

Object-Oriented Programming – Exercises Week 10

This week, we will be programming an Android application. Our goal is to create a Movie Database App with RecyclerView and proper error handling. Your app will display a list of movies from a local JSON file, handle various error cases, and show movie details.

The learning goal for the exercises

1. Using RecyclerView to display lists of data
2. Implementing proper error handling in Android applications
3. Working with local data sources (JSON)
4. Android UI design principles

On returning the exercise to Moodle

This time, the exercises must be submitted to Moodle for peer review, not to CodeGrade for automatic evaluation.

You must submit two things:

- 1) Link to a public GitHub (or any other public Git) repository containing your solution code
- 2) Link to a video, where you explain your code and demonstrate your solution

Both of these must be submitted. No late submissions are accepted. You are not allowed to change your Git code after the submission. Having commits after the deadline leads to automatic 0 points from the exercises.

Points Received

1 point for proper implementation (minus points for missing something or unclear explanations)

1 points for evaluating two other solutions

Requirements

1. Movie Class

- Create a Movie model class with properties for title, year, genre, and poster resource ID
- Implement appropriate constructors, getters, and setters
- Include proper null and error checking for all fields

2. Movie Loading

- Create a JSONUtility class to read and parse the local movie_data.json file
- Implement error handling for:
 - File not found errors
 - JSON parsing errors
 - Invalid data formats
 - Missing required fields
- Parse JSON data into Movie objects

3. RecyclerView Implementation

- Create a basic adapter for RecyclerView
- Display movie information in a simple card layout
- Show appropriate placeholders for missing data

4. Error Handling

Handle these basic error scenarios:

- Missing JSON file
- Invalid JSON format
- Missing or invalid data fields
- Show user-friendly error messages

Implementation Guidelines

1. Keep the application structure simple
2. Use the provided movies.json file with some intentional errors
3. Focus on making your code robust with proper error handling

Main Activity

Create a MainActivity that:

1. Sets up a RecyclerView to display the movie list
2. Loads movie data from the JSON file
3. Handles basic errors and shows appropriate messages

Expected Output

Your app should:

1. Display a list of movies from the JSON file
2. Handle errors gracefully without crashing
3. Show appropriate placeholder content for missing data

Implementation Constraints

- Maximum of 10 Java files
- Clear and simple code with proper comments
 - Basic error handling using try-catch blocks
- Simple and functional UI with RecyclerView

Evaluation Criteria

Your solution will be evaluated based on:

1. Correct implementation of RecyclerView
2. Proper error handling of the movies in the application
3. Proper parsing and validation of JSON data
4. Clean code organization & comments in the code
5. Video presentation

Example Class Diagram

Here is an example class diagram on how this could be implemented. Feel free to do it in a different way, just as long as it implements proper handling of errors and RecyclerView.

