

# Technik programista – kl. 4: Zadanie z aplikacji mobilnych (Android Studio, Java)

## Projekt: Plan dnia – Spinnery + ekran startowy (Splash Screen)

### Cele lekcji

- Poznanie i zastosowanie komponentu `Spinner`.
- Obsługa zdarzeń `OnItemSelectedListener`.
- Użycie `ArrayAdapter` i zasobów `arrays.xml`.
- Zapis/odczyt wyborów w `SharedPreferences`.
- Utworzenie ekranu startowego (`Splash Screen`) i ustawienie go jako LAUNCHER.

### Kryteria oceny (10 pkt)

- 1) Aplikacja buduje się i uruchamia – 1 pkt
  - 2) Działające spinnery (godziny + aktywności) – 2 pkt
  - 3) Natychmiastowa aktualizacja podsumowania – 2 pkt
  - 4) Zapis i odczyt w `SharedPreferences` – 2 pkt
  - 5) Poprawne użycie `ArrayAdapter/arrays.xml` – 1 pkt
  - 6) Estetyczny układ – 1 pkt
- (+1) Zależne spinnery lub ikona aktywności

### Struktura projektu (ważne pliki)

```
app/  
  src/main/  
    java/.../MainActivity.java  
    java/.../SplashScreenActivity.java  
    res/layout/activity_main.xml  
    res/layout/splash_screen.xml  
    res/values/strings.xml  
    res/values/arrays.xml
```

# 1. Layout ekranu głównego - activity\_main.xml

```
<?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"
    android:padding="16dp">

    <TextView
        android:id="@+id/tvTitle"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/app_name"
        android:textStyle="bold"
        android:textSize="20sp"
        android:layout_marginBottom="12dp" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Wybierz godzinę:" />

    <Spinner
        android:id="@+id/spinnerHour"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:spinnerMode="dropdown" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Wybierz aktywność:"
        android:layout_marginTop="16dp" />

    <Spinner
        android:id="@+id/spinnerActivity"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:spinnerMode="dropdown" />

    <ImageView
        android:id="@+id/ivIcon"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="8dp"/>

    <TextView
        android:id="@+id/tvSummary"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="O --- zaplanowano: ---"
        android:textSize="16sp"
        android:layout_marginTop="16dp" />

    <Button
        android:id="@+id/btnSave"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Zapisz plan"
```

```
android:layout_marginTop="20dp" />
```

```
</LinearLayout>
```

## 2. Zasoby – arrays.xml

```
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <string-array name="aktywnosci">
        <item>Nauka</item>
        <item>Sport</item>
        <item>Zajęcia</item>
        <item>Odpoczynek</item>
        <item>Sen</item>
    </string-array>

    <!-- (Opcjonalnie) Kategorie do zależnych spinnerów -->
    <string-array name="kategorie">
        <item>Szkoła</item>
        <item>Dom</item>
        <item>Czas wolny</item>
    </string-array>
</resources>
```

## 3. Napisy – strings.xml

```
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <string name="app_name">Plan dnia</string>
</resources>
```

## 4. Logika – MainActivity.java

```
package your.package.name; // <- zmień na swój pakiet
```

```
import android.content.SharedPreferences;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.Adapter;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.Button;
import android.widget.ImageView;
import android.widget.Spinner;
import android.widget.TextView;
import android.widget.Toast;
```

```
import androidx.annotation.Nullable;
import androidx.appcompat.app.AppCompatActivity;
```

```
import java.util.ArrayList;
import java.util.List;
```

```
public class MainActivity extends AppCompatActivity {
```

```
    private Spinner spinnerHour, spinnerActivity;
    private TextView tvSummary;
    private Button btnSave;
    private ImageView ivIcon;
```

```
    private ArrayAdapter<String> hourAdapter;
    private ArrayAdapter<CharSequence> activityAdapter;
```

```
    private String selectedHour = "";
    private String selectedActivity = "";
```

```
    private static final String PREFS = "plan_prefs";
    private static final String KEY_HOUR = "godzina";
    private static final String KEY_ACTIVITY = "aktywnosc";
```

```
@Override
```

