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Assignment 2 Report

Tools, Libraries and Frameworks

For questions 1 and 2, I have implemented a three-tiered difficulty system, containing 3 difficulty settings per team (6 in total). I have changed the parameter passing code to contain a single static global parameter loader, holding all the parameters for the game rules, and a non-static parameter loader for each team. At the start of the game, each of the 6 parameter files are read into an array (lines 53-60 in SoccerPitch.cpp) with a pointer to the current difficult parameters being held in the SoccerTeam class. This enables quick switching of difficulty using the 1-3 buttons for team A and q, w and e buttons for team B.

For question 3, I added a check to the dribble execution to use the isThreatened function which checks if any players are nearby, thus triggering the kickball state (lines 687-690 in FieldPlayerStates.cpp). I then edited the Kickball state to contain an else on the support category to wait for support if the player is close to the opposing goal and to dribble if not (lines 648-660 in FieldPlayerStates.cpp)

For question 4, I added 2 new team states (lines 182 onward in TeamStates.cpp) winning and losing. If the team is winning, it positions its players back in a closer defensive line. If the team is winning, the players take an attacking line and wait in the opponent’s home regions. For part b, I added code to determine which players are closest based on their role (lines 127-144 in SoccerTeam.cpp). For attackers, they will chase the ball if it is on the opponent’s side and for defenders, they will stay back and only chase if the ball is on the team’s side of the field. I also implemented a system where the defenders will shoot forward to attackers should they come close to the middle of the pitch. For c, I implemented a system to allow all defenders to chase the ball when it is on their side of the pitch, effectively surrounding any attacking players with the ball. For question d, I implemented a Mark state which checks if any players are close to the goal (lines 892 – end on FieldPlayerStates.cpp) and sets the defending players to follow that player until the ball gets within the home region.

For question 6, I added a stamina system which drains and refuels based on the speed of the player (lines 111-128 in FieldPlayer.cpp) and a new state of ‘Fatigued’ which causes the player to stop to regain stamina (lines 360- 400 in FieldPlayerStates.cpp)