НАЦІОНАЛЬНИЙ ТЕХНІЧНИЙ УНІВЕРСИТЕТ УКРАЇНИ

“КИЇВСЬКИЙ ПОЛІТЕХНІЧНИЙ ІНСТИТУТ ІМЕНІ ІГОРЯ СІКОРСЬКОГО”

Факультет інформатики та обчислювальної техніки

Кафедра обчислювальної техніки

Лабораторна робота №7

з дисципліни

“Програмування мобільних систем”

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Київ 2021

Скріншоти роботи додатка

(**Варіант 8226 % 2 + 1 = 1**)

Лістинг коду

**Run.java**

package ua.kpi.comsys.IV8226;

import android.os.Bundle;

import com.example.lab1.R;

import com.google.android.material.bottomnavigation.BottomNavigationView;

import androidx.appcompat.app.AppCompatActivity;

import androidx.navigation.NavController;

import androidx.navigation.Navigation;

import androidx.navigation.ui.AppBarConfiguration;

import androidx.navigation.ui.NavigationUI;

public class Run extends AppCompatActivity {

public static String picsJSON = "";

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

BottomNavigationView navView = findViewById(R.id.nav\_view);

AppBarConfiguration appBarConfiguration = new AppBarConfiguration.Builder(

R.id.navigation\_home, R.id.navigation\_dashboard)

.build();

NavController navController = Navigation.findNavController(this, R.id.nav\_host\_fragment);

NavigationUI.setupActionBarWithNavController(this, navController, appBarConfiguration);

NavigationUI.setupWithNavController(navView, navController);

}

}

**DashboardFragment.java**

package ua.kpi.comsys.IV8226.dashboard;

import android.os.Bundle;

import android.view.LayoutInflater;

import android.view.View;

import android.view.ViewGroup;

import android.widget.CompoundButton;

import android.widget.Switch;

import androidx.annotation.NonNull;

import androidx.fragment.app.Fragment;

import com.example.lab1.R;

public class DashboardFragment extends Fragment {

public View onCreateView(@NonNull LayoutInflater inflater,

ViewGroup container, Bundle savedInstanceState) {

View root = inflater.inflate(R.layout.fragment\_dashboard, container, false);

Switch switch1 = (Switch) root.findViewById(R.id.switch1);

View f1 = root.findViewById(R.id.line);

View f2 = root.findViewById(R.id.pie);

switch1.setText("Show Line Graph");

showPie(f1, f2);

switch1.setOnCheckedChangeListener(new CompoundButton.OnCheckedChangeListener()

{

public void onCheckedChanged(CompoundButton buttonView, boolean isChecked) //Line A

{

if(isChecked) {

showLine(f1, f2);

switch1.setText("Show Line Graph");

} else {

showPie(f1, f2);

switch1.setText("Show Pie Chart");

}

}

});

return root;

}

public void showPie(View f1, View f2) {

f2.setVisibility(View.INVISIBLE);

f1.setVisibility(View.VISIBLE);

}

public void showLine(View f1, View f2) {

f1.setVisibility(View.INVISIBLE);

f2.setVisibility(View.VISIBLE);

}

}

**DashboardViewModel.java**

package ua.kpi.comsys.IV8226.dashboard;

import androidx.lifecycle.LiveData;

import androidx.lifecycle.MutableLiveData;

import androidx.lifecycle.ViewModel;

public class DashboardViewModel extends ViewModel {

private MutableLiveData<String> mText;

public DashboardViewModel() {

mText = new MutableLiveData<>();

mText.setValue("This is dashboard fragment");

}

public LiveData<String> getText() {

return mText;

}

}

**MoviesDao.java**

package ua.kpi.comsys.IV8226.dao;

import androidx.room.Dao;

import androidx.room.Delete;

import androidx.room.Insert;

import androidx.room.Query;

import ua.kpi.comsys.IV8226.model.MovieEntity;

import java.util.List;

@Dao

public interface MoviesDao {

@Query("SELECT \* FROM movies")

