

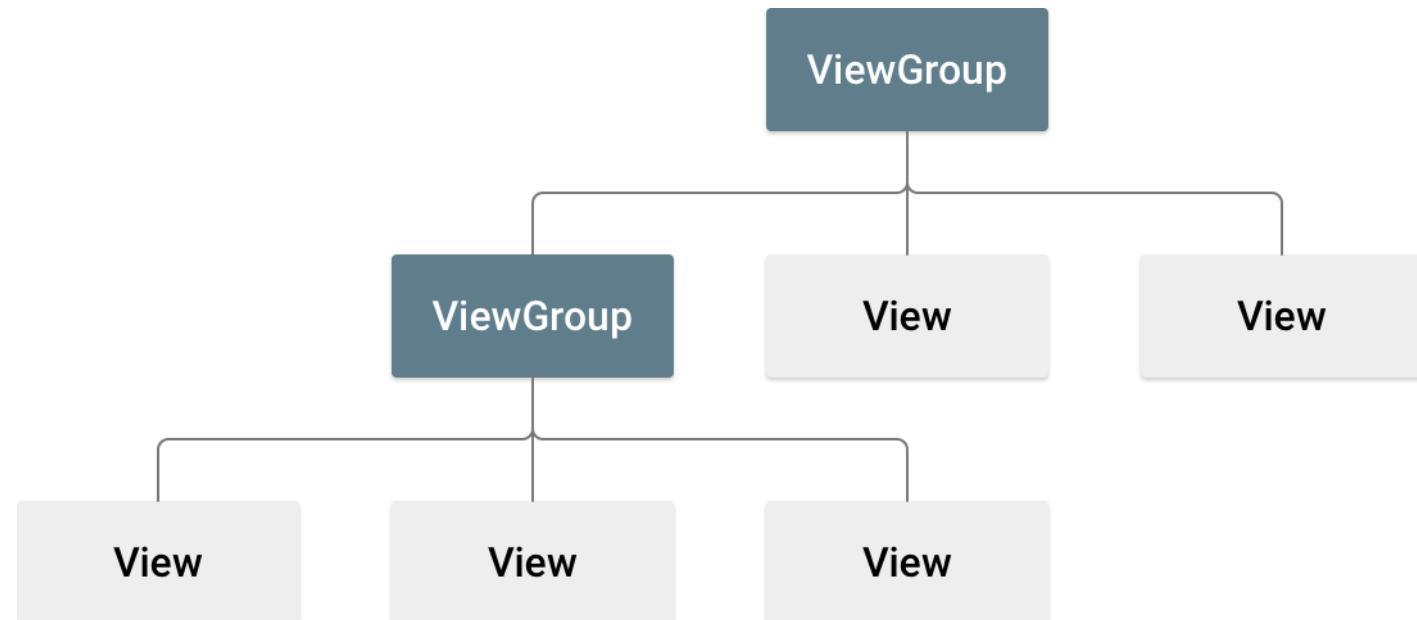
Akademia Androida #2

Mobile Applications Developers

Widoki

Układ widoku tworzymy przy pomocy widgetów, które wywodzą się z:

- ViewGroups - zwane layoutami. Odpowiadają za rozmieszczenie elementów wewnątrz nich, np. widgetów lub innych layoutów
- View – zwane widgetami. Widoczne elementy interfejsu odpowiadające za interakcję z użytkownikiem



Określanie rozmiaru

- **wrap_content** – dopasowanie do zawartości elementu, w przypadku TextView szerokość/wysokość dopasowana do tekstu, przykład: `android:layout_width="match_parent"`
- **match_parent** – dopasowanie do wymiarów rodzica, czyli nadrzędnego layoutu, przykład: `android:layout_width="match_parent"`
- **dp** – (w starszych wersjach również jako dip) - Density-independent Pixels, jednostka określająca rozmiar niezależnie od fizycznej rozdzielczości ekranu, przykład: `android:layout_width="50dp"`
- **sp** – Scale-independent Pixels, podobnie jak dp, lecz dodatkowo pod uwagę brane są systemowe ustawienia wielkości tekstu. Jest stosowana do definiowania wielkości tekstu, przykład: `android:textSize="20sp"`
- **in** – cale
- **pt** – punkty, 1/72 cala
- **px** – piskele
- **mm** – milimetry

