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ПРОЕКТ 3

Отчет

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Постановка задачи

1. Доработать base проект согласно презентации;
2. На экран с расписанием вывести информацию о выбранной группе или преподавателе над списком с расписанием в поле title;
3. Сделать стиль для поля title, чтобы заголовок был более крупного размера и вписывался в дизайн приложения;
4. На экран с расписанием вывести информацию о полученном времени от сервера в формате: <день недели>, число <месяц>;

1 Задание

Задача: Доработать base проект согласно презентации.

Выносим повторяющийся код в BaseActivity:

```
package org.hse.android;

import androidx.appcompat.app.AppCompatActivity;
import android.util.Log;
import android.widget.TextView;
import com.google.gson.Gson;
import org.jetbrains.annotations.NotNull;
import java.io.IOException;
import java.text.SimpleDateFormat;
import java.util.Date;
import java.util.Locale;
import okhttp3.Call;
import okhttp3.Callback;
import okhttp3.OkHttpClient;
import okhttp3.Request;
import okhttp3.Response;
import okhttp3.ResponseBody;

public class BaseActivity extends AppCompatActivity {

    enum ScheduleType { DAY, WEEK }

    enum ScheduleMode { STUDENT, TEACHER }

    interface OnItemClick { void onClick(ScheduleActivity.ScheduleItem data); }

    private final static String TAG = "BaseActivity";
    public static final String URL =
"https://api.ipgeolocation.io/ipgeo?apiKey=b03018f75ed94023a005637878ec0977";

    protected TextView time, current_time;
    protected Date currentTime;
    public static Date time_export;

    private OkHttpClient client = new OkHttpClient();

    protected void getTime(){
        Request request = new Request.Builder().url(URL).build();
        Call call = client.newCall(request);
        call.enqueue(new Callback() {
            @Override
            public void onFailure(@NotNull Call call, @NotNull IOException e) {
                Log.e("tag", e.getMessage());
            }

            @Override
            public void onResponse(@NotNull Call call, @NotNull Response response) {
                parseResponse(response);
            }
        });
    }

    protected void initTime() { getTime(); }

    private void showTime(Date dateTime){
```

```

        time = findViewById(R.id.time);
        current_time = findViewById(R.id.current_time);
        if (dateTime == null){ return; }
        currentTime = dateTime;
        SimpleDateFormat simpleDateFormat = null;
        if (android.os.Build.VERSION.SDK_INT >=
android.os.Build.VERSION_CODES.LOLLIPOP) {
            simpleDateFormat = new SimpleDateFormat("HH:mm, E",
Locale.forLanguageTag("ru"));
        }
        time_export = currentTime;
        time.setText(String.format("Сейчас: %s",
simpleDateFormat.format(currentTime)));
    }

    private void parseResponse(Response response) {
        Gson gson = new Gson();
        ResponseBody body = response.body();
        try {
            if (body == null) { return; }
            String string = body.string();
            Log.d(TAG, string);
            TimeResponse timeResponse = gson.fromJson(string, TimeResponse.class);
            String currentTimeVal = timeResponse.getTimeZone().getCurrentTime();
            SimpleDateFormat simpleDateFormat = new SimpleDateFormat("yyyy-MM-dd
HH:mm:ss.SSS", Locale.getDefault());
            Date dateTime = simpleDateFormat.parse(currentTimeVal);
            // run on UI thread
            runOnUiThread(() -> showTime(dateTime));
        }
        catch (Exception e) { Log.e(TAG, "", e); }
    }
}

```

Правим StudentsActivity и TeacherActivity (изменения выделены красным):

```

package org.hse.android;

import android.content.Intent;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ArrayAdapter;
import android.widget.Spinner;
import android.widget.TextView;
import java.util.ArrayList;
import java.util.Date;
import java.util.List;
import java.util.Objects;

public class StudentActivity extends BaseActivity {

    private static final String TAG = "StudentActivity";

    private TextView status, subject, cabinet, corp, teacher;
    private Spinner spinner;
    public Date currentTime;

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

```

```

Objects.requireNonNull(getSupportActionBar()).hide();

spinner = findViewById(R.id.groupList);

List<Group> groups = new ArrayList<>();
initGroupList(groups);

ArrayAdapter<?> adapter = new ArrayAdapter<>(this,
android.R.layout.simple_spinner_item, groups);

adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);

spinner.setAdapter(adapter);

spinner.setOnItemClickListener(new AdapterView.OnItemClickListener() {
    public void onItemClick(AdapterView<?> parent, View itemSelected, int
selectedItemPosition, long selectedId) {
        Object item = adapter.getItem(selectedItemPosition);
        Log.d(TAG, "selectedItem: " + item);
    }
    public void onNothingSelected(AdapterView<?> parent) { }
});

initTime();

status = findViewById(R.id.status);
subject = findViewById(R.id.subject);
cabinet = findViewById(R.id.cabinet);
corp = findViewById(R.id.corp);
teacher = findViewById(R.id.teacher);

View scheduleDay = findViewById(R.id.schedule_day);
scheduleDay.setOnClickListener(v -> showSchedule(ScheduleType.DAY));
View scheduleWeek = findViewById(R.id.schedule_week);
scheduleWeek.setOnClickListener(v -> showSchedule(ScheduleType.WEEK));
}

private void initGroupList(List<Group> groups){
    String[] pr = { "ПИ", "БИ", "УБ", "Э", "И", "Ю" };
    String[] yr = { "16", "17", "18", "19", "20" };
    int i=0;
    for (String p : pr) {
        for (String y : yr) {
            for (int z = 1; z < 5; z++) {
                i++;
                groups.add(new Group(i, p + "-" + y + "-" + z));
            }
        }
    }
}

private void showSchedule(ScheduleType type) {
    Object selectedItem = spinner.getSelectedItem();
    if (!(selectedItem instanceof Group)) { return; }
    showScheduleImpl(type, (Group) selectedItem, currentTime);
}

protected void showScheduleImpl(ScheduleType type, Group group, Date currentTime)
{
    Intent intent = new Intent(this, ScheduleActivity.class);
    intent.putExtra(ScheduleActivity.ARG_ID, group.getName());
    intent.putExtra(ScheduleActivity.ARG_TYPE, type);
}

```

```

        intent.putExtra(ScheduleActivity.ARG_MODE, ScheduleMode.STUDENT);
        intent.putExtra(ScheduleActivity.ARG_TIME, currentTime);
        startActivity(intent);
    }

    static class Group{
        private Integer id;
        private String name;

        public Group(Integer id, String name){
            this.id = id;
            this.name = name;
        }
        public Integer getId(){ return id; }
        public void setId(Integer id) { this.id = id; }
        @Override public String toString() { return name; }
        public String getName() { return name; }
        public void setName(String name){ this.name = name; }
    }
}

```

```

package org.hse.android;

import android.content.Intent;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.Adapter;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ArrayAdapter;
import android.widget.Spinner;
import android.widget.TextView;
import java.util.ArrayList;
import java.util.Date;
import java.util.List;
import java.util.Objects;

public class TeacherActivity extends BaseActivity {

    private static final String TAG = "TeacherActivity";

    private TextView status, subject, cabinet, corp, teacher;
    private Spinner spinner;
    public Date currentTime;

    @Override protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_teacher);
        Objects.requireNonNull(getSupportActionBar()).hide();

        spinner = findViewById(R.id.groupList);

        List<StudentActivity.Group> groups = new ArrayList<>();
        initGroupList(groups);

        ArrayAdapter<?> adapter = new ArrayAdapter<>(this,
            android.R.layout.simple_spinner_item, groups);

        adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);

        spinner.setAdapter(adapter);
    }
}

```

```

        spinner.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {
            public void onItemSelected(AdapterView<?> parent, View itemSelected, int
selectedItemPosition, long selectedId) {
                Object item = adapter.getItem(selectedItemPosition);
                Log.d(TAG, "selectedItem: " + item);
            }
            public void onNothingSelected(AdapterView<?> parent) { }
        });

        initTime();

        status = findViewById(R.id.status);
        subject = findViewById(R.id.subject);
        cabinet = findViewById(R.id.cabinet);
        corp = findViewById(R.id.corp);
        teacher = findViewById(R.id.teacher);

        View scheduleDay = findViewById(R.id.schedule_day);
        scheduleDay.setOnClickListener(v -> showSchedule(ScheduleType.DAY));
        View scheduleWeek = findViewById(R.id.schedule_week);
        scheduleWeek.setOnClickListener(v -> showSchedule(ScheduleType.WEEK));
    }

    private void initGroupList(List<StudentActivity.Group> groups){
        groups.add(new StudentActivity.Group(1, "Преподаватель 1"));
        groups.add(new StudentActivity.Group(2, "Преподаватель 2"));
    }

    private void showSchedule(ScheduleType type) {
        Object selectedItem = spinner.getSelectedItem();
        if (!(selectedItem instanceof StudentActivity.Group)) { return; }
        showScheduleImpl(type, (StudentActivity.Group) selectedItem, currentTime);
    }

    protected void showScheduleImpl(ScheduleType type, StudentActivity.Group group,
Date currentTime) {
        Intent intent = new Intent(this, ScheduleActivity.class);
        intent.putExtra(ScheduleActivity.ARG_ID, group.getName());
        intent.putExtra(ScheduleActivity.ARG_TYPE, type);
        intent.putExtra(ScheduleActivity.ARG_MODE, ScheduleMode.TEACHER);
        intent.putExtra(ScheduleActivity.ARG_TIME, currentTime);
        startActivity(intent);
    }
}