List<MovieEntity> getAll();

@Query("SELECT \* FROM movies WHERE search LIKE :s LIMIT 3")

MovieEntity findBySearch(String s);

@Query("SELECT \* FROM movies WHERE search LIKE :s")

List<MovieEntity> getAllBySearch(String s);

@Insert

void insertAll(MovieEntity... movies);

@Delete

void delete(MovieEntity movies);

}

**DisplayPicsBGThread.java**

package ua.kpi.comsys.IV8226.threads;

import android.util.Log;

import ua.kpi.comsys.IV8226.ui\_fragments.pics.PicsFragment;

import java.io.BufferedReader;

import java.io.IOException;

import java.io.InputStream;

import java.io.InputStreamReader;

import java.net.HttpURLConnection;

import java.net.URL;

public class DisplayPicsBGThread implements Runnable {

private String search;

public DisplayPicsBGThread() {}

@Override

public void run() {

try {

PicsFragment.getUrlResponse(getSearch());

} catch (IOException ignored) {

}

}

public String getSearch() {

String URL\_ENDPOINT\_SERVER = "https://pixabay.com/api/?key=19193969-87191e5db266905fe8936d565&q=yellow+flowers&image\_type=photo&per\_page=24";

try {

URL url = new URL(URL\_ENDPOINT\_SERVER);

Log.i("NewsDataLoader", url.toString());

HttpURLConnection connection = (HttpURLConnection)url.openConnection();

InputStream responseStream = connection.getInputStream();

if (responseStream.available() < 0)

Log.i("NewsDataLoader", "istream is available");

else Log.i("NewsDataLoader", "istream is not available");

BufferedReader reader = new BufferedReader(new InputStreamReader(responseStream));

StringBuilder stringBuilder = new StringBuilder();

String line;

//just in case there is more than one line

while ((line = reader.readLine()) != null) {

Log.i("NewsDataLoader", "Reading line");

stringBuilder.append(line);

}

connection.disconnect();

return stringBuilder.toString();

} catch (IOException e) {

e.printStackTrace();

}

return null;

}

}

**PicsFragment.java**

package ua.kpi.comsys.IV8226.ui\_fragments.pics;

import android.content.Intent;

import android.graphics.Bitmap;

import android.graphics.BitmapFactory;

import android.net.Uri;

import android.os.Bundle;

import android.view.LayoutInflater;

import android.view.View;

import android.view.ViewGroup;

import android.widget.Button;

import android.widget.ListAdapter;

import androidx.annotation.NonNull;

import androidx.fragment.app.Fragment;

import com.example.lab1.R;

import ua.kpi.comsys.IV8226.adapters.PicsAdapter;

import ua.kpi.comsys.IV8226.model.PicItem;

import com.felipecsl.asymmetricgridview.library.Utils;

import com.felipecsl.asymmetricgridview.library.widget.AsymmetricGridView;

import com.felipecsl.asymmetricgridview.library.widget.AsymmetricGridViewAdapter;

import java.io.FileNotFoundException;

import java.io.InputStream;

import java.util.ArrayList;

import java.util.List;

public class PicsFragment extends Fragment {

private static final int RESULT\_LOAD\_IMG = 1;

private ListAdapter adapter;

private AsymmetricGridView listView;

final List<PicItem> items = new ArrayList<>();

private int index = 0;

public View onCreateView(@NonNull LayoutInflater inflater,

ViewGroup container, Bundle savedInstanceState) {

View root = inflater.inflate(R.layout.fragment\_pics, container, false);

listView = root.findViewById(R.id.picsList);

Button addButton = root.findViewById(R.id.addPicButton);

addButton.setOnClickListener(new View.OnClickListener() {

public void onClick(View v) {

Intent photoPickerIntent = new Intent(Intent.ACTION\_PICK);

photoPickerIntent.setType("image/\*");

startActivityForResult(photoPickerIntent, RESULT\_LOAD\_IMG);

