) {

Intent intent = new Intent(MainActivity.this,Retrieve.class); startActivity(intent);

}

});

Button retrieveAll = findViewById(R.id.read\_all);

retrieveAll.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) {

Intent intent = new Intent(MainActivity.this,RetrieveAll.class); startActivity(intent);

}

});

Button update = findViewById(R.id.update);

update.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) {

Intent intent = new Intent(MainActivity.this,Update.class); startActivity(intent);

}

});

}

}

**Database.java:**

package com.example.ex4;

import

android.content.ContentValues;

import android.content.Context;

import android.database.Cursor;

import android.database.sqlite.SQLiteDatabase;

import android.database.sqlite.SQLiteOpenHelper;

public class Database extends SQLiteOpenHelper {

private static final String DB\_NAME = "product";

private static final int DB\_VERSION = 3;

private static final String TABLE\_NAME = "prod"; private static final String ID\_COL = "id";

private static final String NAME\_COL = "name"; private static final String BRAND\_COL = "brand";

private static final String DESC\_COL = "desc"; private static final String PRICE\_COL = "price";

public Database(Context context) {

super(context, DB\_NAME, null, DB\_VERSION); }

@Override

public void onCreate(SQLiteDatabase db) {

String query = "CREATE TABLE " + TABLE\_NAME + " (" + ID\_COL + " INTEGER PRIMARY KEY, "

+ NAME\_COL + " TEXT,"

+ BRAND\_COL + " TEXT,"

+ DESC\_COL + " TEXT,"

+ PRICE\_COL + " TEXT)";

// at last we are calling a exec sql

// method to execute above sql query

db.execSQL(query);

}

// this method is use to add new course to our sqlite database.

public void addProduct(String id,String name,String brand, String desc, String price) {

// on below line we are creating a variable for

// our sqlite database and calling writable method

// as we are writing data in our database.

SQLiteDatabase db = this.getWritableDatabase();

// on below line we are creating a

// variable for content values.

ContentValues values = new ContentValues();

// on below line we are passing all values

// along with its key and value pair.

values.put(ID\_COL,id);

values.put(NAME\_COL, name);

values.put(BRAND\_COL,brand);

values.put(DESC\_COL, desc);

values.put(PRICE\_COL, price);

// after adding all values we are passing

// content values to our table.

db.insert(TABLE\_NAME, null, values);

// at last we are closing our

// database after adding database.

db.close();

}

public void deleteProduct(String id){

SQLiteDatabase db = this.getWritableDatabase();

db.delete(TABLE\_NAME,ID\_COL+"= ?",new String[]{id}); }

public void updateProduct(String id,String price){

SQLiteDatabase db = this.getWritableDatabase(); ContentValues values = new ContentValues();

values.put(PRICE\_COL, price);

db.update(TABLE\_NAME, values, ID\_COL + "=?", new String[]{String.valueOf(id)});

}

public Cursor retrieveAll(){

SQLiteDatabase db = this.getReadableDatabase(); return db.query(TABLE\_NAME, null, null, null, null, null, null); }

public Cursor retrieve(String id){

SQLiteDatabase db = this.getReadableDatabase(); String[] projection = {

NAME\_COL,

BRAND\_COL,

DESC\_COL,

PRICE\_COL

};

// Define the condition for retrieval (e.g., where id = ?) String selection = ID\_COL + " = ?";

String[] selectionArgs = { id };

// Execute the query

Cursor cursor = db.query(

TABLE\_NAME, // Table name

projection, // Columns to return

selection, // Selection (WHERE

clause) selectionArgs, //

Selection arguments null, // Group by

null, // Having

null // Order by

);

// The cursor now contains the retrieved row(s)

return cursor;

}

@Override

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

// this method is called to check if the table exists already. db.execSQL("DROP TABLE IF EXISTS " + TABLE\_NAME); onCreate(db);

}

}

**Insert.java:**

package com.example.ex4;

import android.content.Intent;

import android.os.Bundle;

import android.util.Log;

import android.view.View;

import android.widget.Button;

import

android.widget.RadioButton;

import android.widget.RadioGroup;

import android.widget.TextView;

import

androidx.appcompat.app.AppCompatActivity; public class Insert extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState){ super.onCreate(savedInstanceState);

setContentView(R.layout.insert);

Button backi = findViewById(R.id.backi);

backi.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) {

Intent intent = new Intent(Insert.this,MainActivity.class); startActivity(intent);

}

});

Button submiti = findViewById(R.id.submiti);

submiti.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) {

Database db = new Database(Insert.this);