```

Выносим в публичный java файл TimeResponse и TimeZone:

```

package org.hse.android;

import com.google.gson.annotations.SerializedName;

public class TimeResponse {
    @SerializedName("time_zone")
    private TimeZone timeZone;

    public TimeZone getTimeZone() { return timeZone; }

    public void setTimeZone(TimeZone timeZone) { this.timeZone = timeZone; }
}

```

```

package org.hse.android;

```



```
import com.google.gson.annotations.SerializedName;

public class TimeZone {
    @SerializedName("current_time")
    private String currentTime;

    public String getCurrentTime() { return currentTime; }

    public void setCurrentTime(String currentTime) { this.currentTime = currentTime; }
}
}
```

Создаем новый класс ScheduleActivity:

```
package org.hse.android;

import android.content.Context;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.TextView;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.appcompat.app.AppCompatActivity;
import androidx.recyclerview.widget.DividerItemDecoration;
import androidx.recyclerview.widget.LinearLayoutManager;
import androidx.recyclerview.widget.RecyclerView;
import java.text.SimpleDateFormat;
import java.util.ArrayList;
import java.util.List;
import java.util.Locale;

public class ScheduleActivity extends AppCompatActivity {
    private BaseActivity.ScheduleType type;

    public RecyclerView recyclerView;
    public ItemAdapter adapter;

    static public String ARG_ID = "0", ARG_TYPE = "1", ARG_MODE = "2", ARG_TIME =
    "3", name;
    private TextView currentTime;

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

        SimpleDateFormat simpleDateFormat = null;
        if (android.os.Build.VERSION.SDK_INT >=
        android.os.Build.VERSION_CODES.LOLLIPOP) {
            simpleDateFormat = new SimpleDateFormat("EEEE, dd MMMM",
            Locale.forLanguageTag("ru"));
        }
        currentTime = findViewById(R.id.current_time);
        currentTime.setText(String.format("%s",
        simpleDateFormat.format(BaseActivity.time_export)));

        type = (BaseActivity.ScheduleType)
        getIntent().getSerializableExtra(ARG_TYPE);
        BaseActivity.ScheduleMode mode = (BaseActivity.ScheduleMode)
        getIntent().getSerializableExtra(ARG_MODE);
        name = getIntent().getStringExtra(ARG_ID);
    }
}
```

```

        if (name == null) { name = "no data"; }

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

        recyclerView = (RecyclerView) findViewById(R.id.listView);
        recyclerView.setLayoutManager(new LinearLayoutManager(this));
        recyclerView.addItemDecoration(new DividerItemDecoration(this,
LinearLayoutManager.VERTICAL));
        recyclerView.setHasFixedSize(true);

        adapter = new ItemAdapter(data -> { });
        recyclerView.setAdapter(adapter);

        initData();
    }

    private void initData() {
        List<ScheduleItem> list = new ArrayList<>();

        ScheduleItem item = new ScheduleItem();
        item.setStart("10:00");
        item.setEnd("11:00");
        item.setType("ПРАКТИЧЕСКОЕ ЗАНЯТИЕ");
        item.setName("Анализ данных (анг)");
        item.setPlace("Ауд. 503, Кочновский пр-д, д.3");
        item.setTeacher("Пред. Гушим Михаил Иванович");
        list.add(item);

        item = new ScheduleItem();
        item.setStart("12:00");
        item.setEnd("13:00");
        item.setType("ПРАКТИЧЕСКОЕ ЗАНЯТИЕ");
        item.setName("Анализ данных (анг)");
        item.setPlace("Ауд. 503, Кочновский пр-д, д.3");
        item.setTeacher("Пред. Гушим Михаил Иванович");
        list.add(item);
        adapter.setDataList(list);
    }

    public final static class ItemAdapter extends
RecyclerView.Adapter<RecyclerView.ViewHolder> {

        private final static int TYPE_ITEM = 0;
        private final static int TYPE_HEADER = 1;

        private List<ScheduleItem> dataList = new ArrayList<>();
        private BaseActivity.OnItemClick onItemClick;

        public ItemAdapter(BaseActivity.OnItemClick onItemClick) { this.onItemClick =
onItemClick; }

        @NonNull
        @Override
        public RecyclerView.ViewHolder onCreateViewHolder(@NonNull ViewGroup parent,
int viewType) {
            Context context = parent.getContext();
            LayoutInflater inflater = LayoutInflater.from(context);

            if (viewType == TYPE_ITEM) {
                View contactView = inflater.inflate(R.layout.item_schedule, parent,
false);
                return new ViewHolder(contactView, context, onItemClick);
            }
        }
    }

```

```

    }
    else if (viewType == TYPE_HEADER) {
        View contactView = inflater.inflate(R.layout.item_schedule_header,
parent, false);
        return new ViewHolderHeader(contactView, context, onItemClick);
    }
    throw new IllegalArgumentException("Invalid view type");
}

public int getItemViewType(int position) {
    ScheduleItem data = dataList.get(position);
    if (data instanceof ScheduleItemHeader) { return TYPE_HEADER; }
    return TYPE_ITEM;
}

public void setDataList(List<ScheduleItem> list) {
    this.dataList = new ArrayList<>();
    if (dataList != null) { this.dataList.addAll(list); }
    notifyDataSetChanged();
}

@Override
public void onBindViewHolder(@NonNull RecyclerView.ViewHolder viewHolder, int
position) {
    ScheduleItem data = dataList.get(position);
    if (viewHolder instanceof ViewHolder) {
        ((ViewHolder) viewHolder).bind(data);
    }
    else if (viewHolder instanceof ViewHolderHeader) {
        ((ViewHolderHeader) viewHolder).bind((ScheduleItemHeader) data);
    }
}

@Override
public int getItemCount() {
    return dataList.size();
}
}

public static class ViewHolder extends RecyclerView.ViewHolder {
    private Context context;
    private BaseActivity.OnItemClick onItemClick;
    private TextView start, end, type, name, place, teacher;

    public ViewHolder(View itemView, Context context, BaseActivity.OnItemClick
onItemClick) {
        super(itemView);
        this.context = context;
        this.onItemClick = onItemClick;
        start = itemView.findViewById(R.id.start);
        end = itemView.findViewById(R.id.end);
        type = itemView.findViewById(R.id.type);
        name = itemView.findViewById(R.id.name);
        place = itemView.findViewById(R.id.place);
        teacher = itemView.findViewById(R.id.teacher);
    }

    public void bind(final ScheduleItem data) {
        start.setText(data.getStart());
        end.setText(data.getEnd());
        type.setText(data.getType());
        name.setText(data.getName());
    }
}

```

```

        place.setText(data.getPlace());
        teacher.setText(data.getTeacher());
    }
}

public static class ViewHolderHeader extends RecyclerView.ViewHolder {
    private Context context;
    private BaseActivity.OnItemClick onItemClick;
    private TextView title;

    public ViewHolderHeader(View itemView, Context context,
BaseActivity.OnItemClick onItemClick) {
        super(itemView);
        this.context = context;
        this.onItemClick = onItemClick;
        title = itemView.findViewById(R.id.title);
    }

    public void bind(final ScheduleItemHeader data) {
title.setText(data.getTitle()); }
    }

    public class ScheduleItem {
        private String start, end, type, name, place, teacher;

        public String getStart() { return start; }
        public void setStart(String start){ this.start = start; }
        public String getEnd() { return end; }
        public void setEnd(String end){ this.end = end; }
        public String getType() { return type; }
        public void setType(String type){ this.type = type; }
        public String getName() { return name; }
        public void setName(String name){ this.name = name; }
        public String getPlace() { return place; }
        public void setPlace(String place){ this.place = place; }
        public String getTeacher() { return teacher; }
        public void setTeacher(String teacher){ this.teacher = teacher; }
    }

    public class ScheduleItemHeader extends ScheduleItem {
        private String title;

        public String getTitle() { return title; }
        public void setTitle(String title){ this.title = title; }
    }
}

```

Создаем новый экран activity_schedule:

```

<?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"
android:layout_width="match_parent"
android:layout_height="match_parent">

    <androidx.recyclerview.widget.RecyclerView
        android:id="@+id/listView"
        android:layout_width="match_parent"
        android:layout_height="0dp"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

