МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РОССИЙСКОЙ ФЕДЕРАЦИИ

Федерально автономное образовательное учреждение высшего образования

«Севастопольский государственный университет»

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курс 3 группа ИС/б-31-о

09.03.02 Информационные системы и технологии (уровень бакалавриата)

ОТЧЕТ

по лабораторной работе №5

по дисциплине «Мобильные ИТ»

на тему «Исследование работы Andriod-приложения с базой данных»

Отметка о зачете \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_

(дата)

Руководитель практикума

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Севастополь 2017

1. ЦЕЛЬ РАБОТЫ

Изучить работу Android приложения с базой данных.

1. ИСХОДНЫЙ КОД

MainActivity.java

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| |  |  | | --- | --- | | 1 | package ru.justnero.sevsu.s3.mit.e5; | | 2 |  | | 3 | import *android.content.Intent*; | | 4 | import *android.database.sqlite.SQLiteDatabase*; | | 5 | import *android.support.v7.app.AppCompatActivity*; | | 6 | import *android.os.Bundle*; | | 7 | import *android.view.View*; | | 8 | import *android.widget.Button*; | | 9 | import *android.widget.EditText*; | | 10 | import *android.widget.NumberPicker*; | | 11 |  | | 12 | public class MainActivity extends *AppCompatActivity* implements *View*.*OnClickListener* { | | 13 |  | | 14 | *Button* btnUpdate, btnAdd, btnShow; | | 15 | *NumberPicker* nbValue; | | 16 | *EditText* etKey; | | 17 |  | | 18 | *@Override* | | 19 | protected *void* onCreate(*Bundle* *savedInstanceState*) { | | 20 | super.onCreate(savedInstanceState); | | 21 | setContentView(*R*.layout.activity\_main); | | 22 |  | | 23 |  | | 24 | btnAdd = (*Button*) findViewById(*R*.id.btnAddNew); | | 25 | btnShow = (*Button*) findViewById(*R*.id.btnShow); | | 26 | btnUpdate = (*Button*) findViewById(*R*.id.btnUpdate); | | 27 |  | | 28 | btnAdd.setOnClickListener(this); | | 29 | btnUpdate.setOnClickListener(this); | | 30 | btnShow.setOnClickListener(this); | | 31 |  | | 32 | nbValue = (*NumberPicker*) findViewById(*R*.id.npAge); | | 33 | etKey = (*EditText*) findViewById(*R*.id.etName); | | 34 |  | | 35 | *Db* db = new *Db*(getApplicationContext()); | | 36 | *SQLiteDatabase* table = db.getWritableDatabase(); | | 37 |  | | 38 | nbValue.setMaxValue(100); | | 39 | nbValue.setMinValue(0); | | 40 | } | | 41 |  | | 42 | *@Override* | | 43 | public *void* onClick(*View* *v*) { | | 44 | switch (v.getId()) { | | 45 | case *R*.id.btnShow: { | | 46 | *Intent* intent = new *Intent*(this, *Table*.class); | | 47 | startActivity(intent); | | 48 | break; | | 49 | } | | 50 |  | | 51 | case *R*.id.btnAddNew: { | | 52 | *DbHelper*.*Add*(this, etKey.getText().toString(), nbValue.getValue()); | | 53 | break; | | 54 | } | | 55 |  | | 56 | case *R*.id.btnUpdate: { | | 57 | *DbHelper*.*UpdateLast*(this, "views", 20); | | 58 | break; | | 59 | } | | 60 | } | | 61 | } | | 62 | } | |  |

