

● Obsługa zdarzeń - Midlet.java

```
package pl.edu.prz.jprokop;
import javax.microedition.lcdui.*;
import javax.microedition.midlet.MIDlet;
public class Midlet extends MIDlet implements
    CommandListener {
    List list;
    public Midlet() {
        String languages[] = {"C", "C++", "Java",
            "C#", "Python", "Pearl", "PHP", "Ruby"};
        list = new List("Programming languages",
            Choice.IMPLICIT, languages, null);
        list.setCommandListener(this);
    }
    public void startApp() {
        Display display = Display.getDisplay(this);
        display.setCurrent(list);
    }
    public void commandAction(Command command,
        Displayable displayable) {
        if (command == list.SELECT_COMMAND) {
            Alert alert = new Alert("Your choice");
            int index = list.getSelectedIndex();
            alert.setString(list.getString(index));
            Display.getDisplay(this).setCurrent(alert);
        }
    }
    public void pauseApp() {
    }
    public void destroyApp(boolean unconditional) {
    }
}
```

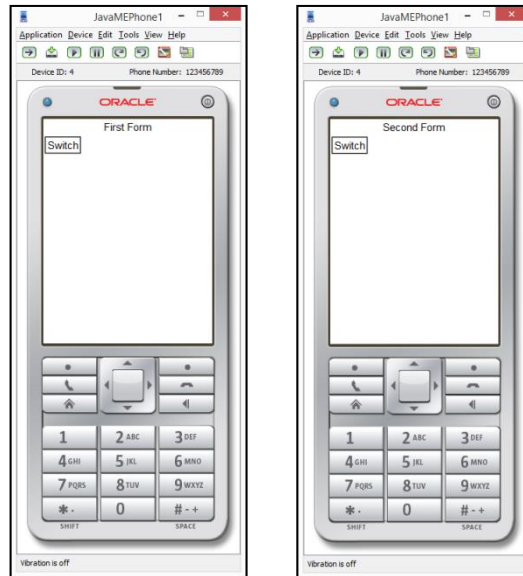
1.2. Biblioteka LWUIT

<http://www.oracle.com/technetwork/java/embedded/javame/java-mobile/downloads/index.html>



- **LWUIT - Midlet.java**

```
import com.sun.lwuit.*;
import com.sun.lwuit.layouts.BorderLayout;
public class Midlet extends
    javax.microedition.midlet.MIDlet {
    public void startApp() {
        Display.init(this);
        Form f = new Form("Form Title");
        f.setLayout(new BorderLayout());
        f.addComponent(BorderLayout.NORTH,
            new Label("Label"));
        f.addComponent(BorderLayout.CENTER,
            new Button("Button"));
        f.addComponent(
            BorderLayout.SOUTH,
            new Calendar()
        );
        f.show();
    }
    public void pauseApp() {
    }
    public void destroyApp(
        boolean unconditional ){
    }
}
```



- **LWUIT – obsługa zdarzeń - Midlet.java**

```
import javax.microedition.midlet.*;
import com.sun.lwuit.*;
import com.sun.lwuit.animations.*;
import com.sun.lwuit.events.*;
public class Midlet extends MIDlet implements
    ActionListener {
    private Form mFirstForm, mSecondForm;
    public void startApp() {
        if (mFirstForm == null) {
            Display.init(this);
            mFirstForm = new Form("First Form");
            Button button = new Button("Switch");
            mFirstForm.addComponent(button);
            button.addActionListener(this);
            mFirstForm.setTransitionOutAnimator(
                CommonTransitions.createSlide(
                    CommonTransitions.SLIDE_HORIZONTAL, false, 200));
            mSecondForm = new Form("Second Form");
            Button button2 = new Button("Switch");
            mSecondForm.addComponent(button2);
            button2.addActionListener(this);
            mSecondForm.setTransitionOutAnimator(
                CommonTransitions.createSlide(
                    CommonTransitions.SLIDE_HORIZONTAL, true, 200));
            mFirstForm.show();
        }
    }
    public void pauseApp() {}
    public void destroyApp(boolean unconditional) {}
    public void actionPerformed(ActionEvent e) {
        Form current = Display.getInstance().
            getCurrent();

        if (current == mFirstForm) {
            mSecondForm.show();
        }
        else if (current == mSecondForm) {
            mFirstForm.show();
        }
    }
}
```