```

```

<TextView
    android:id="@+id/current_time"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="20dp"
    android:layout_marginLeft="20dp"
    android:layout_marginTop="10dp"
    android:text=""
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/listView" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

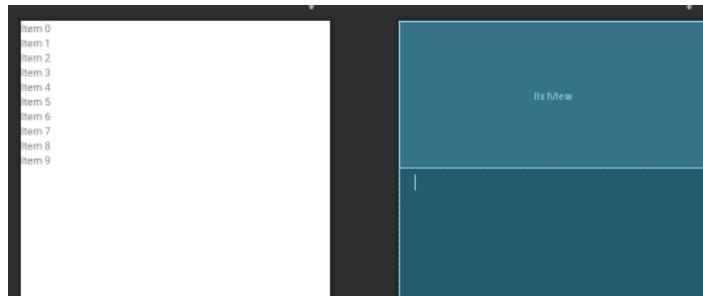


Рисунок 1.1 – Результат

Создаем xml файлы в которых будем хранить стиль элементов и заголовка:

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="match_parent"
    android:layout_height="wrap_content">

    <TextView
        android:id="@+id/title"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"/>
</LinearLayout>

```

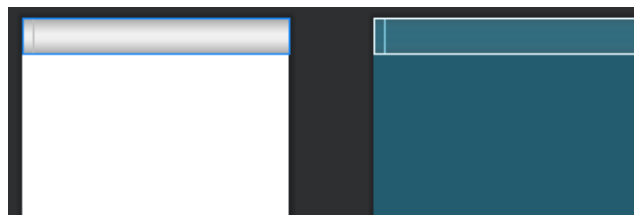


Рисунок 1.2 – Элемент заголовка

```

<?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"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="5dp"
    android:layout_marginBottom="5dp">

    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"

```

```

        android:orientation="horizontal"
        tools:ignore="MissingConstraints">

        <LinearLayout
            android:layout_width="50dp"
            android:layout_height="match_parent"
            android:orientation="vertical">

            <TextView
                android:id="@+id/start"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_gravity="center"
                android:gravity="center"
                android:text="@string/time" />

            <TextView
                android:id="@+id/end"
                android:layout_width="wrap_content"
                android:layout_height="match_parent"
                android:layout_gravity="center"
                android:gravity="bottom|center"
                android:text="@string/time" />
        </LinearLayout>

        <LinearLayout
            android:layout_width="350dp"
            android:layout_height="wrap_content"
            android:orientation="vertical"
            android:background="@drawable/hse_style_calendar_background">

            <TextView
                android:id="@+id/type"
                android:layout_width="340dp"
                android:layout_height="wrap_content"
                android:layout_gravity="end"
                android:text="@string/schedule_type"
                android:textColor="@color/SecondaryHSE"
                android:textSize="15sp"
                android:textStyle="bold"/>

            <TextView
                android:id="@+id/name"
                android:layout_width="340dp"
                android:layout_height="wrap_content"
                android:layout_gravity="end"
                android:text="@string/schedule_name"
                android:textColor="@color/black"
                android:textSize="15sp"
                android:textStyle="bold" />

            <TextView
                android:id="@+id/place"
                android:layout_width="340dp"
                android:layout_height="wrap_content"
                android:layout_gravity="end"
                android:text="@string/schedule_place"
                android:textSize="14sp"
                android:textColor="@color/black" />

            <TextView
                android:id="@+id/teacher"

```

```

        android:layout_width="340dp"
        android:layout_height="wrap_content"
        android:layout_gravity="end"
        android:text="@string/schedule_teacher" />
    </LinearLayout>
</LinearLayout>
</androidx.constraintlayout.widget.ConstraintLayout>

```

Создаем xml drawable файл в котором будем хранить задний фон для главного элемента:



Рисунок 1.3 – Главный элемент

```

<?xml version="1.0" encoding="utf-8"?>
<layer-list xmlns:android="http://schemas.android.com/apk/res/android">
    <item>
        <shape android:shape="rectangle">
            <solid android:color="@color/SecondaryHSE"/>
        </shape>
    </item>

    <item android:left="3dp">
        <shape android:shape="rectangle">
            <solid android:color="@color/white" />
            <padding android:left="3dp" />
        </shape>
    </item>
</layer-list>

```

Понедельник, 28 января	
10:00	ПРАКТИЧЕСКОЕ ЗАНЯТИЕ Анализ данных (анг) Ауд. 503, Кочновский пр-д, д.3
11:00	Пред. Гуштим Михаил Иванович
12:00	ПРАКТИЧЕСКОЕ ЗАНЯТИЕ Анализ данных (анг) Ауд. 503, Кочновский пр-д, д.3
13:00	Пред. Гуштим Михаил Иванович

Рисунок 1.4 – Итог

2 Задание

Задача: На экран с расписанием вывести информацию о выбранной группе или преподавателе над списком с расписанием в поле title.

Передаем данные в ScheduleActivity:

```
protected void showScheduleImpl(ScheduleType type, Group group, Date currentTime) {
    Intent intent = new Intent(this, ScheduleActivity.class);
    intent.putExtra(ScheduleActivity.ARG_ID, group.getName());
    intent.putExtra(ScheduleActivity.ARG_TYPE, type);
    intent.putExtra(ScheduleActivity.ARG_MODE, ScheduleMode.STUDENT);
    intent.putExtra(ScheduleActivity.ARG_TIME, currentTime);
    startActivity(intent);
}
```

```
protected void showScheduleImpl(ScheduleType type, StudentActivity.Group group, Date
currentTime) {
    Intent intent = new Intent(this, ScheduleActivity.class);
    intent.putExtra(ScheduleActivity.ARG_ID, group.getName());
    intent.putExtra(ScheduleActivity.ARG_TYPE, type);
    intent.putExtra(ScheduleActivity.ARG_MODE, ScheduleMode.TEACHER);
    intent.putExtra(ScheduleActivity.ARG_TIME, currentTime);
    startActivity(intent);
}
```

Выводим сообщение:

```
private void initData() {
    List<ScheduleItem> list = new ArrayList<>();

    ScheduleItemHeader header = new ScheduleItemHeader();
    header.setTitle(String.format("%s\r\nПонедельник, 28 января", name));
    list.add(header);
}
```

ПИ-16-1	
Понедельник, 28 января	
10:00	ПРАКТИЧЕСКОЕ ЗАНЯТИЕ Анализ данных (анг) Ауд. 503, Кочновский пр-д, д.3
11:00	Пред. Гущим Михаил Иванович
12:00	ПРАКТИЧЕСКОЕ ЗАНЯТИЕ Анализ данных (анг) Ауд. 503, Кочновский пр-д, д.3
13:00	Пред. Гущим Михаил Иванович

Рисунок 2.1 – Итог

3 Задание

Задача: Сделать стиль для поля title, чтобы заголовок был более крупного размера и вписывался в дизайн приложения.

Добавляем стиль текста для TextView:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="match_parent"
    android:layout_height="wrap_content">

    <TextView
        android:id="@+id/title"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="4dp"
        android:textSize="20sp"
        android:layout_marginLeft="16dp"
        android:layout_marginStart="16dp"
        android:lines="2"
        android:text="" />
</LinearLayout>
```

ПИ-16-1	
Понедельник, 28 января	
10:00	ПРАКТИЧЕСКОЕ ЗАНЯТИЕ Анализ данных (анг) Ауд. 503, Кочновский пр-д, д.3
11:00	Пред. Гуцим Михаил Иванович
12:00	ПРАКТИЧЕСКОЕ ЗАНЯТИЕ Анализ данных (анг) Ауд. 503, Кочновский пр-д, д.3
13:00	Пред. Гуцим Михаил Иванович

Рисунок 3.1 – Итог

4 Задание

Задача: На экран с расписанием вывести информацию о полученном времени от сервера в формате: <день недели>, число <месяц>.

Объявляем публичную переменную в BaseActivity:

```
public class BaseActivity extends AppCompatActivity {  
  
    . . .  
  
    protected TextView time, current_time;  
    protected Date currentTime;  
    public static Date time_export;
```

Передаем ей полученное значение:

```
private void showTime(Date dateTime){  
    time = findViewById(R.id.time);  
    current_time = findViewById(R.id.current_time);  
    if (dateTime == null){ return; }  
    currentTime = dateTime;  
    SimpleDateFormat simpleDateFormat = null;  
    if (android.os.Build.VERSION.SDK_INT >= android.os.Build.VERSION_CODES.LOLLIPOP)  
{  
        simpleDateFormat = new SimpleDateFormat("HH:mm, E",  
Locale.forLanguageTag("ru"));  
    }  
    time_export = currentTime;  
    time.setText(String.format("Сейчас: %s", simpleDateFormat.format(currentTime)));  
}
```

Передаем данные в ScheduleActivity:

```
protected void onCreate(@Nullable Bundle savedInstanceState) {  
    super.onCreate(savedInstanceState);  
    setContentView(R.layout.activity_schedule);  
    Objects.requireNonNull(getSupportActionBar()).hide();  
  