Db.java

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  |  | | --- | --- | | 1 | package ru.justnero.sevsu.s3.mit.e5; | | 2 |  | | 3 | import *android.content.ContentValues*; | | 4 | import *android.content.Context*; | | 5 | import *android.database.sqlite.SQLiteDatabase*; | | 6 | import *android.database.sqlite.SQLiteOpenHelper*; | | 7 |  | | 8 | class Db extends *SQLiteOpenHelper* { | | 9 |  | | 10 | private final static *String* DATABASE = "lab05"; | | 11 |  | | 12 | final static *String* TABLE = "key\_val"; | | 13 |  | | 14 | private final static *String* COLUMN\_ID = "id"; | | 15 | final static *String* COLUMN\_KEY = "key"; | | 16 | final static *String* COLUMN\_VALUE = "value"; | | 17 |  | | 18 | Db(*Context* *context*) { | | 19 | super(context, DATABASE, null, 1); | | 20 | } | | 21 |  | | 22 | *@Override* | | 23 | public *void* onCreate(*SQLiteDatabase* *db*) { | | 24 | db.execSQL("CREATE TABLE  " + TABLE + " (" | | 25 | + COLUMN\_ID + " INTEGER PRIMARY KEY AUTOINCREMENT," | | 26 | + COLUMN\_KEY + " TEXT, " | | 27 | + COLUMN\_VALUE + " INTEGER " + ");"); | | 28 |  | | 29 | *DeleteAll*(db); | | 30 | *LoadData*(db); | | 31 | } | | 32 |  | | 33 | private *void* LoadData(*SQLiteDatabase* *db*) { | | 34 |  | | 35 | *String* key[] = {"views", "searches", "bumps", "leaks", "heroes"}; | | 36 | *int* value[] = {31, 12, 22, 40, 20}; | | 37 |  | | 38 | for (*int* i = 0; i < key.length; i++) { | | 39 | *ContentValues* element = new *ContentValues*(); | | 40 |  | | 41 | element.put(COLUMN\_VALUE, value[i]); | | 42 | element.put(COLUMN\_KEY, key[i]); | | 43 |  | | 44 | db.insert(TABLE, null, element); | | 45 | } | | 46 | } | | 47 |  | | 48 | private *void* DeleteAll(*SQLiteDatabase* *db*) { | | 49 | db.execSQL("DELETE  FROM " + TABLE + ";"); | | 50 | } | | 51 |  | | 52 | *@Override* | | 53 | public *void* onUpgrade(*SQLiteDatabase* *db*, *int* *oldVersion*, *int* *newVersion*) { | | 54 |  | | 55 | } | | 56 | } | |  |

DbHelper.java

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  |  | | --- | --- | | 1 | package ru.justnero.sevsu.s3.mit.e5; | | 2 |  | | 3 | import *android.content.ContentValues*; | | 4 | import *android.content.Context*; | | 5 | import *android.database.Cursor*; | | 6 | import *android.database.sqlite.SQLiteDatabase*; | | 7 | import *android.util.Log*; | | 8 |  | | 9 | import *java.util.ArrayList*; | | 10 |  | | 11 | class DbHelper { | | 12 | static *void* Add(*Context* *context*, *String* *key*, *int* *value*) { | | 13 | *Db* db = new *Db*(context); | | 14 | *SQLiteDatabase* table = db.getWritableDatabase(); | | 15 | *ContentValues* cv = new *ContentValues*(); | | 16 | cv.put(*Db*.COLUMN\_KEY, key); | | 17 | cv.put(*Db*.COLUMN\_VALUE, value); | | 18 | *Log*.d("Lab.05", "ADD " + key + " => " + value); | | 19 | table.insert(*Db*.TABLE, null, cv); | | 20 | } | | 21 |  | | 22 | static *void* UpdateLast(*Context* *context*, *String* *key*, *int* *value*) { | | 23 | *Db* db = new *Db*(context); | | 24 | *SQLiteDatabase* table = db.getWritableDatabase(); | | 25 | *ContentValues* cv = new *ContentValues*(); | | 26 | cv.put(*Db*.COLUMN\_KEY, key); | | 27 | cv.put(*Db*.COLUMN\_VALUE, value); | | 28 | table.update(*Db*.TABLE, cv, "ID = (SELECT MAX(t1.ID) FROM " + *Db*.TABLE + " as t1)", null); | | 29 | } | | 30 |  | | 31 | static *ArrayList<Option>* getTableData(*Context* *context*) { | | 32 | *ArrayList<Option>* map = new *ArrayList<>*(); | | 33 | *Db* db = new *Db*(context); | | 34 | *SQLiteDatabase* table = db.getWritableDatabase(); | | 35 | *Cursor* cursor = table.query(*Db*.TABLE, null, null, null, null, null, null); | | 36 | if (cursor.moveToFirst()) { | | 37 | *String* key; *int* value; | | 38 | do { | | 39 | key = cursor.getString(cursor.getColumnIndex(*Db*.COLUMN\_KEY)); | | 40 | value = cursor.getInt(cursor.getColumnIndex(*Db*.COLUMN\_VALUE)); | | 41 | *Log*.d("Lab.05", key + " => " + value); | | 42 | map.add(new *Option*(key, value)); | | 43 | } while (cursor.moveToNext()); | | 44 | } | | 45 | cursor.close(); | | 46 | return map; | | 47 | } | | 48 | } | |  |