TextView textView = findViewById(R.id.idi);

String id = textView.getText().toString();

textView = findViewById(R.id.namei);

String name = textView.getText().toString();

RadioGroup radioGroup = findViewById(R.id.radioGroup); int selectedRadioButtonId =

radioGroup.getCheckedRadioButtonId();

RadioButton selectedRadioButton =

findViewById(selectedRadioButtonId);

String brand = selectedRadioButton.getText().toString(); Log.d("Debug",brand);

textView = findViewById(R.id.desci);

String desc =

textView.getText().toString();

Log.d("Debug",desc);

textView = findViewById(R.id.pricei);

String price =

textView.getText().toString();

db.addProduct(id,name,brand,desc,price);

}

});

}

}

**Retrieve:**

package com.example.ex4;

import android.content.Intent;

import android.database.Cursor;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity; public class Retrieve extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState){ super.onCreate(savedInstanceState);

setContentView(R.layout.retrieve);

Button backr = findViewById(R.id.backr);

backr.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) {

Intent intent = new Intent(Retrieve.this,MainActivity.class); startActivity(intent);

}

});

Button retrieve = findViewById(R.id.retrieve);

retrieve.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) {

TextView textView = findViewById(R.id.idr);

String id = textView.getText().toString();

Database db = new Database(Retrieve.this);

Cursor cursor = db.retrieve(id);

String name="",brand="",desc="",price="";

if (cursor.moveToFirst()) {

do {

// Retrieve values from 'column1' and 'column2' as strings int columnIndex = cursor.getColumnIndex("name"); if (columnIndex != -1) {

name = cursor.getString(columnIndex);

}

columnIndex = cursor.getColumnIndex("brand");

if(columnIndex!=-1){

brand=cursor.getString(columnIndex);

}

columnIndex =

cursor.getColumnIndex("desc");

if(columnIndex!=-1){

desc=cursor.getString(columnIndex);

}

columnIndex =

cursor.getColumnIndex("price");

if(columnIndex!=-1){

price=cursor.getString(columnIndex);

}

} while (cursor.moveToNext());

}

textView = findViewById(R.id.namer); textView.setText(name);

textView = findViewById(R.id.brandr); textView.setText(brand);

textView = findViewById(R.id.descr); textView.setText(desc);

textView = findViewById(R.id.pricer); textView.setText(price);

}

});

}

}

**Retrieve All:**

package com.example.ex4;

import android.content.Context;

import android.content.Intent;

import android.database.Cursor;

import android.graphics.Color;

import android.os.Bundle;

import android.util.Log;

import android.view.View;

import android.view.ViewGroup;

import android.widget.Button;

import android.widget.TableLayout;

import android.widget.TableRow;

import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

import androidx.constraintlayout.widget.ConstraintLayout; import androidx.constraintlayout.widget.ConstraintSet;

import org.w3c.dom.Text;

public class RetrieveAll extends AppCompatActivity {

private TextView newTextView(String text){

TextView tv = new TextView(RetrieveAll.this);

tv.setText(text);

tv.setPadding(4,4,4,4);

tv.setTextSize(24);

TableRow.LayoutParams layoutParams = new

TableRow.LayoutParams(

TableRow.LayoutParams.WRAP\_CONTENT, // Adjust width as

needed

needed

);

layoutParams.rightMargin = 20;

TableRow.LayoutParams.WRAP\_C ONTENT // Adjust height as

tv.setLayoutParams(layoutParams);

return tv;

}

@Override

protected void onCreate(Bundle savedInstanceState){ super.onCreate(savedInstanceState);

setContentView(R.layout.retrieve\_all);

Database db = new Database(RetrieveAll.this);

Cursor cursor = db.retrieveAll();

ConstraintLayout parent = findViewById(R.id.parent);

// Create layout params for the TableLayout

// ConstraintLayout.LayoutParams tableLayoutParams = new ConstraintLayout.LayoutParams(

// ConstraintLayout.LayoutParams.MATCH\_PARENT, // ConstraintLayout.LayoutParams.MATCH\_PARENT // );

// tableLayoutParams.startToStart =

ConstraintLayout.LayoutParams.PARENT\_ID

;

// tableLayoutParams.endToEnd =

ConstraintLayout.LayoutParams.PARENT\_ID

;

// tableLayoutParams.topToTop =

ConstraintLayout.LayoutParams.PARENT\_ID

;

// tableLayoutParams.bottomToBottom =

ConstraintLayout.LayoutParams.PARENT\_ID

;