2. Programowanie aplikacji na platformę Android

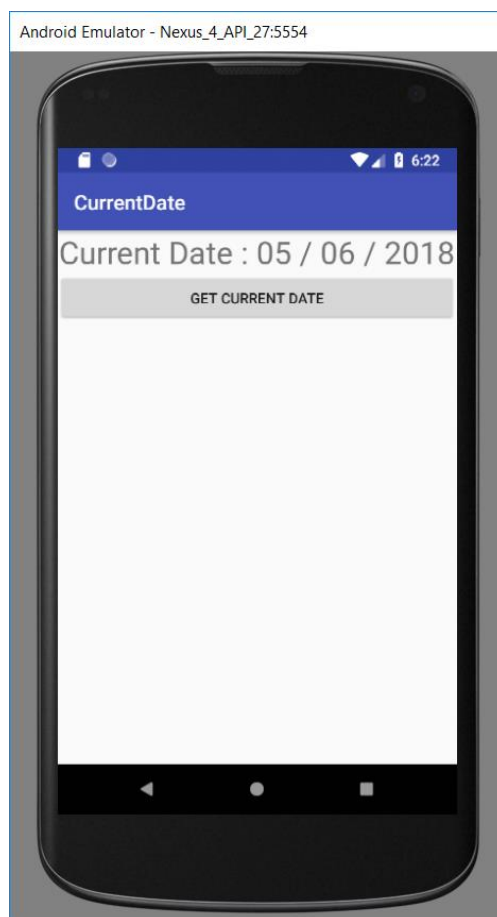
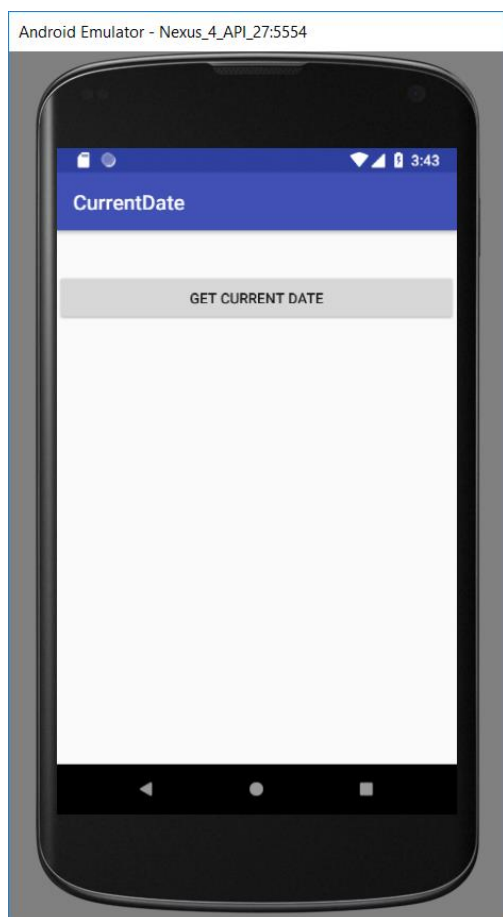
Android Studio

<https://developer.android.com/studio/>

Package Index

<https://developer.android.com/reference/packages/>

Aplikacja Android CurrentDate



- **Activity** - MainActivity.java

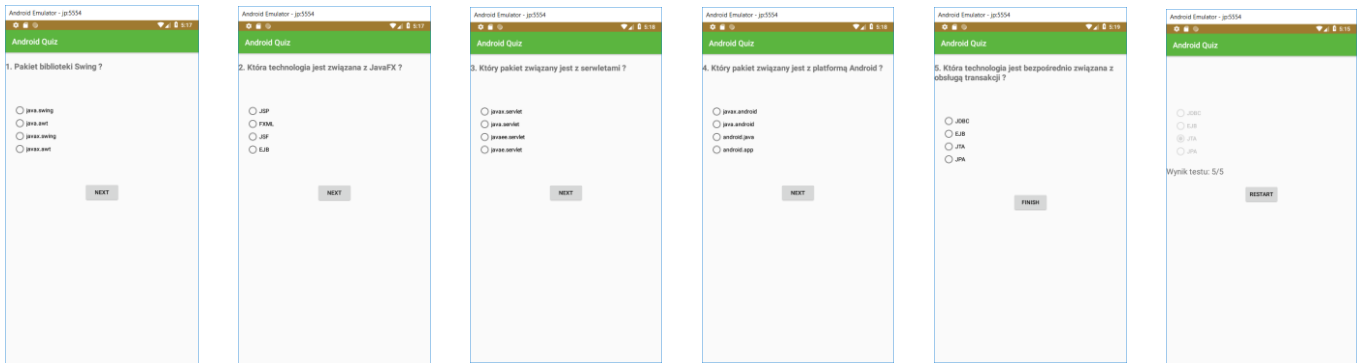
```
package jp.android;
import android.annotation.SuppressLint;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.view.View;
import android.widget.TextView;
import java.text.SimpleDateFormat;
import java.util.Calendar;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    public void getCurrentDate(View view) {
        Calendar calendar = Calendar.getInstance();
        SimpleDateFormat mdformat = new SimpleDateFormat("dd / MM / yyyy");
        String strDate = "Current Date : " + mdformat.format(calendar.getTime());
        display(strDate);
    }
}
```

```
    }  
    private void display(String num) {  
        TextView textView = (TextView) findViewById(R.id.current_date_view);  
        textView.setText(num);  
    }  
}
```

