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Soccer Star Proposal

Soccer Star is going to be a small minigame built with rust. The environment of this two dimensional game will consist of a background, a soccer goal, a goalie on the line that the goal is on, a soccer ball on the penalty spot, and a field player behind the ball. The user will control the field player and will make a few decisions that impact how they will kick the ball towards the goal. The goalie will not be controlled by a human, but will instead be programmed in a way where it tries to keep the user's shot outside of the goal. The goalie can stop or deflect the ball if he comes into contact with it by standing still or jumping to either side. The user's shot will either go in the goal, be saved by the goalie, hit the crossbar or posts, or miss the goal entirely. For the user to shoot, they will make three actions that will be determined by a moving arrow going from the ball to the goal. First the arrow will bounce left and right, when the user makes a decision the arrow will stop and the shot will go in that direction. Then the arrow will be bouncing up and down, and the decision impacts the height of the shot. Finally the arrow will shrink and grow, and when the decision is made, the size of the arrow will determine the power of the shot. Shots will be able to miss left, right, and over the goal, so the user has to think more about the decisions.

Doing some research for getting started with games in rust, I came across this library website (https://arewegameyet.rs/) with plenty of information that should be enough to get me going in creating this game. In my research, I also chose some libraries from that site, that I will at least initially attempt to build this game with. The game engine I want to start with is bevy (https://bevyengine.org/) as it seems to be popular and has tons of praise online. Having taken a game development course before, I know that physics is a big part of the development so I had found rapier2d (https://www.rapier.rs/docs/) that had a lot of downloads, and has a three dimensional library as well. I want to include text in my game to be shown based on outcomes, and display the player's name and I will look into either ab_glyph (https://crates.io/crates/ab_glyph) or rusttype (https://crates.io/crates/rusttype) for this task. Then for the GUI, I have initially picked egui (https://crates.io/crates/egui#example). These selections are not final, some may not be used, and ones not listed may be used depending on what would be the best path to developing this game.

The first paragraph describes the bare minimum functionality and rules of the games that I am proposing. If implementing that goes by smoother and quicker than expected I have more ideas that I would like to add. My first option that I would really like to implement past the basic mechanics is an option to change where the soccer ball is struck, giving different trajectories to the shot (backspin, topspin, curl). Then an option to change the ball's color or pattern. For the player, I would like to give the user the option to change their jersey and shorts colors and patterns. Also they would have the option to give their player a name and number for their jersey. If all of this is too simple to develop, I would also like to either add or change the format to be of freekicks outside of the penalty box instead of penalty kicks at the spot. This would add for the additional element of there being field players on the goalie's team that would form a

three to four person wall ten yards in front of the ball to limit the shooters options. Doing freekicks would also give a variety of layouts, as the freekick can be placed to either side and at different distances.

One of my main concerns with this game is the design of the goalie and field player. I am worried that their movements and design may not look as I would like. I want them to move fluidly. I want “smooth” motion of the shooter taking the shot, and “smooth” motion of the goalie diving to save the ball. I’ve thought of a simpler way where they each just have two representations. Before the ball is kicked, the field player is set up to shoot and the goalie is standing in the middle of the goal. After the ball is kicked, the field player has shot and leg is out, and the keeper is in a diving stance going left or right and falling if they dove in the air.