BSc/HND Games Programming **CSY1044 Video Games Architecture & Optimisation**			
Date of Issue:	**07-10-2019**	Date for Submission:	**19-01-2020**
Agreed Date for late submission:	**26-01-2020**	Module Tutor:	Dr. Anastasios G. Bakaoukas
		Signed:	*A. G. Bakaoukas*
Student Name:			
Student ID:			
Student's Signature:			
Name of Game	"Dangerous Racers" Levels Design & Implementation		

This assignment is weighted as 50% of the Module's assessment					
Assessment Feedback					
Aspect	A	B	C	D	F
Brief Games Concept (5%)					
Games Objectives (5%)					
Game Mechanics (5%)					
Screen Flow & Artistic Designs (5%)					
Pseudo Code (5%)					
Game Architecture & Implementation (20%)					
Testing (5%)					
Code Optimisation (20%)					
Evaluation & Possible Future Evolution (5%)					
Report Presentation. (Format, Layout, Grammar, Syntax, Spelling) (5%)					
Extras (5%)					
Midpoint Demonstration (5%)					
Final Demonstration (10%)					

Specific aspects of the assignment that the marker likes:		Specific aspects of the assignment that need more work:			
Tutor's Signature:	*A. G. Bakaoukas*	Date:		Grade:	

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CSY1044 Video Games Architecture & Optimisation