- **View** – activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
    xmlns:tools="http://schemas.android.com/tools"  
    android:layout_width="match_parent"  
    android:layout_height="match_parent"  
    android:gravity="center_horizontal"  
    android:orientation="vertical"  
    tools:context=".MainActivity">  
    <TextView  
        android:id="@+id/current_date_view"  
        android:layout_width="wrap_content"  
        android:layout_height="wrap_content"  
        android:text=""  
        android:textSize="30sp" />  
    <Button  
        android:id="@+id/get_current_date"  
        android:layout_width="match_parent"  
        android:layout_height="wrap_content"  
        android:onClick="getCurrentDate"  
        android:text="Get Current Date" />  
</LinearLayout>
```

2.1. Aplikacja Android Quiz



- **Activity** - MainActivity.java

```
package jp.android;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    TextView tv1, tv2;
    RadioButton a, b, c, d;
    Button btn;
    RadioGroup rg;
    int qnumber, score;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        tv1 = (TextView) findViewById(R.id.question);
        tv2 = (TextView) findViewById(R.id.response);
        rg = (RadioGroup) findViewById(R.id.optionGroup);
        a = (RadioButton) findViewById(R.id.option1);
        b = (RadioButton) findViewById(R.id.option2);
        c = (RadioButton) findViewById(R.id.option3);
        d = (RadioButton) findViewById(R.id.option4);
        btn = (Button) findViewById(R.id.next);
        qnumber = 0;
        score = 0;

    }

    public void quiz(View v) {
        switch (qnumber) {
            case 0:
            {
                rg.setVisibility(View.VISIBLE);
                a.setChecked(false);
                b.setChecked(false);
                c.setChecked(false);
                d.setChecked(false);
                tv2.setText("");
                a.setEnabled(true);
                b.setEnabled(true);
                c.setEnabled(true);
                d.setEnabled(true);
                btn.setText("Next");
            }
        }
    }
}
```

```
        score=0;
        tv1.setText("1. Pakiet biblioteki Swing ?");
        a.setText("java.swing");
        b.setText("java.awt");
        c.setText("javax.swing");
        d.setText("javax.awt");
        qnumber=1;
        break;
    }
    case 1:
    {
        tv1.setText("2. Która technologia jest związana z JavaFX ?");
        a.setText("JSP");
        b.setText("FXML");
        c.setText("JSF");
        d.setText("EJB");
        if (c.isChecked()){
            score=score+1;
        }
        qnumber=2;
        a.setChecked(false);
        b.setChecked(false);
        c.setChecked(false);
        d.setChecked(false);
        break;
    }
    case 2:
    {
        tv1.setText("3. Który pakiet związany jest z serwletami ?");
        a.setText("javax.servlet");
        b.setText("java.servlet");
        c.setText("javaee.servlet");
        d.setText("javae.servlet");
        if (b.isChecked()){
            score=score+1;
        }
        qnumber=3;
        a.setChecked(false);
        b.setChecked(false);
        c.setChecked(false);
        d.setChecked(false);
        break;
    }
    case 3:
    {
        tv1.setText("4. Który pakiet związany jest z platformą Android ?");
        a.setText("javax.android");
        b.setText("java.android");
        c.setText("android.java");
        d.setText("android.app");
        if (a.isChecked()){
            score=score+1;
        }
        qnumber=4;
        a.setChecked(false);
        b.setChecked(false);
        c.setChecked(false);
        d.setChecked(false);
        break;
    }
    case 4:
    {
        tv1.setText("5. Która technologia jest bezpośrednio związana z
obsługą transakcji ?");
        a.setText("JDBC");
```