    SimpleDateFormat simpleDateFormat = null;  
    if (android.os.Build.VERSION.SDK_INT >= android.os.Build.VERSION_CODES.LOLLIPOP)  
{  
        simpleDateFormat = new SimpleDateFormat("EEEE, dd MMMM",  
Locale.forLanguageTag("ru"));  
    }  
    currentTime = findViewById(R.id.current_time);  
    currentTime.setText(String.format("%s",  
simpleDateFormat.format(BaseActivity.time_export)));
```

ПИ-16-1	
Понедельник, 28 января	
10:00	ПРАКТИЧЕСКОЕ ЗАНЯТИЕ Анализ данных (анг) Ауд. 503, Кочновский пр-д, д.3 Пред. Гуцким Михаил Иванович
11:00	
12:00	ПРАКТИЧЕСКОЕ ЗАНЯТИЕ Анализ данных (анг) Ауд. 503, Кочновский пр-д, д.3 Пред. Гуцким Михаил Иванович
13:00	
вторник, 09 марта	

Рисунок 4.1 – Итог

Приложение А. Листинг «MainActivity»

```
package org.hse.android;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import java.util.Objects;

public class MainActivity extends AppCompatActivity {

    private static final String TAG = "MainActivity";

    @Override protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Objects.requireNonNull(getSupportActionBar()).hide();

        View button_student = findViewById(R.id.button_student);
        View button_teacher = findViewById(R.id.button_teacher);
        View button_settings = findViewById(R.id.button_settings);

        Log.d(TAG, "Startup");

        button_student.setOnClickListener(v -> Student_pressed());
        button_teacher.setOnClickListener(v -> Teacher_pressed());
        button_settings.setOnClickListener(v -> Settings_pressed());
    }

    private void Student_pressed(){
        Intent intent = new Intent(MainActivity.this, StudentActivity.class);
        startActivity(intent);
    }

    private void Teacher_pressed(){
        Intent intent = new Intent(MainActivity.this, TeacherActivity.class);
        startActivity(intent);
    }

    private void Settings_pressed(){
        Intent intent = new Intent(MainActivity.this, SettingsActivity.class);
        startActivity(intent);
    }
}
```

Приложение Б. Листинг «StudentActivity»

```
package org.hse.android;

import android.content.Intent;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.Adapter;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ArrayAdapter;
import android.widget.Spinner;
import android.widget.TextView;
import java.util.ArrayList;
import java.util.Date;
import java.util.List;
import java.util.Objects;

public class StudentActivity extends BaseActivity {

    private static final String TAG = "StudentActivity";

    private TextView status, subject, cabinet, corp, teacher;
    private Spinner spinner;
    public Date currentTime;

    @Override protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_student);
        Objects.requireNonNull(getSupportActionBar()).hide();

        spinner = findViewById(R.id.groupList);

        List<Group> groups = new ArrayList<>();
        initGroupList(groups);

        ArrayAdapter<> adapter = new ArrayAdapter<>(this,
        android.R.layout.simple_spinner_item, groups);

        adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);

        spinner.setAdapter(adapter);

        spinner.setOnItemClickListener(new AdapterView.OnItemClickListener() {
            public void onItemClick(AdapterView<?> parent, View itemSelected, int
            selectedItemPosition, long selectedId) {
                Object item = adapter.getItem(selectedItemPosition);
                Log.d(TAG, "selectedItem: " + item);
            }
            public void onNothingSelected(AdapterView<?> parent) { }
        });

        initTime();

        status = findViewById(R.id.status);
        subject = findViewById(R.id.subject);
        cabinet = findViewById(R.id.cabinet);
        corp = findViewById(R.id.corp);
        teacher = findViewById(R.id.teacher);

        View scheduleDay = findViewById(R.id.schedule_day);
```

```

        scheduleDay.setOnClickListener(v -> showSchedule(ScheduleType.DAY));
        View scheduleWeek = findViewById(R.id.schedule_week);
        scheduleWeek.setOnClickListener(v -> showSchedule(ScheduleType.WEEK));
    }

    private void initGroupList(List<Group> groups){
        String[] pr = { "ПМ", "БМ", "УБ", "Э", "И", "Ю" };
        String[] yr = { "16", "17", "18", "19", "20" };
        int i=0;
        for (String p : pr) {
            for (String y : yr) {
                for (int z = 1; z < 5; z++) {
                    i++;
                    groups.add(new Group(i, p + "-" + y + "-" + z));
                }
            }
        }
    }

    private void showSchedule(ScheduleType type) {
        Object selectedItem = spinner.getSelectedItem();
        if (!(selectedItem instanceof Group)) { return; }
        showScheduleImpl(type, (Group) selectedItem, currentTime);
    }

    protected void showScheduleImpl(ScheduleType type, Group group, Date currentTime)
    {
        Intent intent = new Intent(this, ScheduleActivity.class);
        intent.putExtra(ScheduleActivity.ARG_ID, group.getName());
        intent.putExtra(ScheduleActivity.ARG_TYPE, type);
        intent.putExtra(ScheduleActivity.ARG_MODE, ScheduleMode.STUDENT);
        intent.putExtra(ScheduleActivity.ARG_TIME, currentTime);
        startActivity(intent);
    }

    static class Group{
        private Integer id;
        private String name;

        public Group(Integer id, String name){
            this.id = id;
            this.name = name;
        }
        public Integer getId(){ return id; }
        public void setId(Integer id) { this.id = id; }
        @Override public String toString() { return name; }
        public String getName() { return name; }
        public void setName(String name){ this.name = name; }
    }
}

```

Приложение В. Листинг «TeacherActivity»

```
package org.hse.android;

import androidx.appcompat.app.AppCompatActivity;
import android.util.Log;
import android.widget.TextView;
import com.google.gson.Gson;
import org.jetbrains.annotations.NotNull;
import java.io.IOException;
import java.text.SimpleDateFormat;
import java.util.Date;
import java.util.Locale;
import okhttp3.Call;
import okhttp3.Callback;
import okhttp3.OkHttpClient;
import okhttp3.Request;
import okhttp3.Response;
import okhttp3.ResponseBody;

public class BaseActivity extends AppCompatActivity {

    enum ScheduleType { DAY, WEEK }

    enum ScheduleMode { STUDENT, TEACHER }

    interface OnItemClick { void onClick(ScheduleActivity.ScheduleItem data); }

    private final static String TAG = "BaseActivity";
    public static final String URL =
        "https://api.ipgeolocation.io/ipgeo?apiKey=b03018f75ed94023a005637878ec0977";

    protected TextView time, current_time;
    protected Date currentTime;
    public static Date time_export;

    private OkHttpClient client = new OkHttpClient();

    protected void getTime(){
        Request request = new Request.Builder().url(URL).build();
        Call call = client.newCall(request);
        call.enqueue(new Callback() {
            @Override
            public void onFailure(@NotNull Call call, @NotNull IOException e) {
                Log.e("tag", e.getMessage());
            }

            @Override
            public void onResponse(@NotNull Call call, @NotNull Response response) {
                parseResponse(response);
            }
        });
    }

    protected void initTime() { getTime(); }

    private void showTime(Date dateTime){
        time = findViewById(R.id.time);
        current_time = findViewById(R.id.current_time);
        if (dateTime == null){ return; }
    }
}
```

```

        currentTime = dateTime;
        SimpleDateFormat simpleDateFormat = null;
        if (android.os.Build.VERSION.SDK_INT >=
android.os.Build.VERSION_CODES.LOLLIPOP) {
            simpleDateFormat = new SimpleDateFormat("HH:mm, E",
Locale.forLanguageTag("ru"));
        }
        time_export = currentTime;
        time.setText(String.format("Сейчас: %s",
simpleDateFormat.format(currentTime)));
    }

    private void parseResponse(Response response) {
        Gson gson = new Gson();
        ResponseBody body = response.body();
        try {
            if (body == null) { return; }
            String string = body.string();
            Log.d(TAG, string);
            TimeResponse timeResponse = gson.fromJson(string, TimeResponse.class);
            String currentTimeVal = timeResponse.getTimeZone().getCurrentTime();
            SimpleDateFormat simpleDateFormat = new SimpleDateFormat("yyyy-MM-dd
HH:mm:ss.SSS", Locale.getDefault());
            Date dateTime = simpleDateFormat.parse(currentTimeVal);
            // run on UI thread
            runOnUiThread(() -> showTime(dateTime));
        }
        catch (Exception e) { Log.e(TAG, "", e); }
    }
}

```

Приложение Г. Листинг «SettingsActivity»