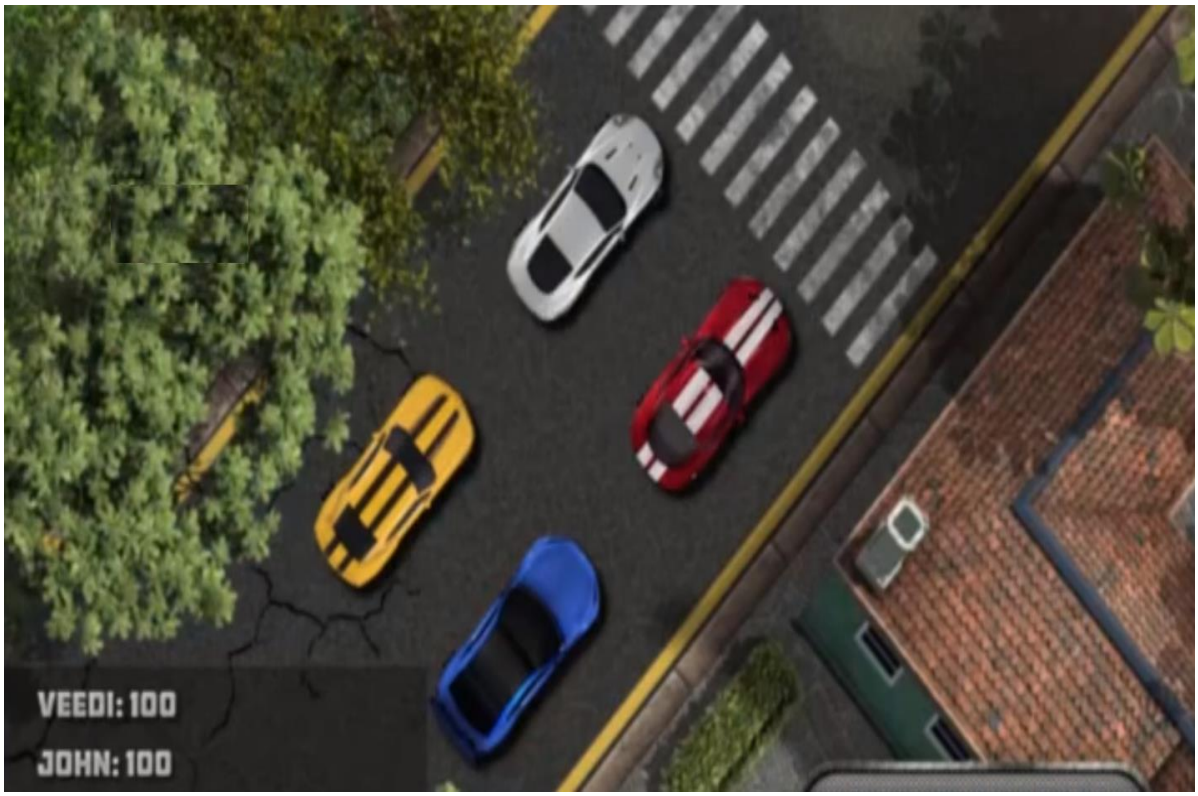
Games Planning/Development in C++/SFML

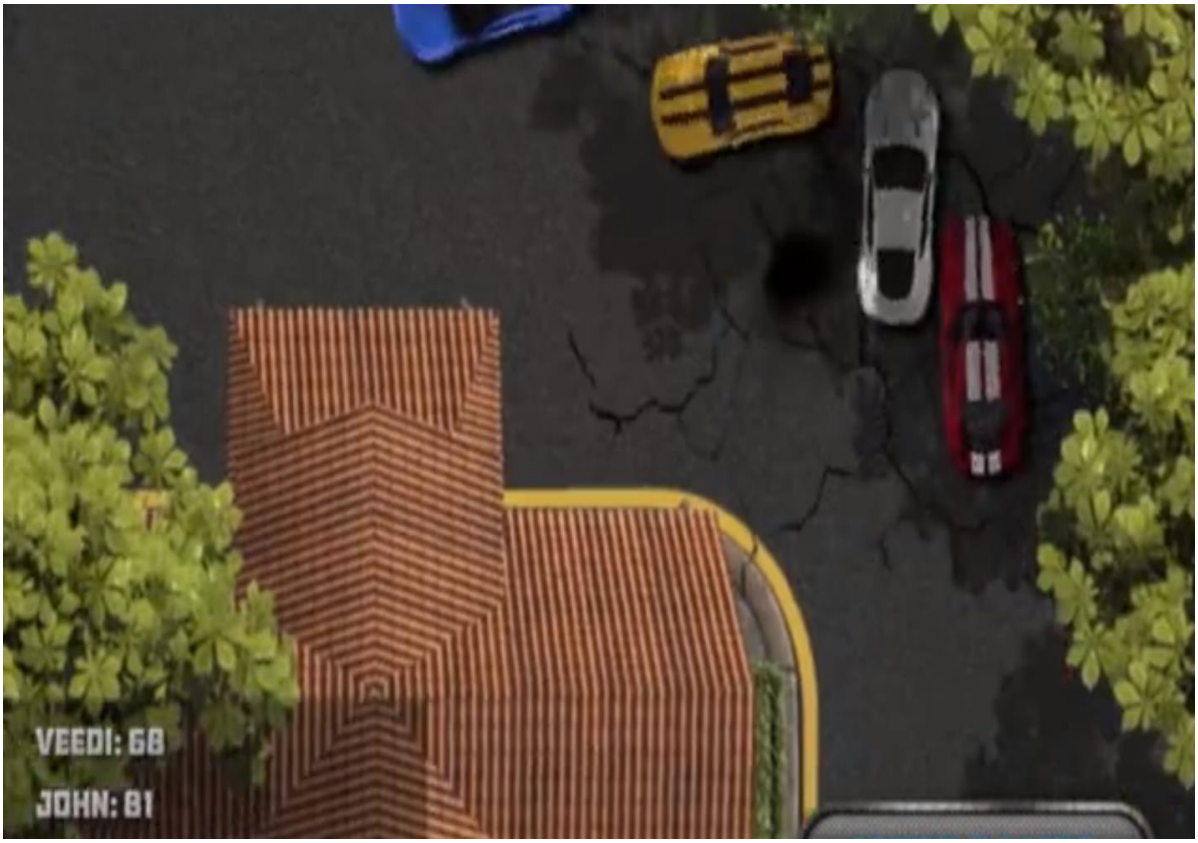
Aims & Objective:
The purpose of this assignment is to show evidence of planning and development stages of creating two game levels, using C++/SFML. **The emphasis is on properly applying Code Optimisation Techniques and proper Game Architectural Structure in your implementation of the game**.

Brief:
You have been approached to create two levels for the well-known game "Dangerous Racers".

