174A Project Proposal

Team Name: **Golf for It**

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Introduction:
Our project proposal is a golf simulation game in third-person perspective of the ball, inspired by games such as Golf It! The goal is to hit the golf ball into the goal in as few strokes as possible. There will be obstacles that the player has to navigate around.

User Interaction:

Button	Function
Left/Right arrow keys	Aiming
Up/Down arrow keys	Changing shot power
Space	Hitting
R	Resetting the ball

Topics from Class:
- Object transformations: used to move the ball and construct the course
- Camera movement: used to follow the ball when it is in motion
- Textures: used to make the course/environment look nicer
- Geometry: used to detect if objects are overlapping for collision detection

Advanced Features:

- **Collision detection** will be used for the golf ball to interact with obstacles on the course(s)
- **Physics-based simulation** will be used to model friction to affect/slow down the ball's movement after it is hit

Reference:

Things to Implement:

- Physics:
  - Friction
    - To slow the ball down after it is hit
  - Collision detection
    - To allow the ball to bounce off of walls and to detect when the course is finished
  - Hitting the ball
- Gameplay:
  - Keep track of number of strokes
  - Reset ball to start
    - If the user wants to reset the course
  - Hitting the ball
  - Changing power level
  - Changing aim direction
  - End level when ball in goal
- Level:
  - Start
    - Where the ball will start on the course

- ○ Blocks
- ○ Moving blocks
- ○ Goal
  - ■ Where the ball needs to be to complete the course
- ● UI:
  - ○ Strokes
    - ■ Counts the number of strokes the player has used so far
  - ○ Scoreboard
    - ■ Displays the top 3 scores so far (stored locally)

Current Progress:

Currently, we have managed to implement simple physics like position/velocity/acceleration, which allows the ball to be hit and move, but will need some tweaking to be more realistic. We have also completed basic collision detection that completely stops the ball when it collides with walls. We have also implemented the user controls/stroke count and have begun level design. Moving forward, we will work on improving collision detection so that the ball can bounce off of walls and obstacles and adding textures to the course and sky. We will also add functionality to reset the course as well as a goal to complete the course. Finally, a scoreboard will be added to the UI.