Project 3: Lunar Lander

Hide Assignment Information

Instructions

NYU Tandon School of Engineering

CS-UY 3113 Spring 2025

Project 3: *Lunar Lander!*

Due: 11:59pm, Saturday, Oct 25th 2025

Submission instructions

1. You must use delta time, the Entity class, and fixed time steps in this assignment.
2. You should submit the link to your repo as a comment on **Brightspace**.
3. You should also push that same version to your GitHub account. Note that any commits done after the deadline will be ignored.
4. Do not use any functionality that we have not learned in class *unless* I have explicitly approved of it.
5. The `main.cpp` file you submit should contain a header comment block as follows:

```C++
/**
* Author: [Your name here]
* Assignment: Pong Clone
* Date due: 2025-10-13, 11:59pm
* I pledge that I have completed this assignment without
* collaborating with anyone else, in conformance with the
* NYU School of Engineering Policies and Procedures on
* Academic Misconduct.
**/
```

No late submissions will be accepted.

Requirement 1: *Player Falls With Gravity (25%)*

- The player should fall according to an acceleration of gravity that you choose.
- Traditional Lunar Lander games use a small gravity value to simulate outer space, but you may pick any value that fits your theme.

Requirement 2: *Moving With Acceleration (25%)*

- Moving left or right should change the player's acceleration, not velocity.
- When the player releases the movement key, the ship should drift briefly before coming to a stop.
- Do not directly update m_movement (or your equivalent variable) ⚠️
- You should only modify the values in m_acceleration.

Requirement 3: *Mission Failed / Mission Accomplished (25%)*

- If the player touches any forbidden area of the map → display a "Mission Failed" message and end the game.
- If the player successfully lands on a winning platform → display a "Mission Accomplished" message and end the game.
- Include at least one moving platform that the player can interact with to either win or lose.

Requirement 4: *Fuel Mechanic (25%)*

- Implement a fuel system.
- Each time the player presses a key to change acceleration, fuel should be consumed.
- When the fuel runs out, acceleration keys should stop working.
- Include a UI element that displays the remaining fuel.

Tips

- Focus first on getting your ship's movement to work correctly because this is the most challenging part of the project.
- Once movement works smoothly, start building out the rest of the world (collision, platforms, etc.).
- Check out the original Lunar Lander for inspiration and a better sense of gameplay feel.
- Observe how its UI displays movement, velocity, and acceleration to understand its physics system.

Extra Credit

- Add an animation using a sprite sheet for your falling object (e.g. flame exhaust, ship engine flicker, or crash explosion).

Submission

Push your code to GitHub repo and submit the link to your GitHub repo as a comment. Please make sure that it is a public repo and clearly identify which is your Project 3: Lunar Lander folder and which is your project 2. Make sure to submit all the files that is necessary to compile and run your program.

Due on Oct 27, 2025 11:59 PM

Available on Oct 10, 2025 12:01 AM. **Access restricted before availability starts.**

Submit Assignment

Files to submit

(0) file(s) to submit

After uploading, you must click Submit to complete the submission.

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