TableLayout tl = new TableLayout(RetrieveAll.this);

TableRow trh = new TableRow(RetrieveAll.this);

TextView tv0 = newTextView("Id");

trh.addView(tv0);

tv0 = newTextView("Name");

trh.addView(tv0);

tv0 = newTextView("Brand");

trh.addView(tv0);

tv0 = newTextView("Description");

trh.addView(tv0);

tv0 = newTextView("Price");

trh.addView(tv0);

tl.addView(trh);

String id="",name="",brand="",desc="",price=""; if (cursor.moveToFirst()) {

do {

// Retrieve values from 'column1' and 'column2' as strings int columnIndex = cursor.getColumnIndex("id"); if (columnIndex != -1) {

id = cursor.getString(columnIndex);

}

columnIndex =

cursor.getColumnIndex("name");

if(columnIndex!=-1){

name=cursor.getString(columnIndex);

}

columnIndex =

cursor.getColumnIndex("brand");

if(columnIndex!=-1){

brand=cursor.getString(columnIndex);

}

columnIndex =

cursor.getColumnIndex("desc");

if(columnIndex!=-1){

desc=cursor.getString(columnIndex);

}

columnIndex =

cursor.getColumnIndex("price");

if(columnIndex!=-1){

price=cursor.getString(columnIndex);

}

Log.d("Debug",id+" "+name+" "+brand+" "+desc+" "+price);

TableRow tr = new TableRow(RetrieveAll.this);

TextView tv1 = newTextView(id);

TextView tv2 = newTextView(name);

TextView tv3 = newTextView(brand);

TextView tv4 = newTextView(desc);

TextView tv5 = newTextView(price);

tr.addView(tv1)

;

tr.addView(tv2)

;

tr.addView(tv3)

;

tr.addView(tv4)

;

tr.addView(tv5)

;

tl.addView(tr);

} while (cursor.moveToNext());

}

parent.addView(tl);

// app:layout\_constraintEnd\_toEndOf="parent"

// app:layout\_constraintStart\_toStartOf="parent"

// app:layout\_constraintTop\_toTopOf="parent"

Button retrieveAll = findViewById(R.id.backra);

retrieveAll.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) {

Intent intent = new Intent(RetrieveAll.this,MainActivity.class);

startActivity(intent); }

});

}

}

**Update:**

package com.example.ex4;

import android.content.Intent;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import

android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity; public class Update extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState){ super.onCreate(savedInstanceState);

setContentView(R.layout.update);

Button backu = findViewById(R.id.backu);

backu.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) {

Intent intent = new Intent(Update.this,MainActivity.class); startActivity(intent);

}

});

Button update = findViewById(R.id.update);

update.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

Database db = new Database(Update.this);

TextView textView =

findViewById(R.id.idu); String id =

textView.getText().toString(); textView =

findViewById(R.id.priceu); String price =

textView.getText().toString();

db.updateProduct(id,price);

}

});

}

}

**Delete.java:**

package com.example.ex4;

import android.content.Intent;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import

android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity; public class Delete extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState){ super.onCreate(savedInstanceState);

setContentView(R.layout.delete);

Button backd = findViewById(R.id.backd);

backd.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

}

});

Intent intent = new

Intent(Delete.this,MainActivity.class); startActivity(intent);

Button delete = findViewById(R.id.delete);

delete.setOnClickListener(new View.OnClickListener() { @Override

public void onClick(View v) {

Database db = new Database(Delete.this);

TextView textView = findViewById(R.id.idd);

String id = textView.getText().toString();

db.deleteProduct(id);

}

});

}

}

**Activity\_main.xml:**

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

<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android" xmlns:tools="http://schemas.android.com/tools"

xmlns:app="http://schemas.android.com/apk/res-auto" android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

tools:context=".MainActivity">

<RelativeLayout

android:layout\_width="match\_parent"

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

<!-- Center the LinearLayout vertically -->

<LinearLayout

android:id="@+id/verticalLayout"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_centerInParent="true"

android:orientation="vertical">

<!-- Add your UI elements within this LinearLayout -->

<Button

android:id="@+id/create"

android:layout\_width="177dp"

android:layout\_height="62dp"

android:text="Create" />

<Button

android:id="@+id/insert"

android:layout\_width="177dp"

android:layout\_height="62dp"

android:text="Insert" />

<Button

android:id="@+id/read"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Retrieve" />

<Button

android:id="@+id/read\_all"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Retrieve All" />