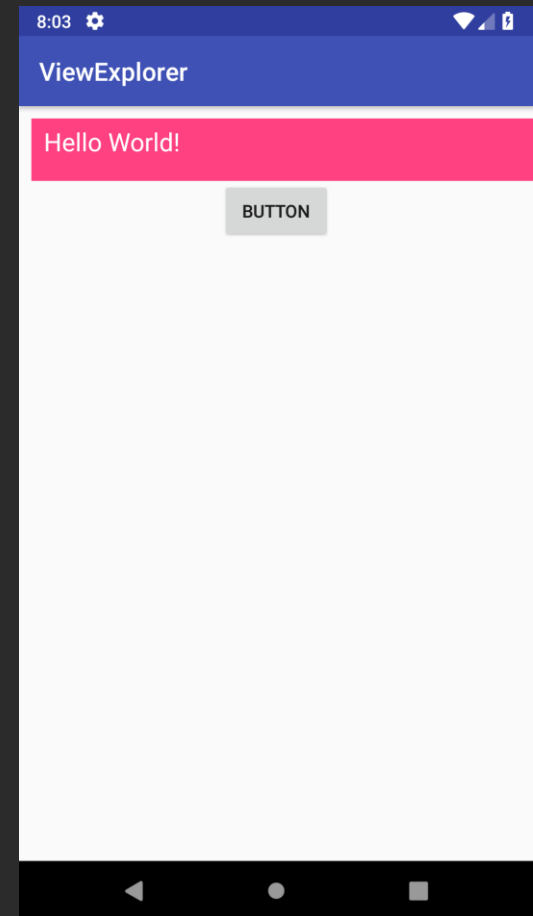
LinearLayout - vertical

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

    <TextView
        android:layout_width="match_parent"
        android:layout_height="50dp"
        android:layout_marginStart="10dp"
        android:layout_marginTop="10dp"
        android:background="@color/colorAccent"
        android:gravity="start"
        android:paddingStart="10dp"
        android:paddingTop="5dp"
        android:text="Hello World!"
        android:textColor="@android:color/white"
        android:textSize="20sp" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:text="Button" />

</LinearLayout>
```



LinearLayout - horizontal

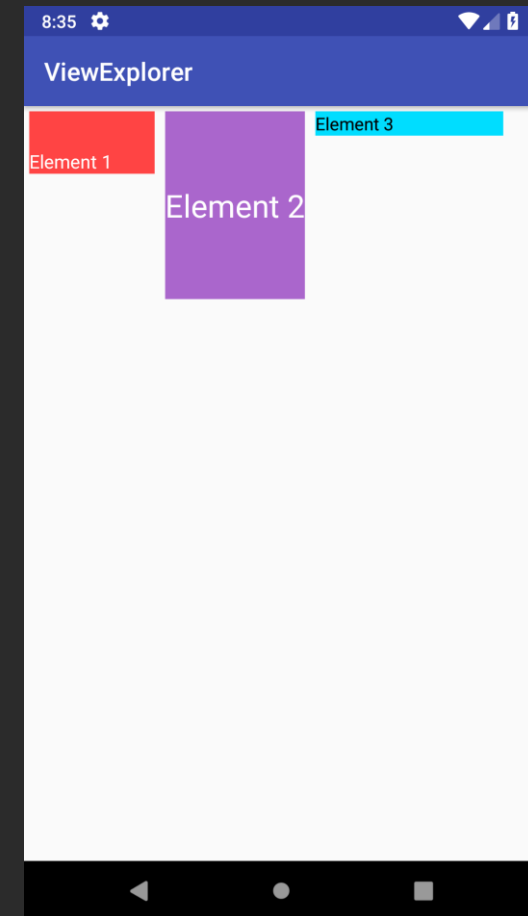
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:baselineAligned="false"
    android:orientation="horizontal">

    <TextView
        android:id="@+id/element1View"
        android:layout_width="100dp"
        android:layout_height="50dp"
        android:layout_margin="4dp"
        android:background="@android:color/holo_red_light"
        android:gravity="bottom"
        android:text="Element 1"
        android:textColor="@android:color/white"
        android:textSize="15sp" />

    <TextView
        android:id="@+id/element2View"
        android:layout_width="wrap_content"
        android:layout_height="150dp"
        android:layout_margin="4dp"
        android:background="@android:color/holo_purple"
        android:gravity="center"
        android:text="Element 2"
        android:textColor="@android:color/white"
        android:textSize="25sp" />

    <TextView
        android:id="@+id/element3View"
        android:layout_width="150dp"
        android:layout_height="wrap_content"
        android:layout_margin="4dp"
        android:background="@android:color/holo_blue_bright"
        android:text="Element 3"
        android:textColor="@android:color/black" />

</LinearLayout>
```