}

});

listView.setRequestedColumnWidth(Utils.dpToPx(this.getContext(), 120));

adapter = new PicsAdapter(getContext(), items);

listView.setAdapter(new AsymmetricGridViewAdapter(getContext(), listView, adapter));

return root;

}

@Override

public void onActivityResult(int reqCode, int resultCode, Intent data) {

super.onActivityResult(reqCode, resultCode, data);

System.out.println("Result Code: " + reqCode);

if (reqCode == RESULT\_LOAD\_IMG) {

try {

final Uri imageUri = data.getData();

final InputStream imageStream = getContext().getContentResolver().openInputStream(imageUri);

final Bitmap selectedImage = BitmapFactory.decodeStream(imageStream);

ArrayList<Integer> Span = new ArrayList<>();

fillSpan(Span);

items.add(new PicItem(Span.get(index % 9), Span.get(index % 9), 0, selectedImage, imageUri));

index++;

refresh();

} catch (FileNotFoundException e) {

e.printStackTrace();

}

}

}

private void fillSpan(ArrayList<Integer> columnSpan) {

/\*columnSpan.add(2);

for (int i = 0; i < 7; i++) {

columnSpan.add(1);

}

columnSpan.add(2);\*/

columnSpan.add(2);

columnSpan.add(1);

columnSpan.add(1);

columnSpan.add(1);

columnSpan.add(1);

columnSpan.add(1);

columnSpan.add(1);

columnSpan.add(2);

columnSpan.add(1);

}

private void refresh() {

listView.setRequestedColumnWidth(Utils.dpToPx(this.getContext(), 116));

adapter = new PicsAdapter(getContext(), items);

listView.setAdapter(new AsymmetricGridViewAdapter(getContext(), listView, adapter));

listView.setAllowReordering(true);

}

}

**DashboardFragment.java**

package ua.kpi.comsys.IV8226.ui\_fragments.dashboard;

import android.os.Bundle;

import android.view.LayoutInflater;

import android.view.View;

import android.view.ViewGroup;

import android.widget.CompoundButton;

import android.widget.Switch;

import androidx.annotation.NonNull;

import androidx.fragment.app.Fragment;

import com.example.lab4.R;

public class DashboardFragment extends Fragment {

public View onCreateView(@NonNull LayoutInflater inflater,

ViewGroup container, Bundle savedInstanceState) {

View root = inflater.inflate(R.layout.fragment\_dashboard, container, false);

Switch switch1 = (Switch) root.findViewById(R.id.switch1);

View f1 = root.findViewById(R.id.line);

View f2 = root.findViewById(R.id.pie);

switch1.setText("Show Line Graph");

showPie(f1, f2);

switch1.setOnCheckedChangeListener(new CompoundButton.OnCheckedChangeListener()

{

public void onCheckedChanged(CompoundButton buttonView, boolean isChecked) //Line A

{

if(isChecked) {

showLine(f1, f2);

switch1.setText("Show Line Graph");

} else {

showPie(f1, f2);

switch1.setText("Show Pie Chart");

}

}

});

return root;

}

public void showPie(View f1, View f2) {

f2.setVisibility(View.INVISIBLE);

f1.setVisibility(View.VISIBLE);

}

public void showLine(View f1, View f2) {

f1.setVisibility(View.INVISIBLE);

f2.setVisibility(View.VISIBLE);

}

}

**MoviesListAdapter.java**

package ua.kpi.comsys.IV8226.adapters;

import android.annotation.SuppressLint;

import android.os.Bundle;

import android.util.Log;

import android.view.LayoutInflater;

import android.view.View;

import android.view.ViewGroup;

import android.widget.AdapterView;

import android.widget.ArrayAdapter;

import android.widget.ImageView;

import android.widget.TextView;

import androidx.fragment.app.Fragment;

import com.example.lab4.R;

import ua.kpi.comsys.IV8226.model.MovieItem;

import java.util.ArrayList;

import java.util.List;

public class MoviesListAdapter extends ArrayAdapter<String> {

private final String TAG = "Adapter";

private final Fragment context;

private final ArrayList<MovieItem> movies;

