



2020 – 2021 SPRING

CMP 2004 Advanced Programming

Term Project

You are expected to implement a simple game with the following scenario:

You must protect the world from alien invasion. You have a spaceship, and you need hit aliens' ships but there is a barricade for protect to aliens. Hitting all the alien results in completing the level and going to the next. Angle and velocity affect your shoot. There are 3 levels to complete. Each level design must be different than the others.

Limitation:

You **cannot** use third party libraries in your project.

Teamwork:

You are expected to work as teams, since one outcome of this course is to teach you to do teamwork in software development. That is why if you submit as a **single person**, you will be **graded from 80% of the full grade**. The project is for 2 people, but you can create groups of 3 or 4, but you must do more work than minimal requirements to get full grade.

Cheating Policy:

Cheating is strictly prohibited. It must be you own work. Do not use each other's code. In such case all the cheaters, including the original project, will be penalized heavily. Do not include external people for help.

Submission:

Project Announcement date: 10 May 2021

Last Submission date: 30 May 2021 23:59 (Late submission will not accept)

You must upload your project with executable jar file using Itslearning system.

Do not forget to add your Project Group's Members using Itslearning system.

Your project file name must be same your group member's name. Do not forget to zip your project.

Presentation:

Presentation date: Will be announced later.

All presentation will cover after the 30 May 2021 on Microsoft Teams. If you do not do presentation, you will not get any point from project. Detail information will be announced later.

Criteria & Grading:

Minimum criteria grade is 100 points and maximum you can get 120 points with bonuses. (For example, if your group has 2 students and you did all minimum criteria, you will get 100 points and If you did some bonus criteria and that bonus points more than 20, you would only get 20 points. Another example, if your group has 2 students and you did some minimum criteria and you did some bonuses. If those bonus grades are more than 20 points, those points will add to your grade, but you cannot get more than 120 points.)

Criteria M: Minimum Criteria B: Bonus Criteria	2 students in a group	3 students in a group	4 students in a group
Proper object oriented (OO) hierarchy (E.g., barricade, spaceship types and alien types can be implemented that way. Use concepts of interfaces, abstract classes while designing OO hierarchy).	M (15 pts)	M (15 pts)	M (15 pts)
Mouse or Key listeners (To control your spaceship up or down and shooting).	M (10 pts)	M (10 pts)	M (5 pts)
Create Intro Menu Scene with GUI elements (button, a check box and a text field, etc.).	M (10 pts)	M (5 pts)	M (5 pts)
You need to show velocity, angle, and time information using GUI elements.	M (15 pts)	M (15 pts)	M (10 pts)
Graphics (Java 2D API usage while designing your graphical elements).	M (15 pts)	M (10 pts)	M (5 pts)
Animation.	M (15 pts)	M (15 pts)	M (10 pts)
Create a jar file.	M (10 pts)	M (5 pts)	M (5 pts)
High Score (Keep user high scores for only recent games. Show it in a GUI element, e.g., list box. You do NOT have to save it on disk and load it.)	M (10 pts)	M (10 pts)	M (5 pts)
When you hit an alien, there is a chance that a powerup will show random place on a screen in few second and click to collect powerup, if it is not collected, it will disappear. Certain powerups have positive effects, while others have negative, making it important to try to collect the beneficial powerups while avoiding the detrimental powerups.	B (5 pts)	M (5 pts)	M (5 pts)
Good game experience.	B (5 pts)	M (5 pts)	M (5 pts)
Save and Load High Score information to/from disk.	B (5 pts)	M (5 pts)	M (5 pts)
HTTP download (e.g., download and display of high scores of other people which are set on a webpage).	B (5 pts)	B (5 pts)	M (5 pts)
Using multiple Threads	B (10 pts)	B (10 pts)	M (10 pts)
Multiplayer game on same computer	B (10 pts)	B (10 pts)	M (10 pts)
Network Multiplayer Game	B (20 pts)	B (20 pts)	B (20 pts)

Screenshot:

This is just a basic one scene example of this project. You need to design your own style for this project.