```
package org.hse.android;

import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;
import androidx.core.content.FileProvider;
import android.Manifest;
import android.annotation.SuppressLint;
import android.content.ActivityNotFoundException;
import android.content.Context;
import android.content.Intent;
import android.content.pm.PackageManager;
import android.hardware.Sensor;
import android.hardware.SensorEvent;
import android.hardware.SensorEventListener;
import android.hardware.SensorManager;
import android.net.Uri;
import android.os.Bundle;
import android.provider.MediaStore;
import android.util.Log;
import android.view.View;
import android.widget.AdapterView;
import android.widget.EditText;
import android.widget.ImageView;
import android.widget.ListView;
import android.widget.TextView;
import android.widget.Toast;
import java.io.File;
import java.io.IOException;
import java.text.SimpleDateFormat;
import java.util.ArrayList;
import java.util.Date;
import java.util.List;
import java.util.Locale;
import java.util.Objects;
import com.bumptech.glide.Glide;

public class SettingsActivity extends AppCompatActivity implements
SensorEventListener {

    private final static String TAG = "SettingsActivity";

    private static final int REQUEST_IMAGE_CAPTURE = 10;
    private static final int REQUEST_PERMISSION_CODE = 1;

    private final static String PERMISSION = Manifest.permission.CAMERA;

    private ImageView photo;
    private EditText name;

    private PreferenceManager preferenceManager;
    private SensorManager sensorManager;
    private Sensor light;
    private TextView sensorLight;

    File imagePath;
```



```

File image;
Boolean photo_changed = false;

@Override protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_settings);
    Objects.requireNonNull(getSupportActionBar()).hide();

    preferenceManager = new PreferenceManager(this);
    ListView sensors_list = findViewById(R.id.sensors_list);
    name = findViewById(R.id.name);
    photo = findViewById(R.id.photo);
    sensorLight = findViewById(R.id.sensor_light);
    sensorManager = (SensorManager) getSystemService(Context.SENSOR_SERVICE);
    light = sensorManager.getDefaultSensor(Sensor.TYPE_LIGHT);

    View buttonPhoto = findViewById(R.id.button_photo);
    buttonPhoto.setOnClickListener(v -> checkPermission());

    View buttonSave = findViewById(R.id.button_save);
    buttonSave.setOnClickListener(v -> {
        loadPhoto();
        preferenceManager.saveValue("name", name.getText().toString());
        if(photo_changed) {
            preferenceManager.saveValue("photo", image.getPath());
        }
        Toast.makeText(SettingsActivity.this, "Данные сохранены",
Toast.LENGTH_SHORT).show();
    });

    name.setText(preferenceManager.getValue("name"));
    File imgFile = new File(preferenceManager.getValue("photo"));
    if(imgFile.exists()){ Glide.with(this).load(imgFile).into(photo); }
    else{ photo.setImageResource(R.drawable.no_image); }
    loadPhoto();

    if(sensorManager.getDefaultSensor(Sensor.TYPE_LIGHT) == null) {
sensorLight.setText("Нет датчика освещенности"); }

    List<Sensor> listSensor = sensorManager.getSensorList(Sensor.TYPE_ALL);
    List<String> listSensorType = new ArrayList<>();
    for (int i = 0; i < listSensor.size(); i++) {
listSensorType.add(listSensor.get(i).getName()); }

    ArrayAdapter<?> adapter = new ArrayAdapter<>(this,
android.R.layout.simple_list_item_1, listSensorType);
    sensors_list.setAdapter(adapter);
}

@Override
protected void onResume() {
    super.onResume();

    name.setText(preferenceManager.getValue("name"));

    File imgFile = new File(preferenceManager.getValue("photo"));
    if (imgFile.exists()) { Glide.with(this).load(imgFile).into(photo); }
    else { photo.setImageResource(R.drawable.no_image); }

    sensorManager.registerListener(this, light,
SensorManager.SENSOR_DELAY_NORMAL);
}

```

```

@Override
protected void onPause() {
    super.onPause();

    name.setText(preferenceManager.getValue("name"));

    File imgFile = new File(preferenceManager.getValue("photo"));
    if(imgFile.exists()){ Glide.with(this).load(imgFile).into(photo); }
    else{ photo.setImageResource(R.drawable.no_image); }

    sensorManager.unregisterListener(this);
}

public final void onAccuracyChanged(Sensor sensor, int accuracy) { }

public final void onSensorChanged(SensorEvent event) {
    float lux = event.values[0];
    sensorLight.setText(String.format("%s lux", lux));
}

public void checkPermission(){
    int permissionsCheck = ActivityCompat.checkSelfPermission(this, PERMISSION);
    if (permissionsCheck != PackageManager.PERMISSION_GRANTED) {
        if(ActivityCompat.shouldShowRequestPermissionRationale(this, PERMISSION))
        {
            AlertDialog.Builder builder = new AlertDialog.Builder(this);
            builder.setTitle("Нужно предоставить права")
                .setMessage("Для съятия фото нужно предоставить права на фото")
                .setPositiveButton(android.R.string.ok, (dialog, id) ->
                    requestPermissions(PERMISSION,
REQUEST_PERMISSION_CODE));
            builder.create().show();
        }
        else { requestPermissions(PERMISSION, REQUEST_PERMISSION_CODE); }
    }
    else { dispatchTakePictureIntent(); }
}

private void requestPermissions(String permissionName, int permissionRequestCode)
{
    ActivityCompat.requestPermissions(this, new String[]{permissionName},
permissionRequestCode);
}

@Override
public void onRequestPermissionsResult(int requestCode, @NonNull String[]
permissions, @NonNull int[] result) {
    if(requestCode == REQUEST_PERMISSION_CODE) {
        if(result.length > 0 && result[0] == PackageManager.PERMISSION_GRANTED) {
            dispatchTakePictureIntent();
        }
        else {
            Log.d(TAG, "Permission not granted");
            requestPermissions(PERMISSION, REQUEST_PERMISSION_CODE);
        }
    }
}

@Override
protected void onActivityResult(int requestCode, int resultCode, @Nullable Intent

```

```

data) {
    if (requestCode == REQUEST_IMAGE_CAPTURE && resultCode == RESULT_OK){
        loadPhoto();
        return;
    }
    super.onActivityResult(requestCode, resultCode, data);
}

private void loadPhoto() { if(image != null)
Glide.with(this).load(image).into(photo); }

@SuppressWarnings("QueryPermissionsNeeded")
private void dispatchTakePictureIntent() {
    Intent takePictureIntent = new Intent(MediaStore.ACTION_IMAGE_CAPTURE);
    if(takePictureIntent.resolveActivity(getPackageManager()) != null) {
        //Create a file to store the image
        File photoFile = null;
        try { photoFile = createImageFile(); }
        catch (IOException ex) { Log.e(TAG, "Create file", ex); }
        if(photoFile != null) {
            Uri photoURI = FileProvider.getUriForFile(this,
BuildConfig.APPLICATION_ID + ".provider", photoFile);
            takePictureIntent.putExtra(MediaStore.EXTRA_OUTPUT,
                photoURI);
            try { startActivityForResult(takePictureIntent,
REQUEST_IMAGE_CAPTURE); }
            catch (ActivityNotFoundException e) { Log.e(TAG, "Start activity",
e); }
        }
    }
    loadPhoto();
}

private File createImageFile() throws IOException {
    String timeStamp = new SimpleDateFormat("yyyyMMdd_HHmmss",
Locale.getDefault()).format(new Date());
    String imageFileName = "IMG_" + timeStamp + "_";

    imagePath = new File(getFilesDir(), "external_files");
    imagePath.mkdir();
    image = new File(imagePath.getPath(), String.format("%s.img",
imageFileName));
    photo_changed = true;

    return image;
}
}

```

Приложение Д. Листинг «PreferenceManager»

```
package org.hse.android;

import android.content.Context;
import android.content.SharedPreferences;

public class PreferenceManager {
    private final static String PREFERENCE_FILE = "org.hse.android.file";
    private final SharedPreferences sharedPref;

    public PreferenceManager(Context context) {
        sharedPref = context.getSharedPreferences(PREFERENCE_FILE,
Context.MODE_PRIVATE);
    }

    //////////////////////////////////////////////////

    public void saveValue(String key, String value) {
        SharedPreferences.Editor editor = sharedPref.edit();
        editor.putString(key, value);
        editor.apply();
    }

    public String getValue(String key) {
        return sharedPref.getString(key, "");
    }
}
```

Приложение Е. Листинг «activity_main»

```
<?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"
    tools:context=".MainActivity">

    <ImageView
        android:id="@+id/Logo"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="25dp"
        android:layout_marginLeft="25dp"
        android:layout_marginTop="20dp"
        android:layout_marginEnd="25dp"
        android:layout_marginRight="25dp"
        android:layout_marginBottom="80dp"
        android:gravity="center_horizontal"
        android:orientation="vertical"
        android:scaleX="1.3"
        android:scaleY="1.3"
        app:layout_constraintBottom_toTopOf="@+id/button_student"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:srcCompat="@drawable/logo"
        android:contentDescription="@string/logo_of_hse" />