Game Play
Prove that you are a great driver in this fast-paced racing game! Overtake the other racers and be the first across the finish line!

Screen shots of the first, original game, level are as provided below:





To remind you of the game visit:

https://8bob.com/game/dangerous-racers#.XX6UmNPQiUk

Individually: Design and program a "**Start Screen**", "**Level 1**", "**Level 2**" and an "**End Screen**" for the "**Dangerous Racers**" game using Microsoft Visual Studio C++ & SFML Games Programming Library. Also, **write an academic standards report** on your design and programming work which to reflect (address in individual sections) all the **Assessment Aspects**.

Tasks:

1. *In your own words, in your understanding, what is the game about?*
    - For around a **"D" grade** a very brief explanation is supplied, but does not really show a full understanding of the game concept.
    - For a **"C"/"B" grade** a satisfactory explanation is supplied, which shows an understanding of the basic games concept. But this is rather brief.
    - For an **"A" grade**, a full explanation is supplied, which clearly shows an excellent understanding of the game.

2. *Highlighting the objectives of the game and "Victory Conditions". (Including activities required to achieve the "Victory Conditions").*
    - For around a **"D" grade** a very brief explanation of the objective is supplied in/almost in bullet format. It does not really show a full understanding of how to win/lose at this game.

- For an **"A" grade** an excellent explanation is supplied of the games win/lose conditions. It would also clearly demonstrate a full understanding of how the game works.

3. *The mechanics of the game (character/NPC movements, actions, etc …)*
    - For around a **"D" grade** a very brief explanation of the game mechanics would be supplied, but some of the characters (including NPC) are not talked about or their descriptions are what can be seen as incomplete. This section will also not really show a full understanding of how the different characters move and interact with each other.
    - For an **"A" grade** an excellent explanation is supplied of the mechanics of the game. It fully demonstrates an understanding of the movement/interaction between the games different characters, and explains the mechanic of any additional features.

4. *Overall screen flow diagrams, Character, NPC, and Background designs (Artistic).*
    - For around a **"D" grade** a small number of sketches will have been supplied for the main characters, but no designs for any of the game screen/menu/end screens. Some of the images used for the characters have been copied from other sources but have not been referenced properly. Also there is no diagram that shows the movement of the user through each screen.
    - For an **"A" grade** a collection of sketches would be supplied for all the characters found in the game, including designs for the game screen, start menu, and end screens. Most or all of these images used in the game are unique, and designed by the author of the game. If any of these images have been copied from other sources they have been referenced properly.

5. *Pseudo Code for character/NPC objects.*
    - Around a **"D" grade** the pseudo code will show planning for areas of the code.
    - For an **"A" grade** this will cover all code.

6. *Code Architecture & Implementation of game (to be carried out in stages, but only a final version submitted).*
    - See "Deliverables - Games Requirement" below.

7. *Testing. A simple test table should be present for the section/s you have completed in this game.*
    - For around a **"D" grade** a simple test table should be present, containing a small number of tests for your game. No actions have been highlighted for errors in the code.
    - For a **"C" / "B" grade** a comprehensive test table is supplied testing near all / all sections of code. Some errors where highlighted and alteration required stated.
    - For an **"A" grade,** same a **SATISFACTORY / GOOD** but also including usability testing.

8. *Show evidence of a properly applied Algorithm Optimisation Methodology.*
    - For around a **"D" grade** this could be an explanation of the code's structure per Method per Class and the necessity of it implemented as presented.

- For an **"A" grade**, you should supply a full explanation of the reasons why the implementation of the Classes and Methods within Classes are algorithmically optimally implemented. Ideally, the algorithmic optimality claim is expected to be backed up by the use of appropriate code analysis techniques as discussed in class. Examples of alternative non-optimum implementations of the algorithm will further assist in strengthening the optimality claim.

9. *Evaluation of final game and possible future developments.*
    - For around a **"D" grade** a very basic evaluation would be produced. This would on evaluate the game and would not contain anything about the future evolution of the game or contain any reflection of how the project evolved.
    - For an **"A" grade** an excellent evaluation would be supplied, which clearly reflects on the process of making this game. Highlighting any issues that had been encountered and how these have overcome, as well as charting some of the successes. Talk about future developments have also been investigate, which are suitable, achievable and come with explanations of why this would benefit the game.