```

        b.setText("EJB");
        c.setText("JTA");
        d.setText("JPA");
        if (d.isChecked()) {
            score=score+1;
        }
        qnumber=5;
        a.setChecked(false);
        b.setChecked(false);
        c.setChecked(false);
        d.setChecked(false);
        btn.setText("Finish");
        break;
    }
    case 5:
    {
        a.setEnabled(false);
        b.setEnabled(false);
        c.setEnabled(false);
        d.setEnabled(false);
        rg.clearCheck();
        if (c.isChecked()) {
            score=score+1;
        }
        tv1.setText("");
        tv2.setText("Wynik testu: " + score + "/5");
        btn.setText("Restart");
        qnumber=0;
        break;
    }
}
}
}
}

```

• View – activity_main.xml

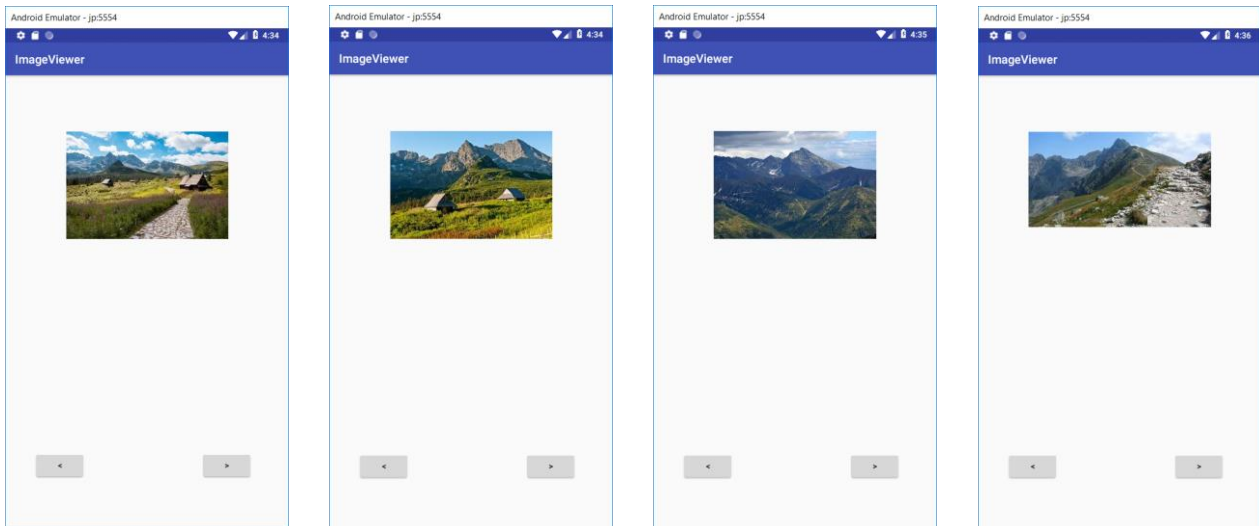
```

<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout 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="jp.android.MainActivity">
    <TextView
        android:id="@+id/question"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:text=""
        android:textSize="20sp"
        android:textStyle="bold" />
    <RadioGroup
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="80dp"
        android:layout_below="@+id/question"
        android:layout_alignParentLeft="true"
        android:layout_alignParentStart="true"
        android:id="@+id/optionGroup"
        android:visibility="invisible">
        <RadioButton
            android:id="@+id/option1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_below="@+id/question"

```

```
        android:layout_marginLeft="20dp"
        android:text="" />
<RadioButton
    android:id="@+id/option2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/option1"
    android:layout_marginLeft="20dp"
    android:text="" />
<RadioButton
    android:id="@+id/option3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignStart="@+id/option1"
    android:layout_alignLeft="@+id/option1"
    android:layout_marginLeft="20dp"
    android:text="" />
<RadioButton
    android:id="@+id/option4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignStart="@+id/option2"
    android:layout_alignLeft="@+id/option2"
    android:layout_marginLeft="20dp"
    android:text="" />
</RadioGroup>
<TextView
    android:id="@+id/response"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:textSize="20sp"
    android:layout_below="@+id/optionGroup"
    android:layout_alignParentLeft="true"
    android:layout_alignParentStart="true"
    android:layout_marginTop="20dp" />
<Button
    android:id="@+id/next"
    android:onClick="quiz"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:text="Start"
    android:layout_below="@+id/response"
    android:layout_centerHorizontal="true" />
<TextView
    android:id="@+id/score"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:textSize="20sp"
    android:textStyle="bold"
    android:layout_marginTop="20dp"
    android:layout_below="@+id/next"
    android:layout_alignParentLeft="true"
    android:layout_alignParentStart="true" />
</RelativeLayout>
```

2.2. Aplikacja Android ImageViewer



- **Activity** - MainActivity.java

