Project Notes

Pathfinding

- For pathfinding, I utilized Unity's NavMesh, as it was marked OPTIONAL in the case requirements.
- Typically, I develop custom pathfinding algorithms, but I opted for NavMesh in this project to streamline development.
- The NavMesh was enhanced by modifying it with environmental features like rocks and terrain shapes to enrich the map's design.

Gameplay Mechanics

- Graphical User Interface (GUI):
    - The GUI displays the NPC's health and the points collected.
- Random Ball Distribution:
    - Golf balls are scattered randomly across the field.
    - The NPC collects balls and brings them back to the cart until its health is depleted.
- Target Selection Algorithm:
    - The NPC calculates the maximum reachable range based on its remaining health.
    - If no balls are within range, the NPC returns to the cart to deposit collected points.
    - It evaluates all balls within this distance and selects the most efficient target based on the following formula:
        - Efficiency = Ball Points / Distance
    - The ball with the highest efficiency becomes the next target.

Menu

- Press ESC during gameplay to access the menu.

Character Animations

- Walking and Running animations are used based on speed.
- A Gathering animation is triggered while collecting balls.

Project Structure

- Implemented an Event Bus to design an Event-Driven Architecture. This approach minimizes coupling and maximizes cohesion across the system.
- Created managers to handle general operations due to the project's small scope. These managers were implemented as Singletons for simplicity.
- Advanced computational techniques (e.g., tasks, UniTask, compute shaders, Jobs) were unnecessary due to the project's simplicity.
- All game settings can be adjusted via the Resources/GameSettings file.

Assets and Dependencies

- All assets used in the project are free.
- The project does not include any third-party software packages.

Thanks.