FrameLayout

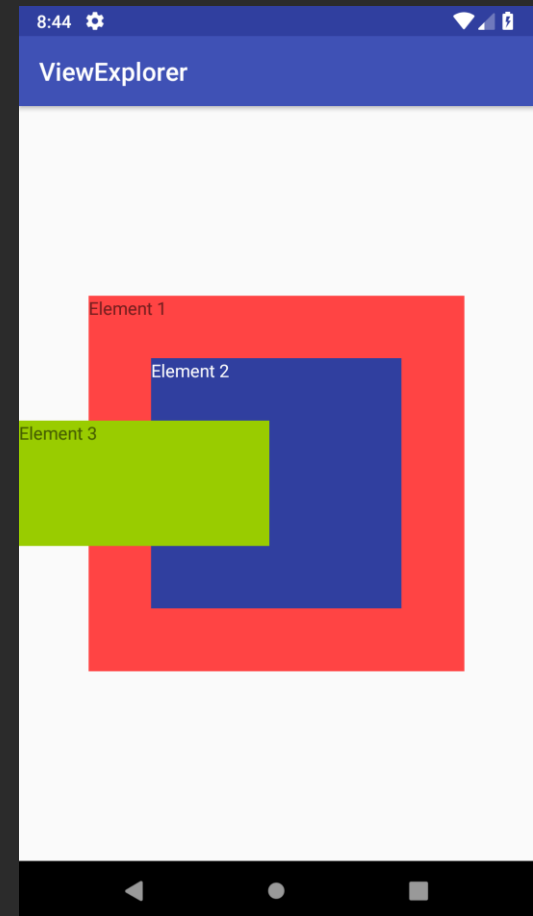
```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <TextView
        android:id="@+id/textView1"
        android:layout_width="300dp"
        android:layout_height="300dp"
        android:layout_gravity="center"
        android:background="@android:color/holo_red_light"
        android:text="Element 1" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="200dp"
        android:layout_height="200dp"
        android:layout_gravity="center"
        android:background="@color/colorPrimaryDark"
        android:text="Element 2"
        android:textColor="@android:color/white" />

    <TextView
        android:id="@+id/textView3"
        android:layout_width="200dp"
        android:layout_height="100dp"
        android:layout_gravity="center_vertical"
        android:background="@android:color/holo_green_light"
        android:text="Element 3" />

</FrameLayout>
```