```
package jp.imageviewer;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.ImageView;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    private ImageView iv_display;
    private Button btn_right, btn_left;
    private int current_image_index;
    private int[] images = {R.drawable.img1, R.drawable.img2, R.drawable.img3,
R.drawable.img4, R.drawable.img5};
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        DisplayImage();
        SwitchButton();
    }
    void DisplayImage(){
        iv_display = (ImageView)findViewById(R.id.iv_display);
    }
    void SwitchButton(){
        btn_right = (Button)findViewById(R.id.btn_right);
        btn_left = (Button)findViewById(R.id.btn_left);
        btn_right.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                current_image_index++;
                current_image_index = current_image_index % images.length;
                iv_display.setImageResource(images[current_image_index]);
            }
        });
        btn_left.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                current_image_index--;

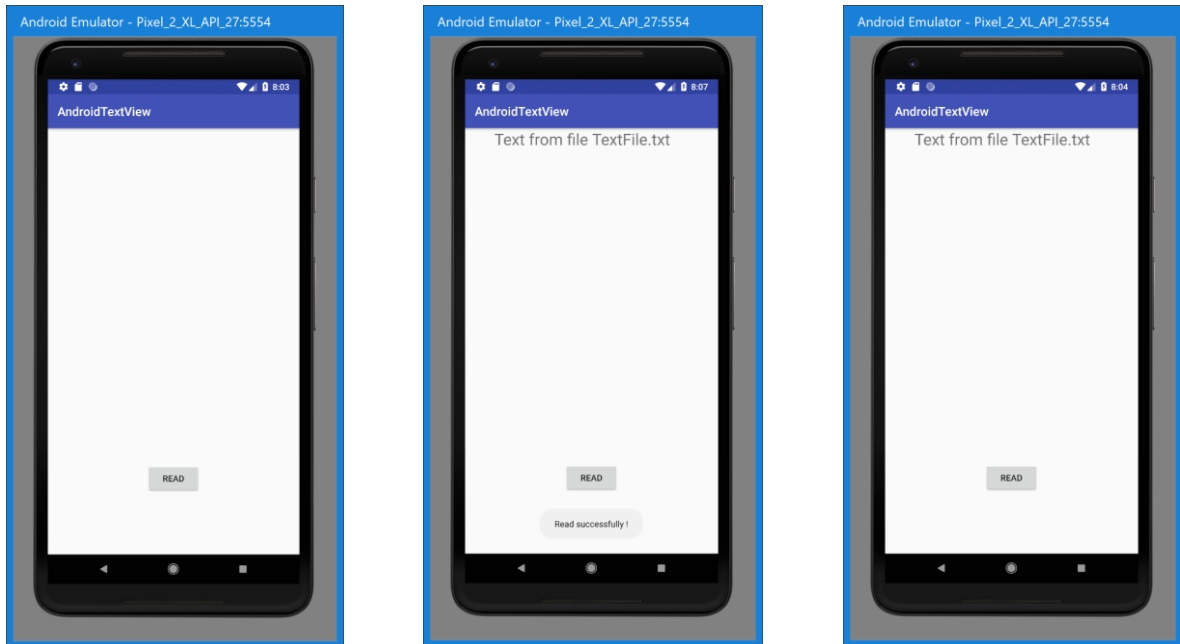
                if(current_image_index < 0){
                    current_image_index = images.length - 1;
                }
            }
        });
    }
}
```

```
        }
        iv_display.setImageResource(images[current_image_index]);
    }
    });
}
```

- **View – activity main.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout 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="jp.imageviewer.MainActivity">
    <ImageView
        android:id="@+id/iv_display"
        android:layout_width="370dp"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="96dp"
        app:srcCompat="@drawable/img1" />
    <Button
        android:id="@+id/btn_right"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentEnd="true"
        android:layout_alignTop="@+id/btn_left"
        android:layout_marginEnd="61dp"
        android:text=">" />
    <Button
        android:id="@+id/btn_left"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentBottom="true"
        android:layout_alignParentStart="true"
        android:layout_marginBottom="85dp"
        android:layout_marginStart="48dp"
        android:text="<" />
</RelativeLayout>
```

2.3. Aplikacja Android TextView



- **Activity** - MainActivity.java

```
package jp.android;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;
import java.io.IOException;
import java.io.InputStream;

public class MainActivity extends AppCompatActivity {

    Button btn;
    TextView txt;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        btn = (Button) findViewById(R.id.btnReadTxtFile);
        txt = (TextView) findViewById(R.id.txtFile);
        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String text = "";
                try{
                    InputStream inputStream = getAssets().open("TextFile.txt");
                    int size = inputStream.available();
                    byte[] buffer = new byte[size];
                    inputStream.read(buffer);
                    inputStream.close();
                    text = new String(buffer);
                } catch (IOException e) {
                    e.printStackTrace();
                }
                txt.setText(text);
                Toast.makeText(getApplicationContext(), "Read successfully !",
```

```
        Toast.LENGTH_SHORT).show();
    }
});
}
```