<Button

android:id="@+id/update"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Update" />

<Button

android:id="@+id/delete"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Delete" />

<!-- Add more views here as needed -->

</LinearLayout>

</RelativeLayout>

</androidx.constraintlayout.widget.ConstraintLayout> **Insert.xml:**

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

<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android" xmlns:app="http://schemas.android.com/apk/res-auto" xmlns:tools="http://schemas.android.com/tools" android:layout\_width="match\_parent"

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

<LinearLayout

android:layout\_width="409dp"

android:layout\_height="665dp"

android:layout\_marginTop="50dp"

android:orientation="vertical"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintStart\_toStartOf="parent" app:layout\_constraintTop\_toTopOf="parent">

<LinearLayout

android:layout\_width="match\_parent" android:layout\_height="87dp"

android:orientation="horizontal">

<TextView

android:id="@+id/textView3"

android:layout\_width="120dp"

android:layout\_height="55dp"

android:layout\_weight="1"

android:text="Product Id"

android:textSize="24sp" />

<EditText

android:id="@+id/idi"

android:layout\_width="wrap\_content" android:layout\_height="58dp"

android:layout\_weight="1"

android:ems="10"

android:inputType="textPersonName " android:textSize="24sp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent" android:layout\_height="84dp"

android:orientation="horizontal">

<TextView

android:id="@+id/textView5"

android:layout\_width="131dp"

android:layout\_height="58dp"

android:layout\_weight="1"

android:text="Product Name"

android:textSize="24sp" />

<EditText

android:id="@+id/namei"

android:layout\_width="wrap\_content" android:layout\_height="59dp"

android:layout\_weight="1"

android:ems="10"

android:inputType="textPersonName " android:textSize="24sp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent" android:layout\_height="94dp"

android:orientation="horizontal">

<TextView

android:id="@+id/textView6"

android:layout\_width="198dp"

android:layout\_height="71dp"

android:layout\_weight="1"

android:text="Brand"

android:textSize="24sp" />

<RadioGroup

android:id="@+id/radioGroup"

android:layout\_width="match\_parent" android:layout\_height="match\_parent" android:layout\_weight="1" >

<RadioButton

android:id="@+id/radio1"

android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:textSize="24sp"

android:text="A" />

<RadioButton

android:id="@+id/radio2"

android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:textSize="24sp"

android:text="B" />

</RadioGroup>

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent" android:layout\_height="93dp"

android:orientation="horizontal">

<TextView

android:id="@+id/textView7"

android:layout\_width="146dp"

android:layout\_height="73dp"

android:layout\_weight="1"

android:text="Description"

android:textSize="24sp" />

<EditText

android:id="@+id/desci"

android:layout\_width="wrap\_content" android:layout\_height="75dp"

android:layout\_weight="1"

android:ems="10"

android:inputType="textPersonName "

android:textSize="24sp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent" android:layout\_height="96dp"

android:orientation="horizontal">

<TextView

android:id="@+id/textView8"

android:layout\_width="114dp"

android:layout\_height="79dp"

android:layout\_weight="1"

android:text="Price"

android:textSize="24sp" />

<EditText

android:id="@+id/pricei"

android:layout\_width="wrap\_content" android:layout\_height="82dp"

android:layout\_weight="1"

android:ems="10"

android:inputType="textPersonName " android:textSize="24sp" />

</LinearLayout>

<Button

android:id="@+id/submiti"

android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:text="Submit" />

<Button

android:id="@+id/backi"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Back" />

</LinearLayout>

</androidx.constraintlayout.widget.ConstraintLayout> **Retrieve.xml:**

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

<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android" xmlns:app="http://schemas.android.com/apk/res-auto" xmlns:tools="http://schemas.android.com/tools" android:layout\_width="match\_parent"

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

<LinearLayout

android:id="@+id/linearLayout"

android:layout\_width="414dp"

android:layout\_height="203dp"

android:orientation="vertical"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintHorizontal\_bias="1.0"

app:layout\_constraintStart\_toStartOf="parent" tools:ignore="MissingConstraints"

tools:layout\_editor\_absoluteY="-2dp">

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="103dp"

android:orientation="horizontal">

<TextView

android:id="@+id/textView"

android:layout\_width="144dp"

android:layout\_height="64dp"

android:layout\_weight="1"

android:text="Product Id"

android:textSize="24sp" />

<EditText

android:id="@+id/idr"

android:layout\_width="wrap\_content"

android:layout\_height="83dp"

android:layout\_weight="1"

android:ems="10"

android:inputType="textPersonName

" android:textSize="24sp" />

</LinearLayout>

<Button

android:id="@+id/retrieve"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Retrieve" />