List<String> textViewResourceId;

public MoviesListAdapter(Fragment context, ArrayList<MovieItem> movies, List<String> textViewResourceId) {

super(context.getContext(), R.layout.display\_movie\_item, textViewResourceId);

this.textViewResourceId=textViewResourceId;

this.context=context;

this.movies=movies;

Log.i(TAG, "Size: " + String.valueOf(textViewResourceId.size()));

}

public View getView(int position, View view, ViewGroup parent) {

LayoutInflater inflater=context.getLayoutInflater();

@SuppressLint({"ViewHolder", "InflateParams"}) View rowView=inflater.inflate(

R.layout.display\_movie\_item, null,true);

ImageView image = (ImageView) rowView.findViewById(R.id.poster);

ImageView deleteButton = (ImageView) rowView.findViewById(R.id.deleteButton);

TextView titleText = (TextView) rowView.findViewById(R.id.title);

TextView yearText = (TextView) rowView.findViewById(R.id.year);

TextView typeText = (TextView) rowView.findViewById(R.id.type);

int drawableResourceId = this.getContext().getResources().getIdentifier(

movies.get(position).getPoster().toLowerCase().replace(".jpg", ""),

"drawable", this.getContext().getPackageName());

if (drawableResourceId == 0)

image.setImageResource(R.drawable.no\_poster);

else

image.setImageResource(drawableResourceId);

titleText.setText(movies.get(position).getTitle());

yearText.setText(movies.get(position).getYear());

typeText.setText(movies.get(position).getType());

Log.i(TAG, String.valueOf(position));

Bundle bundle = new Bundle();

bundle.putString("delete", movies.get(position).getTitle());

deleteButton.setOnClickListener(new AdapterView.OnClickListener() {

@Override

public void onClick(View v) {

deleteItem(position);

}

});

return rowView;

};

private void deleteItem(int position) {

textViewResourceId.remove(position);

movies.remove(position);

notifyDataSetChanged();

}

}

}

**LineGraphFragment.java**

package ua.kpi.comsys.IV8226.ui\_fragments.linegraph;

import android.os.Bundle;

import android.view.LayoutInflater;

import android.view.View;

import android.view.ViewGroup;

import androidx.annotation.NonNull;

import androidx.fragment.app.Fragment;

import com.example.lab4.R;

import com.github.mikephil.charting.charts.LineChart;

import com.github.mikephil.charting.data.Entry;

import com.github.mikephil.charting.data.LineData;

import com.github.mikephil.charting.data.LineDataSet;

import java.util.ArrayList;

public class LineGraphFragment extends Fragment {

public View onCreateView(@NonNull LayoutInflater inflater,

ViewGroup container, Bundle savedInstanceState) {

View root = inflater.inflate(R.layout.fragment\_linegraph, container, false);

LineChart lineChart = (LineChart) root.findViewById(R.id.idLineChart);

showLineChart(lineChart);

return root;

}

private void showLineChart(LineChart lineChart){

ArrayList<Entry> lineEntries= new ArrayList<Entry>();

for (float x = -6; x < 6; x += 0.0001) {

lineEntries.add( new Entry(x, (float)Math.exp(x)));

}

LineDataSet lineDataSet = new LineDataSet(lineEntries, "");

LineData lineData = new LineData(lineDataSet);

lineChart.setDrawMarkers(false);

lineChart.getXAxis().setGranularityEnabled(false);

lineChart.getDescription().setEnabled(false); //remove description

lineChart.getLegend().setEnabled(false); //remove legend

lineChart.setData(lineData);

lineChart.invalidate();

