German University in Cairo
Media Engineering and Technology
DMET 502 Computer Graphics, Winter 2024
Assoc. Prof. Dr. Rimon Elias

Computer Graphics Final project

Project Proposals/Forming Teams Deadline: **Tuesday 12th of November@11:59 PM**

Project Deadline: **Wednesday 4th of December @11:59 PM**

Project Guidelines:

The aim of the project is to implement a 3D game. This project should contain several main requirements which have to be fully satisfied. These requirements are:

- Navigation through the game using the keyboard **and** mouse functions
- Obstacles which require the implementation of obstacle avoidance or collision detection algorithms
- Everything should be textured with exception for very small objects
- Generation of animations with every user interaction
- The game must have two different scenes (two different levels). This means two different environments
- Since it is a game, a main target is needed along with the calculation of a final score displayed on screen
- Camera navigation through the game can be controlled using the keyboard or the mouse functions or both. Camera motion must include first person and third person perspective cameras. The camera must follow/move with the player in both perspectives.
- Lighting is required:
    - This includes different types of light (different light intensities)
    - Light animations of light sources

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Guideline explanations:

- Two levels: This means that there are two different environments including different objects, obstacles, goal,...etc.
- The used models are 3D imported models.
    - You might use the following links to search for free 3D models (extension is 3ds).
        - https://free3d.com/
        - https://archive3d.net/
        - https://www.turbosquid.com/
- Two cameras: There are **two different cameras** and two buttons to switch between the two camera views. One for the first person camera and one for the third person camera. **First person shooter** and **third person shooter**.
- Since it's a game, the score calculations are displayed on screen.
- Generation of animations with every user interaction: every user interaction including collecting an object or colliding with an obstacle or any other interaction. There will be either a sound with every interaction or animation applied to the player. For example, if the player collects a coin, we should hear a sound for coin collection or if the player shoots an enemy we should see the enemy taking a step back imitating being hit by a bullet reaction.
- Light sources: make sure you have **light effects and light animations**. Light effects mean that you have to **change the color of light (light intensity)** based on your theme at least once throughout the game. Light animations include any **transformations** on the light sources (**translation or rotation**).

Video Recording:

You are asked to submit a video recording for your screen while you are playing the game. The video should follow the following regulations:

- Your video should be from 2 – 5 minutes
- Your video should have voiceover explaining:
    - Description of the game
    - The aim of the game
    - How to play it
- The video must be arranged in the following sequence:
    - 2 seconds: University name & logo (provided in the attached template)
    - 2 seconds: Course name and semester (provided in the attached template)
    - 2 seconds: Project name
    - 2 seconds: Students' names
    - Rest of the video content

- 2 seconds: Thank you (provided in the attached template)

- Finally, note that your video can be published online, so do a good job.

Project Teams:

Working on this project is done in teams of 3 to 4 members; yet the work expected is that of four members. This means that if a team consists of three members or less, this team will have to work slightly more to achieve the same results of a team having four members.

Project Proposal:

- Propose your own project that satisfies the requirements specified above. Your proposal must be submitted along with the team members' info using this form.
- If you want to be assigned randomly, submit your info using this form.
- The project proposal is written using the template provided. Any other format will be rejected. The template must be downloaded, filled and submitted through the form **only**.
- You need to get approval on your project proposal first before starting the implementation. A notification will be sent directly after the deadline of submitting the proposals. Also, an announcement will be posted to CMS.

Project Evaluation Schema:

The evaluation of the project will be conducted based on the approved points in the proposal; which means that a project submission where the points satisfied are less than those approved will receive a deduction. On the other hand, a submission with more points than those approved will be granted a bonus up to 5% of the project grade.

Project Deadline:

1. The deadline for the project **proposals and teams** is **Tuesday 12th of November@11:59 PM**.
2. Evaluations will be held during the last teaching week and revision week.
3. Submission guidelines:
    a. Submit your project files through this form.
    b. **Only .h, .cpp, and assets files** should be submitted in a **.zip** extension only (not .rar) and uploaded to a drive link.
    c. Please keep the naming convention for all of your submitted files to easily reach them **[Team name]-[Project Title].zip**
4. The project submission deadline is on **Wednesday 4th of December @11:59 PM**