RelativeLayout

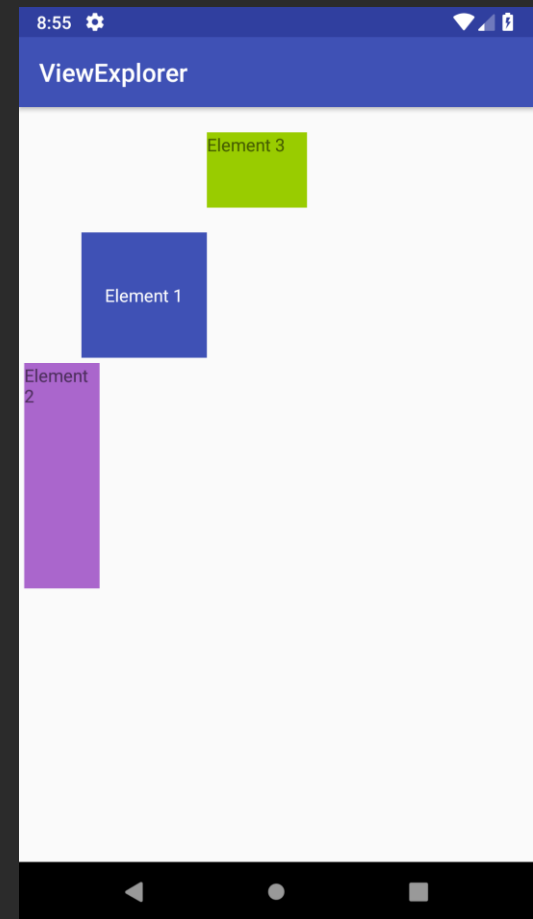
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <TextView
        android:id="@+id/textView1"
        android:layout_width="100dp"
        android:layout_height="100dp"
        android:layout_alignParentStart="true"
        android:layout_marginStart="50dp"
        android:layout_marginTop="100dp"
        android:background="@color/colorPrimary"
        android:gravity="center"
        android:text="Element 1"
        android:textColor="@android:color/white" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="60dp"
        android:layout_height="180dp"
        android:layout_below="@+id/textView1"
        android:layout_margin="4dp"
        android:background="@android:color/holo_purple"
        android:text="Element 2" />

    <TextView
        android:id="@+id/textView3"
        android:layout_width="80dp"
        android:layout_height="60dp"
        android:layout_marginTop="20dp"
        android:layout_toEndOf="@+id/textView1"
        android:background="@android:color/holo_green_light"
        android:text="Element 3" />

</RelativeLayout>
```



ConstraintLayout – część 1

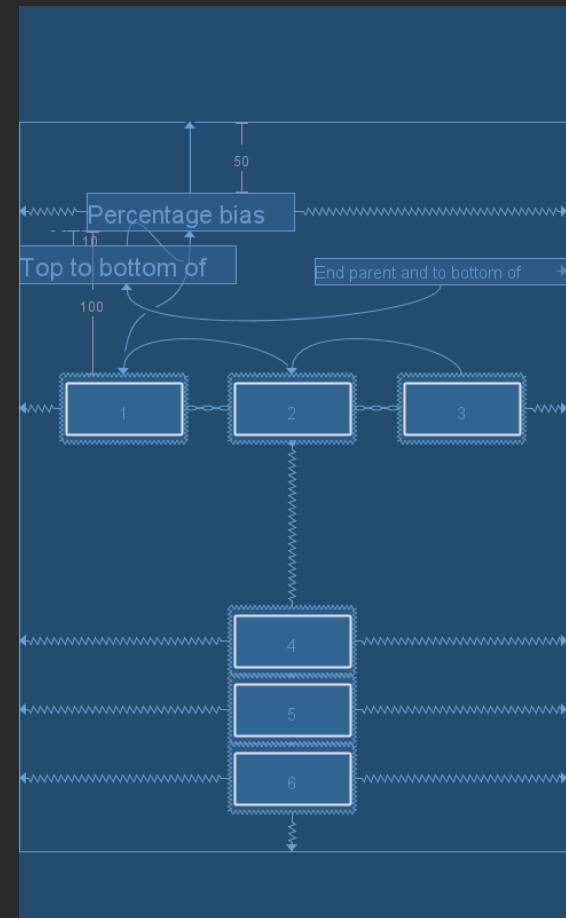
```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".ConstraintViewActivity">