<Button

android:id="@+id/backr"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Back" />

</LinearLayout>

<LinearLayout

android:layout\_marginTop="50dp"

android:layout\_width="411dp"

android:layout\_height="459dp"

android:orientation="vertical"

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toBottomOf="@+id/linearLayout">

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="84dp"

android:orientation="horizontal">

<TextView

android:id="@+id/textView5"

android:layout\_width="131dp"

android:layout\_height="58dp"

android:layout\_weight="1"

android:text="Product Name"

android:textSize="24sp" />

<TextView

android:id="@+id/namer"

android:layout\_width="146dp"

android:layout\_height="73dp"

android:layout\_weight="1"

android:text=""

android:textSize="24sp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="94dp"

android:orientation="horizontal">

<TextView

android:id="@+id/textView6"

android:layout\_width="198dp"

android:layout\_height="71dp"

android:layout\_weight="1"

android:text="Brand"

android:textSize="24sp" />

<TextView

android:id="@+id/brandr"

android:layout\_width="146dp" android:layout\_height="73dp"

android:layout\_weight="1"

android:text=""

android:textSize="24sp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent" android:layout\_height="93dp"

android:orientation="horizontal">

<TextView

android:id="@+id/textView0"

android:layout\_width="146dp" android:layout\_height="73dp"

android:layout\_weight="1"

android:text="Description"

android:textSize="24sp" />

<TextView

android:id="@+id/descr"

android:layout\_width="146dp" android:layout\_height="73dp"

android:layout\_weight="1"

android:text=""

android:textSize="24sp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="96dp"

android:orientation="horizontal">

<TextView

android:id="@+id/textView8"

android:layout\_width="114dp"

android:layout\_height="79dp"

android:layout\_weight="1"

android:text="Price"

android:textSize="24sp" />

<TextView

android:id="@+id/pricer"

android:layout\_width="146dp"

android:layout\_height="73dp"

android:layout\_weight="1"

android:text=""

android:textSize="24sp" />

</LinearLayout>

</LinearLayout>

</androidx.constraintlayout.widget.ConstraintLayout> **Retrieve All:**

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

<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android" xmlns:app="http://schemas.android.com/apk/res-auto" xmlns:tools="http://schemas.android.com/tools" android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:id="@+id/parent">

<Button

android:id="@+id/backra"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Back"

app:layout\_constraintBottom\_toBottomOf="parent" app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout> **Update.xml:**

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

<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android" xmlns:app="http://schemas.android.com/apk/res-auto" xmlns:tools="http://schemas.android.com/tools" android:layout\_width="match\_parent"

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

<LinearLayout

android:layout\_width="412dp"

android:layout\_height="352dp"

android:orientation="vertical"

app:layout\_constraintStart\_toStartOf="parent" tools:layout\_editor\_absoluteY="186dp"

tools:ignore="MissingConstraints">

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="107dp"

android:orientation="horizontal">

<TextView

android:id="@+id/textView2"

android:layout\_width="105dp"

android:layout\_height="80dp"

android:layout\_weight="1"

android:textSize="24sp"

android:text="Product Id" />

<EditText

android:id="@+id/idu"

android:layout\_width="wrap\_content" android:layout\_height="match\_parent" android:layout\_weight="1"

android:ems="10"

android:inputType="textPersonName" android:textSize="24sp" />

</LinearLayout>

<LinearLayout

android:layout\_width="match\_parent" android:layout\_height="97dp"

android:orientation="horizontal">

<TextView

android:id="@+id/textView4"

android:layout\_width="108dp"

android:layout\_height="79dp"

android:layout\_weight="1"

android:textSize="24sp"

android:text="Price" />

<EditText

android:id="@+id/priceu"

android:layout\_width="wrap\_content"

android:layout\_height="match\_parent"

android:layout\_weight="1"

android:ems="10"

android:textSize="24sp"

android:inputType="textPersonName" />

</LinearLayout>

<Button

android:id="@+id/update"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Update" />

<Button

android:id="@+id/backu"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Back" />

</LinearLayout>

</androidx.constraintlayout.widget.ConstraintLayout> **Delete.xml:**

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

<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android" xmlns:app="http://schemas.android.com/apk/res-auto" xmlns:tools="http://schemas.android.com/tools" android:layout\_width="match\_parent"