    <Button
        android:id="@+id/button_student"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="55dp"
        android:layout_marginLeft="55dp"
        android:layout_marginEnd="55dp"
        android:layout_marginRight="55dp"
        android:layout_marginBottom="20dp"
        android:gravity="center_horizontal"
        android:maxLines="1"
        android:text="@string/student_button_ru"
        android:textAppearance="@style/TextAppearance.AppCompat.Medium"
        app:layout_constraintBottom_toTopOf="@+id/button_teacher"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent" />

    <Button
        android:id="@+id/button_teacher"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="31dp"
        android:layout_marginLeft="31dp"
        android:layout_marginEnd="31dp"
        android:layout_marginRight="31dp"
        android:layout_marginBottom="20dp"
```

```

        android:gravity="center"
        android:maxLines="1"
        android:text="@string/teacher_button_ru"
        android:textAppearance="@style/TextAppearance.AppCompat.Medium"
        app:layout_constraintBottom_toTopOf="@+id/button_settings"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent" />

<Button
    android:id="@+id/button_settings"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="160dp"
    android:layout_marginLeft="160dp"
    android:layout_marginEnd="160dp"
    android:layout_marginRight="160dp"
    android:layout_marginBottom="40dp"
    android:gravity="center"
    android:maxLines="1"
    android:text="@string/settings_ru"
    android:textAppearance="@style/TextAppearance.AppCompat.Medium"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

Приложение Ж. Листинг «activity_student»

```
<?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"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <TextView
        style="@style/Common_text_style"
        android:id="@+id/label"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginStart="10dp"
        android:layout_marginLeft="10dp"
        android:layout_marginTop="10dp"
        android:layout_marginEnd="10dp"
        android:layout_marginRight="10dp"
        android:text="@string/first_label_s_ru"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Spinner
        android:id="@+id/groupList"
        android:layout_width="150dp"
        android:layout_height="50dp"
        android:layout_marginStart="10dp"
        android:layout_marginLeft="10dp"
        android:layout_marginTop="10dp"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/label" />

    <LinearLayout
        android:id="@+id/linearLayout"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginStart="10dp"
        android:layout_marginLeft="10dp"
        android:layout_marginTop="10dp"
        android:layout_marginEnd="10dp"
        android:layout_marginRight="10dp"
        android:orientation="horizontal"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/groupList">

        <TextView
            style="@style/Common_text_style"
            android:id="@+id/now"
            android:layout_width="70dp"
            android:layout_height="match_parent"
            android:layout_weight="0"
            android:text="@string/now_label" />

        <TextView
            style="@style/Common_text_style"
            android:id="@+id/time"
            android:layout_width="wrap_content"
```

```

        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="@string/time_ru" />
</LinearLayout>

<TextView
    style="@style/Common_text_style"
    android:id="@+id/status"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginStart="10dp"
    android:layout_marginLeft="10dp"
    android:layout_marginTop="10dp"
    android:layout_marginEnd="10dp"
    android:layout_marginRight="10dp"
    android:text="@string/status_ru"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/linearLayout" />

<LinearLayout
    android:id="@+id/linearLayout2"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginStart="10dp"
    android:layout_marginLeft="10dp"
    android:layout_marginTop="10dp"
    android:layout_marginEnd="10dp"
    android:layout_marginRight="10dp"
    android:orientation="vertical"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/status">

    <TextView
        style="@style/Common_text_style"
        android:id="@+id/subject"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="@string/subject_ru" />

    <TextView
        style="@style/Common_text_style"
        android:id="@+id/cabinet"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="@string/cabinet_ru" />

    <TextView
        style="@style/Common_text_style"
        android:id="@+id/corp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="@string/corp_ru" />

    <TextView
        style="@style/Common_text_style"
        android:id="@+id/teacher"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="@string/teacher_ru" />

```



```

</LinearLayout>

<Button
    android:id="@+id/day_cal_button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="10dp"
    android:layout_marginLeft="10dp"
    android:layout_marginTop="10dp"
    android:minLines="1"
    android:text="Расписание\на день"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/linearLayout2" />

<Button
    android:id="@+id/week_cal_button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="20dp"
    android:layout_marginLeft="20dp"
    android:layout_marginTop="10dp"
    android:text="Расписание\на неделю"
    app:layout_constraintStart_toEndOf="@+id/day_cal_button"
    app:layout_constraintTop_toBottomOf="@+id/linearLayout2" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

Приложение 3. Листинг «activity_teacher»

```
<?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"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <TextView
        style="@style/Common_text_style"
        android:id="@+id/label"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginStart="10dp"
        android:layout_marginLeft="10dp"
        android:layout_marginTop="10dp"
        android:layout_marginEnd="10dp"
        android:layout_marginRight="10dp"
        android:text="@string/first_label_t_ru"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Spinner
        android:id="@+id/groupList"
        android:layout_width="150dp"
        android:layout_height="50dp"
        android:layout_marginStart="10dp"
        android:layout_marginLeft="10dp"
        android:layout_marginTop="10dp"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/label" />

    <LinearLayout
        android:id="@+id/linearLayout"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginStart="10dp"
        android:layout_marginLeft="10dp"
        android:layout_marginTop="10dp"
        android:layout_marginEnd="10dp"
        android:layout_marginRight="10dp"
        android:orientation="horizontal"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/groupList">

        <TextView
            style="@style/Common_text_style"
            android:id="@+id/now"
            android:layout_width="70dp"
            android:layout_height="match_parent"
            android:layout_weight="0"
            android:text="@string/now_label" />

        <TextView
            style="@style/Common_text_style"
            android:id="@+id/time"
            android:layout_width="wrap_content"
```

```

        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="@string/time_ru" />
</LinearLayout>

<TextView
    style="@style/Common_text_style"
    android:id="@+id/status"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginStart="10dp"
    android:layout_marginLeft="10dp"
    android:layout_marginTop="10dp"
    android:layout_marginEnd="10dp"
    android:layout_marginRight="10dp"
    android:text="@string/status_ru"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/linearLayout" />

<LinearLayout
    android:id="@+id/linearLayout2"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginStart="10dp"
    android:layout_marginLeft="10dp"
    android:layout_marginTop="10dp"
    android:layout_marginEnd="10dp"
    android:layout_marginRight="10dp"
    android:orientation="vertical"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/status">

    <TextView
        style="@style/Common_text_style"
        android:id="@+id/subject"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="@string/subject_ru" />

    <TextView
        style="@style/Common_text_style"
        android:id="@+id/cabinet"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="@string/cabinet_ru" />

    <TextView
        style="@style/Common_text_style"
        android:id="@+id/corp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="@string/corp_ru" />

    <TextView
        style="@style/Common_text_style"
        android:id="@+id/teacher"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="@string/teacher_ru" />
</LinearLayout>

```

```

<Button
    android:id="@+id/day_cal_button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="10dp"
    android:layout_marginLeft="10dp"
    android:layout_marginTop="10dp"
    android:minLines="1"
    android:text="Расписание\на день"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/linearLayout2" />

<Button
    android:id="@+id/week_cal_button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="20dp"
    android:layout_marginLeft="20dp"
    android:layout_marginTop="10dp"
    android:text="Расписание\на неделю"
    app:layout_constraintStart_toEndOf="@+id/day_cal_button"
    app:layout_constraintTop_toBottomOf="@+id/linearLayout2" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

Приложение II. Листинг «activity_settings»

```
<?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/linearLayout3"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginStart="10dp"
        android:layout_marginLeft="10dp"
        android:layout_marginTop="10dp"
        android:layout_marginEnd="10dp"
        android:layout_marginRight="10dp"
        android:orientation="horizontal"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent">

        <LinearLayout
            android:layout_width="160dp"
            android:layout_height="wrap_content"
            android:orientation="vertical">

            <TextView
                android:id="@+id/textView"
                style="@style/Mini_text_style"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_gravity="center"
                android:text="@string/photo_textView" />

            <ImageView
                android:id="@+id/photo"
                android:layout_width="150dp"
                android:layout_height="170dp"
                android:layout_gravity="center"
                android:contentDescription="@string/user_avatar"
                tools:srcCompat="@tools:sample/avatars" />

            <Button
                android:id="@+id/button_photo"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_gravity="center"
                android:text="@string/take_photo_button_ru" />
        </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:gravity="center"
        android:orientation="vertical">

        <EditText
```

```

        android:id="@+id/name"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="@string/name_editView"
        android:autofillHints="" />

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">

    <TextView
        style="@style/Mini_text_style"
        android:id="@+id/textView2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="@string/light_textView" />

    <TextView
        style="@style/Mini_text_style"
        android:id="@+id/sensor_light"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="" />

</LinearLayout>
</LinearLayout>
</LinearLayout>

<Button
    android:id="@+id/button_save"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="160dp"
    android:layout_marginLeft="160dp"
    android:layout_marginTop="20dp"
    android:layout_marginEnd="160dp"
    android:layout_marginRight="160dp"
    android:text="@string/save_button_ru"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/linearLayout3" />

<TextView
    android:id="@+id/sensors_list_label"
    style="@style/Mini_text_style"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="10dp"
    android:layout_marginLeft="10dp"
    android:layout_marginTop="10dp"
    android:text="@string/sensors_list_label"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/button_save" />

<ListView
    android:id="@+id/sensors_list"
    android:layout_width="wrap_content"
    android:layout_height="300dp"
    android:layout_marginStart="10dp"
    android:layout_marginLeft="10dp"