    <TextView
        android:id="@+id/percentage_bias_view"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="50dp"
        android:background="@android:color/holo_green_light"
        android:text="Percentage bias"
        android:textColor="@android:color/black"
        android:textSize="20sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.2"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <TextView
        android:id="@+id/top_to_bottom_of_view"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:background="@android:color/holo_purple"
        android:text="Top to bottom of"
        android:textColor="@android:color/black"
        android:textSize="20sp"
        app:layout_constraintTop_toBottomOf="@id/percentage_bias_view" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:background="@android:color/holo_purple"
        android:text="End parent and to bottom of"
        android:textColor="@android:color/black"
        app:layout_constraintBottom_toBottomOf="@id/top_to_bottom_of_view"
        app:layout_constraintEnd_toEndOf="parent" />

</android.support.constraint.ConstraintLayout>
```



ConstraintLayout – część 2

```
<?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=".ConstraintViewActivity">
```

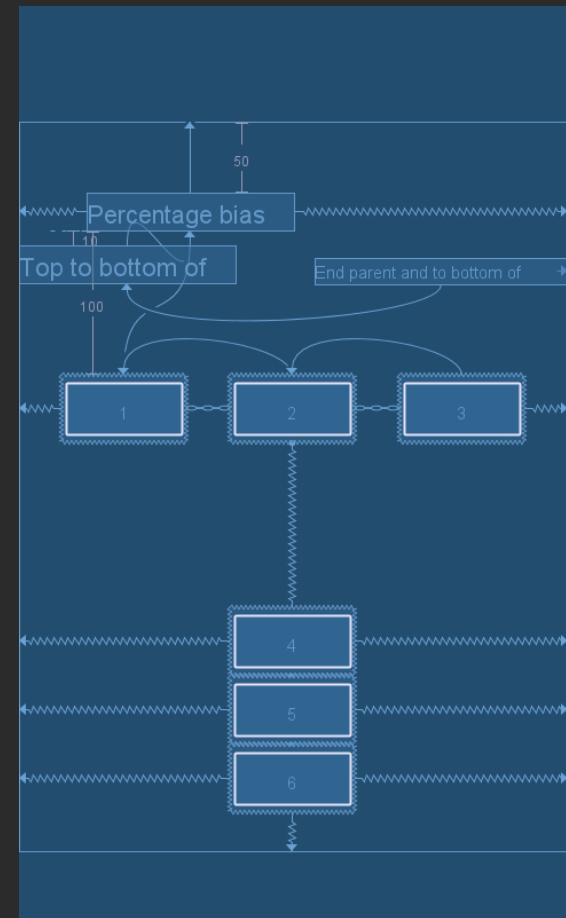
```
-----

<Button
    android:id="@+id/cell_1_view"
    style="@style/ButtonCell"
    android:layout_marginTop="100dp"
    android:text="1"
    app:layout_constraintEnd_toStartOf="@id/cell_2_view"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@id/percentage_bias_view" />
```

```
<Button
    android:id="@+id/cell_2_view"
    style="@style/ButtonCell"
    android:text="2"
    app:layout_constraintEnd_toStartOf="@id/cell_3_view"
    app:layout_constraintStart_toEndOf="@id/cell_1_view"
    app:layout_constraintTop_toTopOf="@id/cell_1_view" />
```

```
<Button
    android:id="@+id/cell_3_view"
    style="@style/ButtonCell"
    android:text="3"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toEndOf="@+id/cell_2_view"
    app:layout_constraintTop_toTopOf="@id/cell_2_view" />
```

