CPSC 427 - Video Game Programming

Individual Progress Report Milestone 1 – Oct. 9, 2021

- Summarize your own contribution to the milestone.

  - I worked with Shaqil to integrate the EnTT library to work with the project template and implement collision resolution to prevent clipping and make entities bounce off each other using a physical model. We worked together over discord with me sharing my screen because I had more experience working with C++/VS.

- Did you go beyond a basic implementation?

  - For collision resolution, we implemented an impulse based reaction model instead of just reversing the entities' velocities. We also calculated the penetration depth, then compensated the position of each entity to prevent clipping during collisions.

- Does a feature need an explanation to appreciate its complexity?

  - The impulse-based model used conservation of momentum to bounce entities off each other. This makes it so that during collisions between a large(heavy) entity and a smaller entity, the large entity will be affected much less than the small entity, which is more realistic than both entities just reversing their direction.

- Did something take more time than expected, something that did not work?

  - Integrating the EnTT library took a surprisingly long time, since the documentation for that is quite long and some functions from tinyECS were incompatible. The clipping prevention is slightly glitchy sometimes when the penetration vector is large. I think we might make it calculate the future penetration and prevent penetration instead of moving the entities after the collision has occurred.

- Anything else to report? Did you do more than the others in your team? (It can totally happen that everybody contributes a good part to the project but one person goes beyond our expectation. In such cases, we will not deduce points from the others but increase the multiplicative factor of the person doing extra work)

  - Not really.

- Is there an issue with teamwork? (Please try to articulate and resolve issues early! First internally and if that does not help reach out to a TA or Instructor or mention here)

  - Nope.

Submission: Please format your reports as PDF documents and submit with 'handin cs-427 progress#', with # the milestone number, e.g 'handin cs-427 progress1'. It is an individual submission.