```

```
        android:layout_marginEnd="10dp"
        android:layout_marginRight="10dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/sensors_list_label">
    </ListView>
</androidx.constraintlayout.widget.ConstraintLayout>
```

Приложение К. Листинг «AndroidManifest»

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="org.hse.android">

    <!-- <uses-permission android:name="android.permission.BLUETOOTH"/> -->
    <!-- <uses-permission android:name="android.permission.BLUETOOTH_ADMIN"/> -->
    <uses-permission android:name="android.permission.CAMERA" />
    <uses-permission android:name="android.permission.READ_EXTERNAL_STORAGE" />
    <uses-permission android:name="android.permission.INTERNET" />
    <uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
    <uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE" />

    <uses-feature
        android:name="android.hardware.camera"
        android:required="true" />

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportRtl="true"
        android:theme="@style/Theme.HSE">
        <meta-data
            android:name="com.google.android.actions"
            android:resource="@xml/file_paths" />

        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <activity android:name=".BaseActivity" />
        <activity android:name=".StudentActivity" />
        <activity android:name=".TeacherActivity" />
        <activity android:name=".SettingsActivity" />
        <activity android:name=".ScheduleActivity" />

        <provider
            android:name="androidx.core.content.FileProvider"
            android:authorities="org.hse.android.provider"
            android:exported="false"
            android:grantUriPermissions="true">
            <meta-data
                android:name="android.support.FILE_PROVIDER_PATHS"
                android:resource="@xml/file_paths" />
        </provider>
    </application>
</manifest>
```


Приложение Л. Листинг «file_paths.xml»

```
<?xml version="1.0" encoding="utf-8"?>
<paths>
  <files-path
    name="files"
    path="external_files">
  </files-path>
</paths>
```

Приложение М. Листинг «strings.xml»

```
<resources>
    <string name="app_name">Timetable for HSE FE</string>
    <string name="about_main">Программа созданная в рамках курса "Мобильная
разработка" НИУ ВШЭ</string>
    <string name="about_stud_list">Timetable for HSE FE</string>
    <string name="about_teach_list">Timetable for HSE FE</string>

    <string name="teacher_button_ru">РАСПИСАНИЕ ДЛЯ ПРЕПОДОВАТЕЛЯ</string>
    <string name="student_button_ru">РАСПИСАНИЕ ДЛЯ СТУДЕНТОВ</string>
    <string name="settings_ru">НАСТРОЙКИ</string>
    <string name="take_photo_button_ru">Сделать фото</string>
    <string name="save_button_ru">Сохранить</string>
    <string name="logo_of_hse">Logo of HSE</string>

    <string name="first_label_s_ru">Выберите группу:</string>
    <string name="first_label_t_ru">Выберите преподавателя:</string>
    <string name="now_label">Сейчас:</string>
    <string name="time">00:00</string>
    <string name="status_ru">Идет пара / Нет пар</string>
    <string name="subject_ru">Дисциплина</string>
    <string name="cabinet_ru">Кабинет</string>
    <string name="corp_ru">Корпус</string>
    <string name="teacher_ru">Преподаватель</string>

    <string name="photo_textView">Укажите фото</string>
    <string name="name_editView">Укажите ваше имя</string>
    <string name="light_textView">Текущая освещаемость:</string>
    <string name="user_avatar">User_avatar</string>
    <string name="sensors_list_label">Список доступных датчиков:</string>

    <string name="schedule_type">Тип</string>
    <string name="schedule_name">Название</string>
    <string name="schedule_place">Кабинет</string>
    <string name="schedule_teacher">Преподаватель</string>
</resources>
```

Приложение Н. Листинг «styles.xml»

```
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <style name="Common_text_style">
        <item name="android:textSize">16sp</item>
        <item name="android:textStyle">bold</item>
        <item name="android:textColor">@color/SecondaryHSE</item>
        <item name="android:typeface">monospace</item>
    </style>
    <style name="Mini_text_style">
        <item name="android:textSize">13sp</item>
        <item name="android:textColor">@color/SecondaryHSE</item>
        <item name="android:typeface">monospace</item>
    </style>
</resources>
```

Приложение О. Листинг «build.gradle»

```
plugins {
    id 'com.android.application'
}

android {
    compileSdkVersion 30
    buildToolsVersion "30.0.3"

    defaultConfig {
        applicationId "org.hse.android"
        minSdkVersion 16
        targetSdkVersion 30
        versionCode 1
        versionName "1.0"

        testInstrumentationRunner "androidx.test.runner.AndroidJUnitRunner"
    }

    buildTypes {
        release {
            minifyEnabled false
            proguardFiles getDefaultProguardFile('proguard-android-optimize.txt'),
'proguard-rules.pro'
        }
    }
    compileOptions {
        sourceCompatibility JavaVersion.VERSION_1_8
        targetCompatibility JavaVersion.VERSION_1_8
    }
}

dependencies {
    implementation 'androidx.appcompat:appcompat:1.2.0'
    implementation 'com.google.android.material:material:1.2.1'
    implementation 'androidx.constraintlayout:constraintlayout:2.0.4'

    // Desugaring https://developer.android.com/studio/write/java8-support
    coreLibraryDesugaring 'com.android.tools:desugar_jdk_libs:1.1.1'

    testImplementation 'junit:junit:4.+'
    androidTestImplementation 'androidx.test.ext:junit:1.1.2'
    androidTestImplementation 'androidx.test.espresso:espresso-core:3.3.0'

    // Glide
    implementation 'com.github.bumptech.glide:glide:4.11.0'
    annotationProcessor 'com.github.bumptech.glide:compiler:4.11.0'

    //Okhttp
    implementation "com.squareup.okhttp3:okhttp:4.9.0"

    //Gson
    implementation 'com.google.code.gson:gson:2.8.6'
}
```

Приложение П. Листинг «ScheduleActivity»

```
package org.hse.android;

import android.content.Context;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.TextView;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.appcompat.app.AppCompatActivity;
import androidx.recyclerview.widget.DividerItemDecoration;
import androidx.recyclerview.widget.LinearLayoutManager;
import androidx.recyclerview.widget.RecyclerView;
import java.text.SimpleDateFormat;
import java.util.ArrayList;
import java.util.List;
import java.util.Locale;
import java.util.Objects;

public class ScheduleActivity extends AppCompatActivity {
    private BaseActivity.ScheduleType type;

    public RecyclerView recyclerView;
    public ItemAdapter adapter;

    static public String ARG_ID = "0", ARG_TYPE = "1", ARG_MODE = "2", ARG_TIME =
"3", name;
    private TextView currentTime;

    @Override
    protected void onCreate(@Nullable Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_schedule);
        Objects.requireNonNull(getSupportActionBar()).hide();

        SimpleDateFormat simpleDateFormat = null;
        if (android.os.Build.VERSION.SDK_INT >=
android.os.Build.VERSION_CODES.LOLLIPOP) {
            simpleDateFormat = new SimpleDateFormat("EEEE, dd MMMM",
Locale.forLanguageTag("ru"));
        }
        currentTime = findViewById(R.id.current_time);
        currentTime.setText(String.format("%s",
simpleDateFormat.format(BaseActivity.time_export)));

        type = (BaseActivity.ScheduleType)
getIntent().getSerializableExtra(ARG_TYPE);
        BaseActivity.ScheduleMode mode = (BaseActivity.ScheduleMode)
getIntent().getSerializableExtra(ARG_MODE);
        name = getIntent().getStringExtra(ARG_ID);
        if (name == null) { name = "no data"; }

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

        recyclerView = (RecyclerView) findViewById(R.id.listView);
        recyclerView.setLayoutManager(new LinearLayoutManager(this));
        recyclerView.addItemDecoration(new DividerItemDecoration(this,
```

```

LinearLayoutManager.VERTICAL));
recyclerView.setHasFixedSize(true);

adapter = new ItemAdapter(data -> { });
recyclerView.setAdapter(adapter);

initData();
}

private void initData() {
    List<ScheduleItem> list = new ArrayList<>();

    ScheduleItemHeader header = new ScheduleItemHeader();
    header.setTitle(String.format("%s\r\nПонедельник, 28 января", name));
    list.add(header);

