CBL Game Development

Assignment 5

2IP90 Programming
Q1 2025–2026

1 Challenge description

You will be making a game using Java and swing in teams of 2 students.

You are free in which game you want to make, as long as you meet the learning goals. During the instruction sessions, you can get feedback on whether your project progress is sufficient.

2 Learning goals

The learning goals for this assignment are the following:

- Learn how to apply the concepts learnt during the first weeks in a larger project context.
- Learn how to independently learn 2 different topics relevant to Java programming.
- Learn how to use Java's Swing to build a user interface.
- Learn how to collaborate (part of professional skills).
- Learn how to communicate with group member (part of professional skills).

2.1 Topics of choice

During this challenge, you will need to use your basic knowledge of programming to learn about 2 *new or advanced* topics of choice. These must be topics that go further than the material you have been given by the course. You can either pick a new topic, or go more in-depth on topics already covered by the course. Use feedback from the course instructors during the instruction sessions to gauge if your topics are sufficiently new or advanced. The produced code, documentation and project setup must clearly demonstrate that you have understood the material.

Some examples could be: test driven development, advanced object-oriented programming, new Java features, version control (git/hg), user experience (UX), game design, build systems (gradle/maven), continuous integration, algorithms. There are plenty more topics that could be viable, so do not hesitate to show us your ideas for feedback.

2.1.1 Expectations

We expect you to do research into your topics of choice on your own. This means that you have to look up quality sources that inform you how to approach your project. Make sure to cite your sources. What we as tutors want to know:

- Which sources have you used and how did you find them?
- How, and when, have the sources influenced your process and end product?
- How far does your (new) understanding of the researched topic go?

You may ask your tutor for pointers. It is their task to help guide you in your learning process.

You may start on the project first and pick your topics of choice later on. However, make sure to decide your topics of choice relatively early in the project. You are allowed to change topics. Your tutor must agree on the topics of choice you choose. They can gauge whether the scope and difficulty are appropriate for you and the course.

3 Deliverables

3.1 Product backlog

You will create a product backlog for your game before you start programming. You have to hand in this backlog **Tuesday October 7, 2025** on Canvas. This hand-in is required to continue with the project. A product backlog is a list of features (backlog items) that your game will contain. The backlog items need to be relatively small and self-contained, i.e. a small unit you can work on and finish relatively quickly and independently of the other backlog-items. The backlog items need to be sorted by priority from high to low and need to contain the following information per item:

Name This should be a succinct descriptor of what your backlog item is about (e.g. “Rendering a chess board”).

How to demo How you are going to demonstrate that your backlog item is implemented *properly* (e.g. “Start the application, click the *New Game* button and 64 white and black square fields show up in a checkerboard pattern, resize window, board stays square and properly visible”).

Notes Here you can elaborate more on the backlog item in case it is not entirely clear yet, or write down any other remark.

Making the product backlog has 2 main goals:

1. Helping you to make your project ideas concrete.
2. Allowing the instructors to help you scope your project properly.

The exact format or tool you use is up to you — as long as it can be edited easily, has a clear overview of your backlog items, and is ordered/prioritised.

3.2 Pitches

You will be pitching the status of your project twice during the instruction sessions. You cannot use slides during your pitch. You may bring a printed version of your product backlog.

Pitch 1 – Tuesday, October 7 During this pitch you have 90 seconds to pitch your project plan to your tutor. You will give a global overview of your game, and quickly mention the main features your game will have and which learning goals you cover.

Pitch 2 – Thursday, October 16 During this pitch you have 90 seconds to talk about which features were implemented and what your plans are for the final week. Mention what went well, but also where you encounter difficulties. The tutor can use this information to help you to figure out what to do next.

3.3 Constraints

- The game must be written in Java.
- The game must use swing as a UI framework.
- The game must run on Windows, macOS and Linux.
- The game must be playable within 1 minute after starting the program.
- The game must be playable and testable by a single instructor.

3.4 Hand-in

Hand in your final product latest **Sunday, October 26, 23:59 on Canvas**. Your submissions should be a single zip archive containing the runnable project per the constraints in section 3.3. The submission must contain the full source code.

Make sure that the grader is able to run and assess your project easily and knows where to find what.

4 Timeline

See Table 1 for the project timeline. Make sure to also meet outside the scheduled instructions. The average weekly workload should be around *14 hours* per student (including lectures and exam preparation).

5 Assessment

The rubric for this challenge can be found in Table 2. Notice that the rubric is vague by design. Therefore, make sure to be present during the instruction sessions and ask for feedback on your project.

Week	Date	Event
5	Thursday October 2 instruction	Creating product backlog
6	Tuesday October 7, instruction	Idea and backlog pitch (1.5 minutes)
	Tuesday October 7, 23:59	**Product backlog hand-in**
	Thursday October 9, instruction	Standup, work during instruction
7	Tuesday October 14, instruction	Standup, work during instruction
	Thursday October 16, instruction	Progress pitches (1.5 minutes)
8	Tuesday October 21, instruction	Standup, work during instruction
	Thursday October 23, instruction	Standup, work during instruction
	Sunday October 26, 23:59	**Project hand-in**

Table 1: Assignment Timeline

Rubric	Advanced	Sufficient	Beginner	Insufficient
Functionality *Does it run?*	(3 pt) Software runs.		(1 pt) Software runs with major glitches.	(0 pt) Software does not run.
Programming basics *Variables, control statements, standard library, methods, arrays, …*	(5 pt) Elements are used effectively.	(4 pt) Elements are used, but not efficient and/or effective.	(2 pt) Some elements are missing, wrong or unused.	(0 pt) Not demonstrated, or wrong.
OOP/modularity *Classes, interfaces, inheritance, polymorphism, …*	(5 pt) Used properly and shows insight.	(4 pt) Used properly.	(2 pt) Used, but some concepts are wrong and/or missing.	(0 pt) Not demonstrated, or wrong.
GUI *Swing*	(4 pt) Elements used properly.		(2 pt) Elements missing and/or wrong.	(0 pt) Not demonstrated, or barely.
Topic of choice 1 *See 2.1.*	(4 pt) Shows insight.	(3 pt) Done.	(1 pt) Done, but with some problems.	(0 pt) (Almost) absent, or wrong.
Topic of choice 2 *See 2.1.*	(4 pt) Shows insight.	(3 pt) Done.	(1 pt) Done, but with some problems.	(0 pt) (Almost) absent, or wrong.
Total	(25 pt)			

Table 2: Rubric CBL Game Development