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

```
    spinnerHour = findViewById(R.id.spinnerHour);
    spinnerActivity = findViewById(R.id.spinnerActivity);
    tvSummary = findViewById(R.id.tvSummary);
    btnSave = findViewById(R.id.btnSave);
    ivIcon = findViewById(R.id.ivIcon);
```

```
    setupHourSpinner();
    setupActivitySpinner();
    loadSavedSelection();
    setupListeners();
    updateSummary();
}
```

```
private void setupHourSpinner() {
    List<String> hours = generateHours("06:00", "22:00");
    hourAdapter = new ArrayAdapter<>(this, android.R.layout.simple_spinner_item, hours);
    hourAdapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
}
```

```

    spinnerHour.setAdapter(hourAdapter);
}

private void setupActivitySpinner() {
    activityAdapter = ArrayAdapter.createFromResource(
        this,
        R.array.aktywnosci,
        android.R.layout.simple_spinner_item
    );
    activityAdapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
    spinnerActivity.setAdapter(activityAdapter);
}

private void setupListeners() {
    spinnerHour.setOnItemClickListener(new AdapterView.OnItemClickListener() {
        @Override
        public void onItemClick(AdapterView<?> parent, View view, int position, long id) {
            selectedHour = (String) parent.getItemAtPosition(position);
            updateSummary();
        }
        @Override public void onNothingSelected(AdapterView<?> parent) {}
    });

    spinnerActivity.setOnItemClickListener(new AdapterView.OnItemClickListener() {
        @Override
        public void onItemClick(AdapterView<?> parent, View view, int position, long id) {
            selectedActivity = (String) parent.getItemAtPosition(position);
            updateSummary();
            updateIcon(selectedActivity);
        }
        @Override public void onNothingSelected(AdapterView<?> parent) {}
    });

    btnSave.setOnClickListener(v -> {
        saveSelection();
        Toast.makeText(MainActivity.this, "Zapisano!", Toast.LENGTH_SHORT).show();
    });
}

private void updateSummary() {
    if (selectedHour == null || selectedHour.isEmpty()) {
        selectedHour = spinnerHour.getSelectedItem() != null ? spinnerHour.getSelectedItem().toString() : "--:--";
    }
    if (selectedActivity == null || selectedActivity.isEmpty()) {
        selectedActivity = spinnerActivity.getSelectedItem() != null ? spinnerActivity.getSelectedItem().toString() : "---";
    }
    tvSummary.setText("O " + selectedHour + " zaplanowano: " + selectedActivity);
}

private void saveSelection() {
    SharedPreferences prefs = getSharedPreferences(PREFS, MODE_PRIVATE);
    prefs.edit().putString(KEY_HOUR, selectedHour).putString(KEY_ACTIVITY, selectedActivity).apply();
}

private void loadSavedSelection() {
    SharedPreferences prefs = getSharedPreferences(PREFS, MODE_PRIVATE);
    String hour = prefs.getString(KEY_HOUR, null);
    String activity = prefs.getString(KEY_ACTIVITY, null);
    if (hour != null) {
        int pos = hourAdapter.getPosition(hour);
    }
}

```

```

        if (pos >= 0) spinnerHour.setSelection(pos);
        selectedHour = hour;
    }
    if (activity != null) {
        int pos = activityAdapter.getPosition(activity);
        if (pos >= 0) spinnerActivity.setSelection(pos);
        selectedActivity = activity;
    }
}

private List<String> generateHours(String start, String end) {
    int startH = Integer.parseInt(start.substring(0, 2));
    int endH = Integer.parseInt(end.substring(0, 2));
    List<String> list = new ArrayList<>();
    for (int h = startH; h <= endH; h++) {
        String hour = (h < 10 ? "0" + h : String.valueOf(h)) + ":00";
        list.add(hour);
    }
    return list;
}

private void updateIcon(String activity) {
    ivIcon.setVisibility(View.VISIBLE);
    if (activity.equalsIgnoreCase("Nauka") || activity.equalsIgnoreCase("Zajęcia")) {
        ivIcon.setImageResource(android.R.drawable.ic_menu_info_details);
    } else if (activity.equalsIgnoreCase("Sport")) {
        ivIcon.setImageResource(android.R.drawable.ic_media_play);
    } else if (activity.equalsIgnoreCase("Odpoczynek")) {
        ivIcon.setImageResource(android.R.drawable.ic_menu_week);
    } else if (activity.equalsIgnoreCase("Sen")) {
        ivIcon.setImageResource(android.R.drawable.ic_lock_idle_alarm);
    } else {
        ivIcon.setVisibility(View.GONE);
    }
}
}
}

```

## 5. Ekran startowy – splash\_screen.xml

```
<?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"
    android:orientation="vertical"
    android:background="@android:color/white">

    <ImageView
        android:layout_width="120dp"
        android:layout_height="120dp"
        android:src="@mipmap/ic_launcher" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Plan dnia"
        android:textSize="28sp"
        android:textStyle="bold"
        android:layout_marginTop="16dp"
        android:textColor="#333333" />

</LinearLayout>
```

## 6. SplashScreenActivity.java

```
package your.package.name;

import android.content.Intent;
import android.os.Bundle;
import android.os.Handler;
import androidx.appcompat.app.AppCompatActivity;

public class SplashScreenActivity extends AppCompatActivity {
    private static final int SPLASH_TIME = 2000; // 2 sekundy

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

        new Handler().postDelayed(() -> {
            startActivity(new Intent(SplashScreenActivity.this, MainActivity.class));
            finish();
        }, SPLASH_TIME);
    }
}
```

## 7. AndroidManifest.xml – ustaw Splash jako LAUNCHER

```
<?xml version="1.0" encoding="utf-8"?>
<manifest ...>
    <application ...>
        <activity android:name=".SplashScreenActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>
</manifest>
```

```
</activity>
<activity android:name=".MainActivity" />
</application>
</manifest>
```

## 8. Testowanie (checklista)

- [ ] Aplikacja uruchamia się bez błędów.
- [ ] Spinnerzy wyświetlają listy i reagują na wybór.
- [ ] Podsumowanie aktualizuje się na bieżąco.
- [ ] Zapis w SharedPreferences i poprawne przywracanie.
- [ ] Splash Screen pojawia się ~2 s i przechodzi do MainActivity.
- [ ] (Opcjonalnie) Zależne spinnerzy / ikona aktywności.

## 9. Podpowiedzi i rozszerzenia

- Jeśli lista w Spinnerze jest pusta – sprawdź setAdapter() i zawartość arrays.xml.
- Upewnij się, że zapis Preferences wywołujesz z .apply() lub .commit().
- Rozszerzenia: DatePicker/TimePicker, RecyclerView na wiele pozycji planu, tłumaczenia values-pl/values-en, animacje