    ScheduleItem item = new ScheduleItem();
    item.setStart("10:00");
    item.setEnd("11:00");
    item.setType("ПРАКТИЧЕСКОЕ ЗАНЯТИЕ");
    item.setName("Анализ данных (анг)");
    item.setPlace("Ауд. 503, Кочновский пр-д, д.3");
    item.setTeacher("Пред. Гушим Михаил Иванович");
    list.add(item);

    item = new ScheduleItem();
    item.setStart("12:00");
    item.setEnd("13:00");
    item.setType("ПРАКТИЧЕСКОЕ ЗАНЯТИЕ");
    item.setName("Анализ данных (анг)");
    item.setPlace("Ауд. 503, Кочновский пр-д, д.3");
    item.setTeacher("Пред. Гушим Михаил Иванович");
    list.add(item);
    adapter.setDataList(list);
}

public final static class ItemAdapter extends
RecyclerView.Adapter<RecyclerView.ViewHolder> {

    private final static int TYPE_ITEM = 0;
    private final static int TYPE_HEADER = 1;

    private List<ScheduleItem> dataList = new ArrayList<>();
    private BaseActivity.OnItemClick onItemClick;

    public ItemAdapter(BaseActivity.OnItemClick onItemClick) { this.onItemClick =
onItemClick; }

    @NonNull
    @Override
    public RecyclerView.ViewHolder onCreateViewHolder(@NonNull ViewGroup parent,
int viewType) {
        Context context = parent.getContext();
        LayoutInflater inflater = LayoutInflater.from(context);

        if (viewType == TYPE_ITEM) {
            View contactView = inflater.inflate(R.layout.item_schedule, parent,
false);
            return new ViewHolder(contactView, context, onItemClick);
        }
        else if (viewType == TYPE_HEADER) {
            View contactView = inflater.inflate(R.layout.item_schedule_header,

```

```

parent, false);
        return new ViewHolderHeader(contactView, context, onItemClick);
    }
    throw new IllegalArgumentException("Invalid view type");
}

public int getItemViewType(int position) {
    ScheduleItem data = dataList.get(position);
    if (data instanceof ScheduleItemHeader) { return TYPE_HEADER; }
    return TYPE_ITEM;
}

public void setDataList(List<ScheduleItem> list) {
    this.dataList = new ArrayList<>();
    if (dataList != null) { this.dataList.addAll(list); }
    notifyDataSetChanged();
}

@Override
public void onBindViewHolder(@NonNull RecyclerView.ViewHolder viewHolder, int
position) {
    ScheduleItem data = dataList.get(position);
    if (viewHolder instanceof ViewHolder) {
        ((ViewHolder) viewHolder).bind(data);
    }
    else if (viewHolder instanceof ViewHolderHeader) {
        ((ViewHolderHeader) viewHolder).bind((ScheduleItemHeader) data);
    }
}

@Override
public int getItemCount() {
    return dataList.size();
}
}

public static class ViewHolder extends RecyclerView.ViewHolder {
    private Context context;
    private BaseActivity.OnItemClick onItemClick;
    private TextView start, end, type, name, place, teacher;

    public ViewHolder(View itemView, Context context, BaseActivity.OnItemClick
onItemClick) {
        super(itemView);
        this.context = context;
        this.onItemClick = onItemClick;
        start = itemView.findViewById(R.id.start);
        end = itemView.findViewById(R.id.end);
        type = itemView.findViewById(R.id.type);
        name = itemView.findViewById(R.id.name);
        place = itemView.findViewById(R.id.place);
        teacher = itemView.findViewById(R.id.teacher);
    }

    public void bind(final ScheduleItem data) {
        start.setText(data.getStart());
        end.setText(data.getEnd());
        type.setText(data.getType());
        name.setText(data.getName());
        place.setText(data.getPlace());
        teacher.setText(data.getTeacher());
    }
}

```

```

    }

    public static class ViewHolderHeader extends RecyclerView.ViewHolder {
        private Context context;
        private BaseActivity.OnItemClick onItemClick;
        private TextView title;

        public ViewHolderHeader(View itemView, Context context,
BaseActivity.OnItemClick onItemClick) {
            super(itemView);
            this.context = context;
            this.onItemClick = onItemClick;
            title = itemView.findViewById(R.id.title);
        }

        public void bind(final ScheduleItemHeader data) {
title.setText(data.getTitle()); }
    }

    public class ScheduleItem {
        private String start, end, type, name, place, teacher;

        public String getStart() { return start; }
        public void setStart(String start){ this.start = start; }
        public String getEnd() { return end; }
        public void setEnd(String end){ this.end = end; }
        public String getType() { return type; }
        public void setType(String type){ this.type = type; }
        public String getName() { return name; }
        public void setName(String name){ this.name = name; }
        public String getPlace() { return place; }
        public void setPlace(String place){ this.place = place; }
        public String getTeacher() { return teacher; }
        public void setTeacher(String teacher){ this.teacher = teacher; }
    }

    public class ScheduleItemHeader extends ScheduleItem {
        private String title;

        public String getTitle() { return title; }
        public void setTitle(String title){ this.title = title; }
    }
}

```


Приложение Р. Листинг «activity_schedule»

```
<?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"
android:layout_width="match_parent"
android:layout_height="match_parent">

    <androidx.recyclerview.widget.RecyclerView
        android:id="@+id/listView"
        android:layout_width="match_parent"
        android:layout_height="0dp"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <TextView
        android:id="@+id/current_time"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="20dp"
        android:layout_marginLeft="20dp"
        android:layout_marginTop="10dp"
        android:text=""
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/listView" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Приложение С. Листинг «item_schedule»

```
<?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"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="5dp"
    android:layout_marginBottom="5dp">

    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        tools:ignore="MissingConstraints">

        <LinearLayout
            android:layout_width="50dp"
            android:layout_height="match_parent"
            android:orientation="vertical">

            <TextView
                android:id="@+id/start"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_gravity="center"
                android:gravity="center"
                android:text="@string/time" />

            <TextView
                android:id="@+id/end"
                android:layout_width="wrap_content"
                android:layout_height="match_parent"
                android:layout_gravity="center"
                android:gravity="bottom|center"
                android:text="@string/time" />
        </LinearLayout>

        <LinearLayout
            android:layout_width="350dp"
            android:layout_height="wrap_content"
            android:orientation="vertical"
            android:background="@drawable/hse_style_calendar_background">

            <TextView
                android:id="@+id/type"
                android:layout_width="340dp"
                android:layout_height="wrap_content"
                android:layout_gravity="end"
                android:text="@string/schedule_type"
                android:textColor="@color/SecondaryHSE"
                android:textSize="15sp"
                android:textStyle="bold"/>

            <TextView
                android:id="@+id/name"
                android:layout_width="340dp"
                android:layout_height="wrap_content"
                android:layout_gravity="end">
```

```

        android:text="@string/schedule_name"
        android:textColor="@color/black"
        android:textSize="15sp"
        android:textStyle="bold" />

        <TextView
            android:id="@+id/place"
            android:layout_width="340dp"
            android:layout_height="wrap_content"
            android:layout_gravity="end"
            android:text="@string/schedule_place"
            android:textSize="14sp"
            android:textColor="@color/black" />

        <TextView
            android:id="@+id/teacher"
            android:layout_width="340dp"
            android:layout_height="wrap_content"
            android:layout_gravity="end"
            android:text="@string/schedule_teacher" />
    </LinearLayout>
</LinearLayout>
</androidx.constraintlayout.widget.ConstraintLayout>

```

Приложение Т. Листинг «item_schedule_header»

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="match_parent"
    android:layout_height="wrap_content">

    <TextView
        android:id="@+id/title"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="4dp"
        android:textSize="20sp"
        android:layout_marginLeft="16dp"
        android:layout_marginStart="16dp"
        android:lines="2"
        android:text="" />
</LinearLayout>
```

Приложение У. Листинг «hse_style_calendar_background»

```
<?xml version="1.0" encoding="utf-8"?>
<layer-list xmlns:android="http://schemas.android.com/apk/res/android">
    <item>
        <shape android:shape="rectangle">
            <solid android:color="@color/SecondaryHSE"/>
        </shape>
    </item>

    <item android:left="3dp">
        <shape android:shape="rectangle">
            <solid android:color="@color/white" />
            <padding android:left="3dp" />
        </shape>
    </item>
</layer-list>
```

Приложение Ф. Листинг «TimeResponse»

```
package org.hse.android;

import com.google.gson.annotations.SerializedName;

public class TimeResponse {
    @SerializedName("time_zone")
    private TimeZone timeZone;

    public TimeZone getTimeZone() { return timeZone; }

    public void setTimeZone(TimeZone timeZone) { this.timeZone = timeZone; }
}
```

Приложение X. Листинг «TimeZone»

```
package org.hse.android;

import com.google.gson.annotations.SerializedName;

public class TimeZone {
    @SerializedName("current_time")
    private String currentTime;

    public String getCurrentTime() { return currentTime; }

    public void setCurrentTime(String currentTime) { this.currentTime = currentTime; }
}
```