```
</android.support.constraint.ConstraintLayout>
```



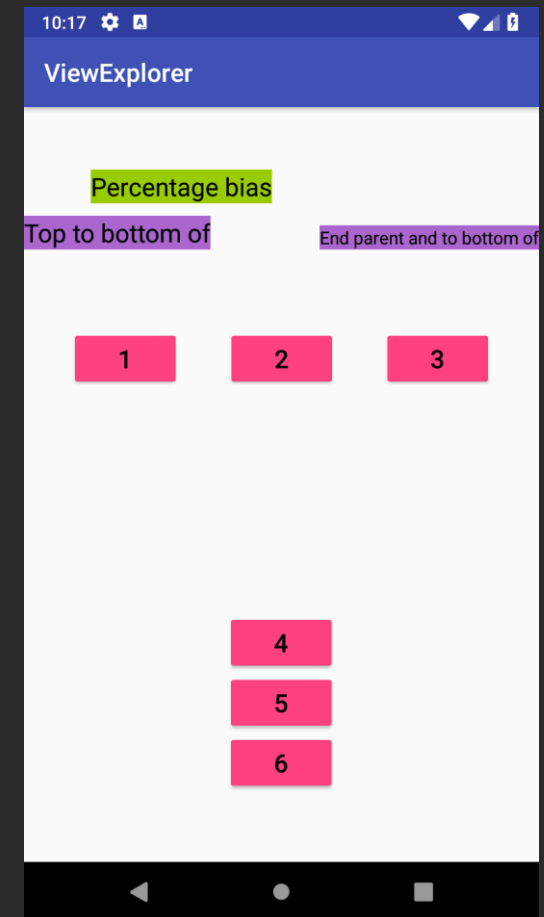
ConstraintLayout – część 3

```
<?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=".ConstraintViewActivity">
    -----
    <Button
        android:id="@+id/cell_4_view"
        style="@style/ButtonCell"
        android:layout_marginTop="50dp"
        android:text="4"
        app:layout_constraintBottom_toTopOf="@id/cell_5_view"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@id/cell_2_view"
        app:layout_constraintVertical_bias="0.7"
        app:layout_constraintVertical_chainStyle="packed" />

    <Button
        android:id="@+id/cell_5_view"
        style="@style/ButtonCell"
        android:text="5"
        app:layout_constraintBottom_toTopOf="@id/cell_6_view"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@id/cell_4_view" />

    <Button
        android:id="@+id/cell_6_view"
        style="@style/ButtonCell"
        android:text="6"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@id/cell_5_view" />

</android.support.constraint.ConstraintLayout>
```



Przydatne kontrolki

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="center_vertical"
    android:orientation="vertical"
    android:paddingStart="50dp">

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="@dimen/view_layout_margin"
        android:text="Button" />

    <EditText
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="@dimen/view_layout_margin"
        android:hint="EditText" />

    <RadioButton
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="@dimen/view_layout_margin"
        android:text="RadioButton" />

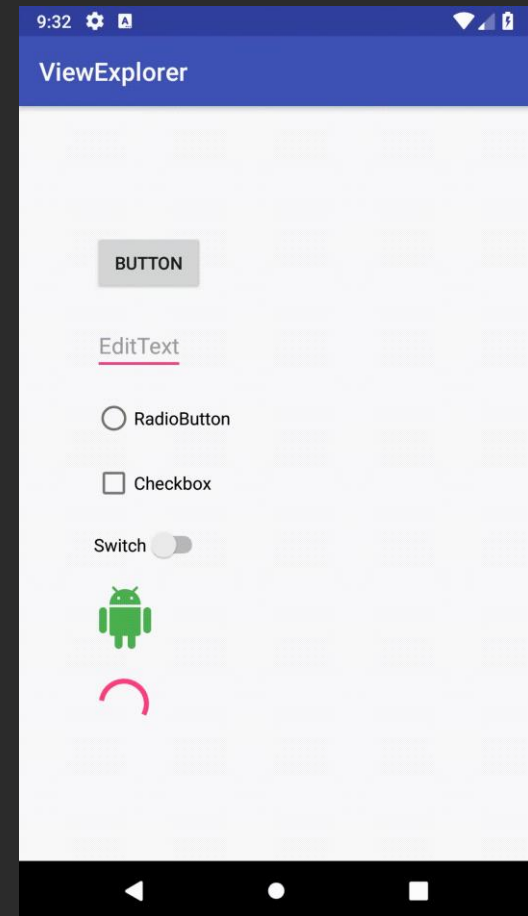
    <CheckBox
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="@dimen/view_layout_margin"
        android:text="Checkbox" />

    <Switch
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="@dimen/view_layout_margin"
        android:text="Switch" />

    <ImageView
        android:layout_width="50dp"
        android:layout_height="50dp"
        android:layout_margin="@dimen/view_layout_margin"
        android:src="@drawable/ic_android_24dp" />

    <ProgressBar
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="@dimen/view_layout_margin" />

</LinearLayout>
```



