2D Grid Game

1. Content

2. Objective

Apply all your programming knowledge to develop a 2D game.

Learn to work in a team.

3. Timing

When	What
08 Arrays	The teacher creates teams. Each team decides about which game they are going to make. The game should meet the specifications, see below.
09 C-String dyn array	The teams program their game
10 Classes 1	The teams get the opportunity to show their game for the class.

4. Team project

4.1. Team of 2 students

- The game is made by a team of 2 students.
- The teacher decides on the composition of the teams.
- Each team chooses a game that follows the game specifications as described in the following chapter.

4.2. Pair programming

Use the pair programming technique in which 2 programmers work side by side on one computer. One is the **driver** who types the code. The other is the **navigator** who directs the driver.

Before starting, split the game task in several smaller tasks and switch roles for every task, this keeps you both fully engaged.

Pair programming technique

In visual studio, on the top right you can click sharing, copy the link to your team member and work together on the same project.

5. Specifications

5.1. The game

The game has to be a **2D grid game**. This can be an existing game, or you can program your own game as long as it is a 2D grid game. Example: Snake, Tetris, breakout is also ok. There must be an dynamic array that represents the main part of the gameplay.

When the **I-key** is pressed, information about the game and the controls is printed on the console.

The max window size of the game is **1280 * 720** pixels.

Some choice tips:

- Analyse a game before choosing it: Isn't it too complex? Do you have enough time to make it?
- It is better to present a simple, finished and debugged game than a huge unfinished one.
- Limit the animations. It is a **programming** exercise, so don't lose too much time in creating sprites for animations.

5.2. Gameplay video

When the game is finished, make a **short video** showing the main gameplay. To capture the gameplay, you can use a screen capture tool (Record Screen).

The video should be:

- 1280 * 720 pixels.
- Take no longer than 1 minute.
- Have a maximum size of 100MB.
- Show the names of the team at the start or in the window title

A selection of games will be published to the DAE website (!). Therefore, make sure the video meets the requirements.

We use the vimeo platform, so it is best to follow their requirements available at: https://vimeo.com/help/compression (Links to an external site.)

We advise to use the codec H.264 to save in mpg format.

6. Technical requirements

6.1. Development environment

The game is developed in **Visual Studio 2019**.

The game is built using the provided framework with SDL and OpenGL. This framework can be modified by the team. However, you are not allowed to use other existing game engines.

6.2. Code and design

The programming language is C++.

It is important that your **program is readable and maintainable** by applying the principles and techniques you have been taught so far.

- Naming rules have to be applied.
- Seen programming techniques are applied.
- Create the array(s) in your game using **dynamic memory allocation**.

6.3. Project and video

Name: Just use the **name of the game** as project and video name.

Folder: Project and video should be in the folder **1DAExx_GameName_Name1Firstname1_Name2Firstname2.**

7. Submission instructions

Each team uploads only <u>one</u> compressed folder. The student mentioned with Name1Firstname1 does the upload.

- Clean up the Visual Studio project and then close it.
- Delete the .vs folder
- Compress the folder 1DAExx_GameName_Name1Firstname1_Name2Firstname2 – which should contain the cleaned project and the video - and upload it under this game assignment.

8. References

8.1. Pair programming technique

https://www.youtube.com/watch?v=YhV4TaZaB84

https://en.wikipedia.org/wiki/Pair_programming

https://www.wikihow.com/Pair-Program

8.2. Record Screen

8.2.1. Flashback recorder, free express version

https://www.flashbackrecorder.com/express/

8.2.2. MS Expression Encoder 4

https://www.microsoft.com/en-us/download/details.aspx?id=27870