10. *Report presentation.*
    - For around a **"D" grade** the layout is just about suitable for this type of report but the organization of the document is weak. It would also contain a large number of errors in its spelling and grammar. Missing the appropriate front cover sheet supplied.
    - For an **"A" grade** the report would be of a professional standard, which is both readable and well structured. Beautifully presented and formatted. All (if any) references and citations are good, and is generally well above standard expected at this level.

11. *Midpoint Demonstration*
    - For around a **"D" grade** the midpoint demonstration would be very basic. There would be no real evidence that the assignment is understood, or that there is knowledge of how to complete a basic game. You are also not able to show that you are up-to-date with the project.
    - For an **"A" grade** a good, clear demonstration that clearly shows you knows what you are planning to do and how this is to be achieved. It is clear that you are on target to complete the game to a good standard by, or before the submission date.

12. *Final Demonstration*
    - If you do not attend this demonstration you will be awarded an overall **F+ grade** for this assignment.
    - For around a **"D" grade** you would give a basic demonstration, which does not show you fully understand how the game works. You would also struggle to explain what some of your code is doing. Some of the games code also contains errors/missing code, which means that the game either does not run or does not function correctly.
    - For a **"C"/"B" grade** you can give a good demonstration, showing an understanding of how the game works. You can also explain any additional features that you have added (even if they have failed to work). Any errors still found in the code can be explained to why they do not work.

- For an **"A" grade** you would show an excellent understanding of how the game works. You will be able to demonstrate a number of additional features and understanding of how they work, and also explain how things in the game could be improved. The game demonstrated is of the standard that could be/or close to being of the standard to be released to public.

Deliverables

Game Requirements:

Basic Game
- A background / graphical character.
- Character moves by mouse/keyboard entry.
- No particular game architecture has been applied.
- NPC are included (but maybe static).
- Main character interacts with other NPC.

A Satisfactory/Good Game
- Same as basic.
- Some kind of scoring or life limit.
- Full interaction with NPC.
- A classic linear game architecture has been applied.
- All NPC move.
- At least 1 additional feature that improves the playability (i.e. maybe the main character has animated death).

An Excellent Game
- Same as Satisfactory/Good.
- A fully implemented "No Choice"/"Many Choices" points architecture has been implemented.
- Some victory status (time limit/target score/etc...).
- More than 1 level.
- A number of additional features that improves the playability.

Milestones:
On the midpoint date you should be able to demonstrate where you are at within the project to gain 5%.

Midpoint Demo	During the Practical	**Week Commencing: 11-11-2019**	Attempts at Tasks: 1,2,3,4,5,6, 8, 9	5%
Demo	During the Practical	**Week Commencing: 13-01-2020**		15%
Submission	Electronic submission through NILE	**19-01-2020 at 23:59**	One ".zip" file which to include: a) The full report and, b) a copy of the game.	80%

A demonstration of your final game is to take place on **Week Commencing: 13-01-2020. IF the final demo is missed the final grade will be capped at F+.**

A report needs also to be submitted electronically through NILE by **19-01-2020, at 23:59**. You are also required to upload one ".zip" file which to include: a) The full report and, b) a copy of the game.

Grading Criteria:
The Standard Front Sheet gives a clear indication of how the grade for this assignment is achieved. In general the following criteria will act as a guide to what you should expect:

A bare pass (D) will:

- Some very limited attempt has been made at most tasks.
- A very basic game has been made, with limited games play.
- A basic final demonstration.
- A basic technical report.

A good pass (B to C) demonstrates:

- An attempt at all tasks.
- A game made meeting Satisfactory/Good standard (maybe with 1 or 2 "bugs").
- A good demonstration.
- A well written report.

A very good pass (A) shows:

- All tasks are attempted with a high level of detail.
- A game has been developed close to a standard required for public release.

Learning Objectives
This assessment corresponds to the following "Learning Objectives" as detailed in the "Module Specification" document:

Knowledge & Understanding: a, b
Subject Skills: b, c
Key Skills: d