Table.java

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  |  | | --- | --- | | 1 | package ru.justnero.sevsu.s3.mit.e5; | | 2 |  | | 3 | import *android.app.Activity*; | | 4 | import *android.os.Bundle*; | | 5 | import *android.widget.ListView*; | | 6 |  | | 7 | public class Table extends *Activity* { | | 8 |  | | 9 | *ListView* listView; | | 10 |  | | 11 | *@Override* | | 12 | protected *void* onCreate(*Bundle* *savedInstanceState*) { | | 13 | super.onCreate(savedInstanceState); | | 14 | setContentView(*R*.layout.activity\_table); | | 15 |  | | 16 | listView = (*ListView*)findViewById(*R*.id.listView); | | 17 | *AdapterOption* adapter = new *AdapterOption*(this); | | 18 | listView.setAdapter(adapter); | | 19 | } | | 20 | } | |  |

Option.java

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | 1 | package ru.justnero.sevsu.s3.mit.e5; | | 2 |  | | 3 | class Option { | | 4 | public *String* key; | | 5 | public *int* value; | | 6 |  | | 7 | Option(*String* *key*, *int* *value*) { | | 8 | this.value = value; | | 9 | this.key = key; | | 10 | } | | 11 | } | |  |

AdapterOption.java

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  |  | | --- | --- | | 1 | package ru.justnero.sevsu.s3.mit.e5; | | 2 |  | | 3 | import *android.content.Context*; | | 4 | import *android.util.Log*; | | 5 | import *android.view.View*; | | 6 | import *android.view.ViewGroup*; | | 7 | import *android.widget.BaseAdapter*; | | 8 | import *android.view.LayoutInflater*; | | 9 | import *android.widget.TextView*; | | 10 | import *java.util.ArrayList*; | | 11 |  | | 12 | class AdapterOption extends *BaseAdapter* { | | 13 | private *ArrayList<Option>* arrayList = new *ArrayList<>*(); | | 14 | private *LayoutInflater* lInflater; | | 15 |  | | 16 | AdapterOption(*Context* *context*) { | | 17 | *Log*.d("Lab.05", "AdapterOption constructor"); | | 18 | arrayList = *DbHelper*.getTableData(context); | | 19 | *Log*.d("Lab.05", "AdapterOption constructor" + arrayList.size()); | | 20 | lInflater = (*LayoutInflater*) context.getSystemService(*Context*.LAYOUT\_INFLATER\_SERVICE); | | 21 | } | | 22 |  | | 23 | *@Override* | | 24 | public *int* getCount() { | | 25 | return arrayList.size(); | | 26 | } | | 27 |  | | 28 | *@Override* | | 29 | public *Object* getItem(*int* *position*) { | | 30 | return arrayList.toArray(new *Option*[arrayList.size()])[position]; | | 31 | } | | 32 |  | | 33 | *@Override* | | 34 | public *long* getItemId(*int* *position*) { | | 35 | return position; | | 36 | } | | 37 |  | | 38 | *@Override* | | 39 | public *View* getView(*int* *position*, *View* *convertView*, *ViewGroup* *parent*) { | | 40 | *View* view = convertView; | | 41 | if (view == null) { | | 42 | view = lInflater.inflate(*R*.layout.listview\_element, parent, false); | | 43 | } | | 44 | *Log*.d("Lab.05", "getView"); | | 45 | *Option* option = arrayList.toArray(new *Option*[arrayList.size()])[position]; | | 46 | ((*TextView*) view.findViewById(*R*.id.listViewKey)).setText("Key: " + option.key); | | 47 | ((*TextView*) view.findViewById(*R*.id.listViewValue)).setText("Value: " + option.value); | | 48 | return view; | | 49 | } | | 50 | } | |  |

ВЫВОДЫ

В ходе лабораторной работы были изучены принципы работы Andriod приложения с базой данных SQLite.