- **View – activity main.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout 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="jp.android.MainActivity">
    <TextView
        android:id="@+id/txtFile"
        android:layout_width="315dp"
        android:layout_height="389dp"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:inputType="textPersonName"
        android:textSize="26dp"
        android:scrollHorizontally="true"
        android:scrollbarAlwaysDrawHorizontalTrack="true"
        android:scrollbarAlwaysDrawVerticalTrack="true"
        android:text=""
        android:verticalScrollbarPosition="right" />
    <Button
        android:id="@+id/btnReadTxtFile"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="100dp"
        android:text="READ" />
</RelativeLayout>
```

2.4. Aplikacja Android ExplicitIntentActivity



- **Activity** - MainActivity.java

```
package jp.explicitintentactivity;
import android.os.Bundle;
import android.app.Activity;
import android.content.Intent;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
public class MainActivity extends Activity {
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Button button1=(Button) findViewById(R.id.Button01);
        button1.setOnClickListener(new OnClickListener() {
            public void onClick(View view) {
                Intent intent = new Intent(getApplicationContext(),
Main2Activity.class);
                intent.putExtra("Value1", "Java");
                intent.putExtra("Value2", "Android");
                startActivity(intent);
            }
        });
    }
}
```

- **Activity** – Main2Activity.java

```
package jp.explicitintentactivity;
import android.os.Bundle;
import android.app.Activity;
import android.content.Intent;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;
import static android.widget.Toast.LENGTH_LONG;
public class Main2Activity extends Activity {
    @Override
    public void onCreate(Bundle bundle) {
```

```

        super.onCreate(bundle);
        TextView tv=new TextView(this);
        tv.setText("Second activity");
        setContentView(R.layout.activity_main2);
        Bundle extras = getIntent().getExtras();
        String value1 = extras.getString("Value1");
        String value2 = extras.getString("Value2");
        Toast.makeText(getApplicationContext(),"Value 1: "+ value1 +
            "\nValue 2: " + value2, LENGTH_LONG).show();
        Button button1=(Button)findViewById(R.id.Button01);
        button1.setOnClickListener(new OnClickListener(){
            public void onClick(View view) {
                Intent i = new Intent(getApplicationContext(), MainActivity.class);
                startActivity(i);
            }
        });
    }
}

```

- **View – activity_main.xml**

```

<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <Button
        android:id="@+id/Button01"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="124dp"
        android:onClick="onClick"
        android:text="Second activity" />
    <TextView
        android:id="@+id/TextView01"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="27dp"
        android:minHeight="60dip"
        android:text="First Activity"
        android:textSize="20sp" />
</RelativeLayout>

```

- **View – activity_main2.xml**

```

<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".Main2Activity">
    <Button
        android:id="@+id/Button01"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="139dp"
        android:onClick="onClick"
        android:text="First activity"

```



```
        tools:layout_editor_absoluteX="98dp"
        tools:layout_editor_absoluteY="109dp" />
    <TextView
        android:id="@+id/TextView01"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:minHeight="60dip"
        android:text="Second Activity"
        android:textAppearance="@style/TextAppearance.AppCompat.Body1"
        tools:layout_editor_absoluteX="110dp"
        tools:layout_editor_absoluteY="16dp"
        android:textSize="20sp"/>
</RelativeLayout>
```

2.5. Aplikacja Android WebView



- **Activity** - MainActivity.java

```
package jp.webviewapplication;
import android.annotation.SuppressLint;
import android.app.Activity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.webkit.WebSettings;
import android.webkit.WebView;
import android.webkit.WebViewClient;
public class MainActivity extends Activity {
    @SuppressLint("SetJavaScriptEnabled")
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        WebView myWebView = (WebView) findViewById(R.id.myWebView);
        myWebView.loadUrl("http://java.prz.edu.pl");
        myWebView.setWebViewClient(new MyWebViewClient());
        WebSettings webSettings;
        webSettings = myWebView.getSettings();
        webSettings.setJavaScriptEnabled(true);
    }
    private class MyWebViewClient extends WebViewClient {
        @Override
        public boolean shouldOverrideUrlLoading(WebView view, String url) {
            if (Uri.parse(url).getHost().equals("java.prz.edu.pl")) {
                return false;
            }
            Intent intent = new Intent(Intent.ACTION_VIEW, Uri.parse(url));
            startActivity(intent);
            return true;
        }
    }
}
```

- **View** - activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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">
<WebView xmlns:android="http://schemas.android.com/apk/res/android"
```

```
        android:id="@+id/myWebView"
        android:layout_width="fill_parent"
        android:layout_height="fill_parent"
        android:scrollbars="none"/>
</android.support.constraint.ConstraintLayout>
```