Menu - tworzenie

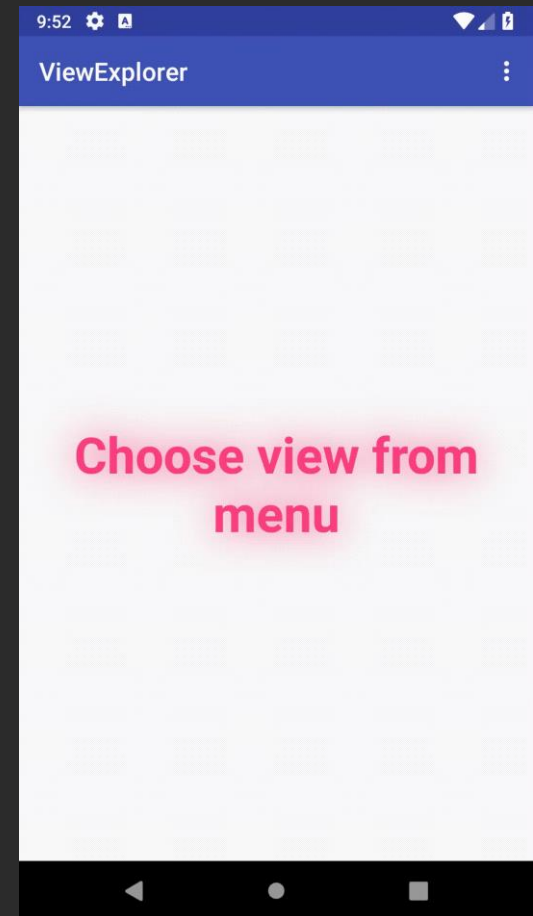
```
----- MainActivity.java -----
@Override
public boolean onCreateOptionsMenu(Menu menu) {
    MenuInflater inflater = getMenuInflater();
    inflater.inflate(R.menu.choose_view, menu);
    return true;
}

----- res/menu/choose_view -----
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">

    <item
        android:id="@+id/relative"
        android:title="@string/relative" />

    <item
        android:id="@+id/frame"
        android:title="@string/frame" />

    <item
        android:id="@+id/constraint"
        android:title="@string/constraint" />
</menu>
```



Menu - obsługa

```
@Override
public boolean onOptionsItemSelected(MenuItem item) {
    int id = item.getItemId();
    Class<? extends AppCompatActivity> activityClass = getActivityClassByMenuItemId(id);
    if (activityClass != null) {
        startActivity(new Intent(this, activityClass));
        return true;
    }
    return super.onOptionsItemSelected(item);
}

private Class<? extends AppCompatActivity> getActivityClassByMenuItemId(int itemId) {
    switch (itemId) {
        case R.id.relative:
            return RelativeLayoutActivity.class;
        case R.id.frame:
            return FrameViewActivity.class;
        case R.id.constraint:
            return ConstraintViewActivity.class;
        default:
            return null;
    }
}
```