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

<LinearLayout

android:layout\_width="414dp"

android:layout\_height="475dp"

android:orientation="vertical"

app:layout\_constraintEnd\_toEndOf="parent" app:layout\_constraintStart\_toStartOf="parent" tools:layout\_editor\_absoluteY="101dp" tools:ignore="MissingConstraints">

<LinearLayout

android:layout\_width="match\_parent" android:layout\_height="152dp"

android:orientation="horizontal">

<TextView

android:id="@+id/textView"

android:layout\_width="144dp"

android:layout\_height="89dp"

android:layout\_weight="1"

android:textSize="24sp"

android:text="Product Id" />

<EditText

android:id="@+id/idd"

android:layout\_width="wrap\_content" android:layout\_height="match\_parent" android:layout\_weight="1"

android:ems="10"

android:inputType="textPersonName" android:textSize="24sp" />

</LinearLayout>

<Button

android:id="@+id/delete"

android:layout\_width="match\_parent" android:layout\_height="wrap\_content" android:text="Delete" />

<Button

android:id="@+id/backd"

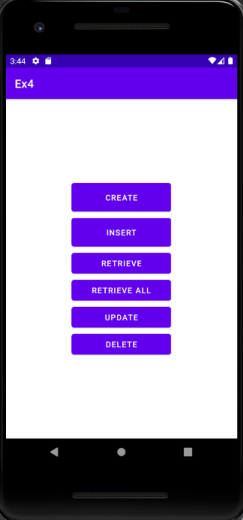
android:layout\_width="match\_parent"

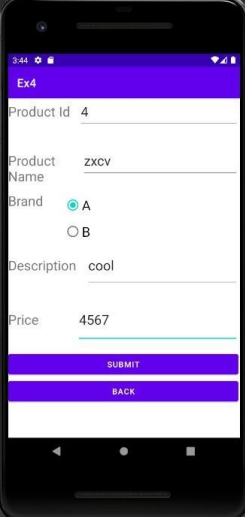
android:layout\_height="wrap\_content"

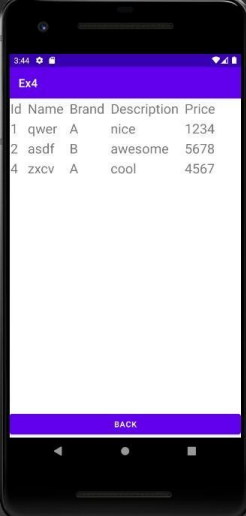
android:text="Back" />

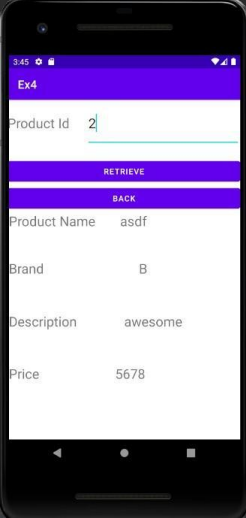
</LinearLayout>

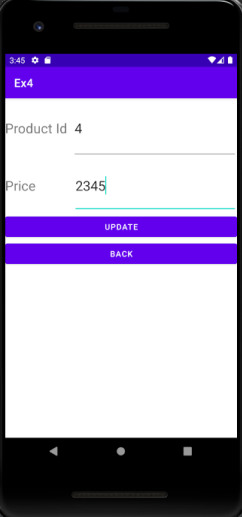
</androidx.constraintlayout.widget.ConstraintLayout> **Output:**

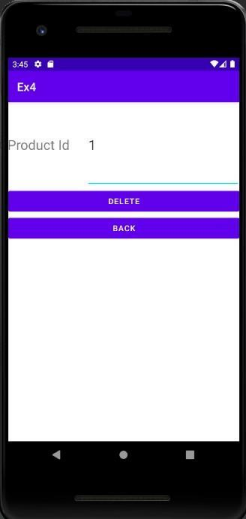
****

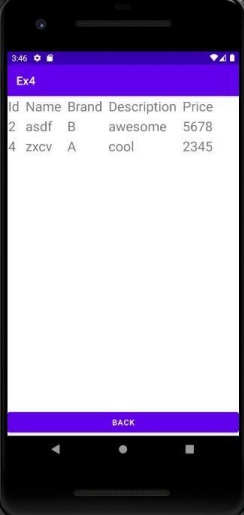
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**Best Practices:**

● Used apt names for xml and java files.

● Set padding and margins for dynamically added elements

**Learning Outcomes:**

● Learnt to integrate sqlite3 in android studio ● Learnt to do CRUD operations