- W pliku `AndroidManifest.xml` dodać znacznik:

```
<uses-permission android:name="android.permission.INTERNET"/>
```

2.6. Aplikacja Android AddCalculator



- **Activity** - MainActivity.java

```
package jp.android;
import android.annotation.SuppressLint;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {
    Button
    btn_1,btn_2,btn_3,btn_4,btn_5,btn_6,btn_7,btn_8,btn_9,btn_0,btn_Add,btn_calc;

    EditText ed1;
    float Value1, Value2;
    boolean mAddition ;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        btn_0 = findViewById(R.id.btn_0);
        btn_1 = findViewById(R.id.btn_1);
        btn_2 = findViewById(R.id.btn_2);
        btn_3 = findViewById(R.id.btn_3);
        btn_4 = findViewById(R.id.btn_4);
        btn_5 = findViewById(R.id.btn_5);
        btn_6 = findViewById(R.id.btn_6);
        btn_7 = findViewById(R.id.btn_7);
        btn_8 = findViewById(R.id.btn_8);
        btn_9 = findViewById(R.id.btn_9);
        btn_Add = findViewById(R.id.btn_Add);
        btn_calc = findViewById(R.id.btn_calc);
        ed1 = findViewById(R.id.edText1);
        btn_0.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                ed1.setText(ed1.getText()+"0");
            }
        });
        btn_1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                ed1.setText(ed1.getText()+"1");
            }
        });
    }
}
```

```
btn_2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        ed1.setText(ed1.getText()+"2");
    }
});
btn_3.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        ed1.setText(ed1.getText()+"3");
    }
});
btn_4.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        ed1.setText(ed1.getText()+"4");
    }
});
btn_5.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        ed1.setText(ed1.getText()+"5");
    }
});
btn_6.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        ed1.setText(ed1.getText()+"6");
    }
});
btn_7.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        ed1.setText(ed1.getText()+"7");
    }
});
btn_8.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        ed1.setText(ed1.getText()+"8");
    }
});
btn_9.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        ed1.setText(ed1.getText()+"9");
    }
});

btn_Add.setOnClickListener(new View.OnClickListener() {
    @SuppressWarnings("Assert")
    @Override
    public void onClick(View v) {
        if (ed1 == null){
            if (!false) throw new AssertionError();
            ed1.setText("");
        }else {
            Value1 = Float.parseFloat(ed1.getText() + "");
            mAddition = true;
            ed1.setText(null);
        }
    }
});
```

```

        btn_calc.setOnClickListener(new View.OnClickListener() {
            @SuppressWarnings("SetTextI18n")
            @Override
            public void onClick(View v) {
                Value2 = Float.parseFloat(ed1.getText() + "");
                if (mAddition){
                    ed1.setText(Value1 + Value2 + "");
                    mAddition=false;
                }
            }
        });
    }
}

```

• View – activity_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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="jp.android.MainActivity">

    <RelativeLayout
        android:layout_width="368dp"
        android:layout_height="495dp"
        android:layout_marginBottom="8dp"
        android:layout_marginTop="8dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="1.0">

        <Button
            android:id="@+id/btn_1"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_alignParentTop="true"
            android:layout_alignStart="@+id/btn_0"
            android:layout_marginTop="134dp"
            android:onClick="PressOne"
            android:text="1"
            android:textSize="18sp"
            android:layout_alignLeft="@+id/btn_0"
            tools:ignore="OnClick,RtlCompat" />

        <Button
            android:id="@+id/btn_0"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_below="@+id/btn_9"
            android:layout_toStartOf="@+id/btn_8"
            android:text="0"
            android:textSize="18sp"
            android:layout_toLeftOf="@+id/btn_8"
            tools:ignore="RtlCompat" />

        <Button
            android:id="@+id/btn_9"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_alignParentEnd="true"
            android:layout_centerVertical="true"

```

```
        android:layout_marginEnd="55dp"
        android:text="9"
        android:textSize="18sp"
        android:layout_alignParentRight="true"
        tools:ignore="RtlCompat" />

<Button
    android:id="@+id/btn_8"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_centerInParent="true"
    android:text="8"
    android:textSize="18sp" />

<Button
    android:id="@+id/btn_7"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_centerVertical="true"
    android:layout_toStartOf="@+id/btn_8"
    android:text="7"
    android:textSize="18sp"
    android:layout_toLeftOf="@+id/btn_8"
    tools:ignore="RtlCompat" />

