Project 1 - Individual

Project 1: Specifications

CS7GV6 – Computer Graphics – 22/23

Project 1 - Individual Project (60%)

Project goal:

- The goal of the project is to create a 3D OpenGL version of one of the classic Arcade games here: https://www.free80sarcade.com/topgames.php
- Every student must pick a sufficiently different game.
- Enter your choice of game on the following spreadsheet by 11:59pm on Tuesday, October 11th. *But remember, this is first come, first serve, so your favourite game might be gone if you choose too late!*

  https://docs.google.com/spreadsheets/d/1kHrEdfbHsBIj4hACQorUrPsISQKHDGZ2VMmLaJkXuxw/edit?usp=sharing

- The project must be completed on a ***strictly individual*** basis and the game must be implemented with shader-based OpenGL and not a higher level framework.

Compulsory OpenGL elements (you can use your lab exercises to develop these):

1. Display at least one 3D polygon mesh - you may generate this or load scene/objects from a file;
2. Allow interactive manipulation of part of the 3D scene (i.e. transforms) using keyboard/mouse or some other device;
3. Include at least one complex object with a hierarchical structure undergoing transformations;
4. The scene must be lit and shaded; including diffuse and specular objects;
5. Support at least two different camera views, e.g.,
   a) first person view with camera movements allowing user to walk or fly through the scene; b) top down view (e.g. overhead map)

Deliverables and Deadlines:

- 18/10/2022: D1.1 - 0.5 page implementation overview + screenshots (Marks: 2/60)
- **07/11/2022**: D1.2 – Detailed 1-page implementation plan + screenshots - this should have more details about what the game will look like, e.g., what kind of models will you use; how will you implement the required features, etc. (Marks: 3/60)
- **19/11/2022:** D1.3 - Compulsory OpenGL elements with initial game concept (Marks: 15/60)

1. Upload code, assets (e.g., models, textures) and screenshots via BB on ~~19-Nov~~ 29-Nov
2. Live, in person, demo Live, in person, demo from 13:00-14:00 on Tuesday 22-Nov or 29-Nov

- **07/01/2022:** D1.4 - Final demo (video) and 5-10 page report (40/60)

Marking:

20/60 for Deliverables 1, 2 and 3

20/60 for implementation of game with compulsory OpenGL elements

20/60 for more advanced OpenGL features added to game.

Submission links will be made available in the Project area on Blackboard before the deadlines above.

For any questions about the project, please post to the Projects Forum discussion board.

Deliverable D1.1: 0.5 page implementation overview + screenshots

Please upload your implementation plan (half page) + screenshots of Lab 3.

The deadline is Tuesday, 18/10/2022 at 11:59pm.

Late submissions or failure to upload anything will result in 0 marks.

Deliverable 1.2: detailed 1-page implementation plan

Please upload your detailed 1-page implementation plan + screenshots

The deadline is Monday, 07/11/2022 at 11:59pm.

- this report should have more details about what the game will look like, e.g., what kind of models will you use; how will you implement the required features, etc. (Marks: 3/60)

Deliverable 1.3.1: Upload code, assets (e.g., models, textures) and screenshots

Compulsory OpenGL elements with initial game concept (Marks: 15/60)

D1.3.1: Upload code, assets (e.g., models, textures) and screenshots via BB by 11:59pm on ~~19-Nov~~ 29-Nov

The remaining part of D1.3 will be the live demo (D1.3.2)

Deliverable 1.4: Final demo (video) and 5-10 page report

The final deliverable for the Individual Project 1 is due on **Saturday, January 7th** at 11:59pm.

- 20/60 marks for implementation of game with compulsory OpenGL elements

- 20/60 marks for more advanced OpenGL features added to game.

Please submit 4 files:

1. A **PDF report** that explains your final game design and technical choices, with images. Note: We will use this report as an extra input to determine the effort you put in, and to clarify anything that isn't clear from the demo. It can be between 5-10 pages, depending on how many images/figures/pseudocode you add;
2. A single **Zip File** containing ALL of your code (cpp and h files - no exe files please);
3. A **Youtube Link** to a demonstration video-recording of your game (videos can be recorded using a tool such as FRAPS or Nvidia Shadowplay). The demonstration should clearly show all game and technical features (e.g., demonstration of the hierarchical animation, lighting, camera view, gameplay features etc...). If it can't be seen on the demo, it can't be graded. Please title the clip - CS7GV6_2021_ Surname_Firstname;
4. A mandatory **Declaration** that the work on both the programming and written assignments are entirely your own and you have not collaborated with anyone.