}

}

**DrawingDiagramFragment.java**

package ua.kpi.comsys.iv8226;

import android.graphics.Color;

import android.os.Bundle;

import android.view.LayoutInflater;

import android.view.View;

import android.view.ViewGroup;

import androidx.fragment.app.Fragment;

import com.github.mikephil.charting.charts.PieChart;

import com.github.mikephil.charting.data.PieData;

import com.github.mikephil.charting.data.PieDataSet;

import com.github.mikephil.charting.data.PieEntry;

import java.util.ArrayList;

public class DrawingDiagramFragment extends Fragment {

private static final String ORANGE = "#FF8000";

private static final String GREEN = "#00FF00";

private static final String BLACK = "#000000";

private static final int ORANGE\_VALUE = 30;

private static final int GREEN\_VALUE = 30;

private static final int BLACK\_VALUE = 40;

@Override

public View onCreateView(LayoutInflater inflater, ViewGroup container,

Bundle savedInstanceState) {

View view = inflater.inflate(R.layout.drawing\_diagram\_fragment, container, false);

PieChart pieChart= view.findViewById(R.id.chart1);

ArrayList<PieEntry> pieEntries = new ArrayList<>();

ArrayList<Integer> colors = new ArrayList<>();

colors.add(Color.parseColor(ORANGE));

colors.add(Color.parseColor(GREEN));

colors.add(Color.parseColor(BLACK));

pieEntries.add(new PieEntry(ORANGE\_VALUE, ""));

pieEntries.add(new PieEntry(GREEN\_VALUE, ""));

pieEntries.add(new PieEntry(BLACK\_VALUE, ""));

PieDataSet pieDataSet = new PieDataSet(pieEntries, "");

pieDataSet.setColors(colors);

PieData pieData = new PieData(pieDataSet);

pieData.setDrawValues(true);

pieChart.setData(pieData);

pieDataSet.setDrawValues(false);

pieChart.getLegend().setEnabled(false);

pieChart.getDescription().setEnabled(false);

pieChart.invalidate();

return view;

}

}

**DrawingFragment.java**

package ua.kpi.comsys.iv8226;

import android.os.Bundle;

import android.view.LayoutInflater;

import android.view.View;

import android.view.ViewGroup;

import androidx.annotation.NonNull;

import androidx.fragment.app.Fragment;

import androidx.viewpager2.adapter.FragmentStateAdapter;

import androidx.viewpager2.widget.ViewPager2;

import com.google.android.material.tabs.TabLayout;

import com.google.android.material.tabs.TabLayoutMediator;

public class DrawingFragment extends Fragment {

private static final int NUMBER\_OF\_\_PAGES = 2;

private static final String[] PAGE\_TITLES = new String[]{"Graph", "Diagram"};

private static final int[] TAB\_ICONS = {R.drawable.ic\_graph, R.drawable.ic\_diagram};

@Override

public View onCreateView(LayoutInflater inflater, ViewGroup container,

Bundle savedInstanceState) {

View view = inflater.inflate(R.layout.drawing\_fragment, container, false);

ViewPager2 viewPager = view.findViewById(R.id.pager2);

FragmentStateAdapter pagerAdapter = new DrawingFragment.MyPagerAdapter(this);

viewPager.setAdapter(pagerAdapter);

TabLayout tabLayout = view.findViewById(R.id.tab\_layout2);

new TabLayoutMediator(tabLayout, viewPager,(tab, position) -> {

tab.setText(PAGE\_TITLES[position]);

tab.setIcon(TAB\_ICONS[position]);

}).attach();

return view;

}

private static class MyPagerAdapter extends FragmentStateAdapter {

public MyPagerAdapter(@NonNull Fragment fragment) {

super(fragment);

}

@NonNull

@Override

public Fragment createFragment(int position) {

switch (position) {

case 1: {

return new DrawingDiagramFragment();

}

case 0:

default:

return new DrawingGraphFragment();

}

}

@Override

public int getItemCount() {

return NUMBER\_OF\_\_PAGES;

}

}

}

**Висновок**

В даній лабораторній роботі було удосконалено мобільний додаток, та добавлено нові функції:

* функціональність збереження завантажених даних з мережі у сховище

Програма працює коректно. Кінцева мета досягнута.