<Button
    android:id="@+id/btn_6"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/btn_9"
    android:layout_alignStart="@+id/btn_9"
    android:layout_below="@+id/btn_1"
    android:text="6"
    android:textSize="18sp"
    tools:ignore="RtlCompat" />

<Button
    android:id="@+id/btn_5"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/btn_1"
    android:layout_centerHorizontal="true"
    android:text="5"
    android:textSize="18sp" />

<Button
    android:id="@+id/btn_4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/btn_1"
    android:layout_alignStart="@+id/btn_1"
    android:layout_below="@+id/btn_1"
    android:text="4"
    android:textSize="18sp" />

<Button
    android:id="@+id/btn_3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignStart="@+id/btn_9"
    android:layout_alignTop="@+id/btn_1"
    android:text="3"
    android:textSize="18sp"
    android:layout_alignLeft="@+id/btn_9"
    tools:ignore="RtlCompat" />
```

```
<Button
    android:id="@+id/btn_2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/btn_1"
    android:layout_centerHorizontal="true"
    android:text="2"
    android:textSize="18sp" />

<Button
    android:id="@+id/btn_Add"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignTop="@+id/btn_0"
    android:layout_centerHorizontal="true"
    android:backgroundTint="@android:color/darker_gray"
    android:text="+"
    android:textColor="@android:color/background_light"
    android:textSize="18sp" />

<EditText
    android:id="@+id/edText1"
    android:layout_width="226dp"
    android:layout_height="wrap_content"
    android:layout_alignParentTop="true"
    android:layout_centerHorizontal="true"
    android:layout_gravity="end"
    android:layout_marginTop="22dp"
    android:ems="10"
    android:gravity="end"
    android:inputType="textPersonName"
    android:textAlignment="textEnd"
    android:textSize="24sp"
    tools:ignore="LabelFor" />

<Button
    android:id="@+id/btn_calc"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignStart="@+id/btn_9"
    android:layout_alignTop="@+id/btn_0"
    android:backgroundTint="@android:color/holo_green_light"
    android:text=""
    android:textColor="@android:color/background_light"
    android:textSize="18sp"
    android:layout_alignLeft="@+id/btn_9"
    tools:ignore="RtlCompat,UnusedAttribute" />
</RelativeLayout>
</android.support.constraint.ConstraintLayout>
```


2.7. Zadania

Zadanie 2.1. Budowa aplikacji Android o nazwie Java Quiz (aplikacja stanowiąca test z przedmiotu Java Programming)

Na bazie przykładowego kodu z punktu 2.1. zrealizować aplikację testów z języka Java o następujących funkcjonalnościach (funkcjonalności wybiera prowadzący dla każdej grupy laboratoryjnej):

- Test wielokrotnego wyboru
- Pytania z plikami graficznymi
- Możliwość wyboru zakresu testu, np. Java SE, Java EE, Java Android, ...
- Autoryzacja użytkownika, czas na cały test lub każde pytanie

Zadanie 2.2. Budowa aplikacji o nazwie Android Image Viewer (aplikacja będąca przeglądarką slajdów (plików graficznych) z wykładów z przedmiotu Java Programming)

Na bazie kodu z punktu 2.2. zrealizować aplikację przeglądarki slajdów o następujących funkcjonalnościach (funkcjonalności wybiera prowadzący dla każdej grupy laboratoryjnej) :

- Wybór numeru wykładu
- Dodanie przycisków nawigacji FirstImage, LastImage, wybór slajdu z ComboBox,
- 5 slajdów bez logowania i login dla następnych
- Pokaz slajdów z ustawieniem czasu wyświetlania slajdu

Zadanie 2.3. Budowa aplikacji o nazwie Android Code Viewer (aplikacja będąca przeglądarką kodów źródłowych przykładów (*.java) z ćwiczeń laboratoryjnych wybieranych z menu i wyświetlanych w polu tekstowym)

Na bazie kodu z punktu 2.3. zrealizować aplikację o następujących funkcjonalnościach (funkcjonalności wybiera prowadzący dla każdej grupy laboratoryjnej) :

- Wybór z menu numeru laboratorium (L01, L02, ...)
- Wybór punktu ćwiczenia, np. 1.1. i wyświetlenie kodu przykładu
- Logowanie

Zadanie 2.4. Budowa aplikacji o nazwie Android Java PRO (aplikacja będąca złożeniem aplikacji z zadań 2.1 – 2.4 w której w odrębnych widokach są: **Wirtualne wykłady**, **Materiały do laboratorium**, **Test z języka**) oraz **Linki do zasobów Java**

3. Zadania

Tematy zadań podaje prowadzący dla każdej grupy laboratoryjnej.