🎯 Darts

Material

- A dartboard is a circular target divided into various segments, each with its own point value.

  - **Bullseye**: Located at the center of the dartboard, the bullseye is divided into two parts:

    - **Inner Bullseye (Double Bull)**: A smaller circle at the very center of the dartboard. It is worth the highest points, worth 50 points

    - **Outer Bullseye (Single Bull)**: Surrounding the inner bullseye is a larger circle. It is worth 25 points.

  - **Numbered Sections**: The dartboard is divided into numbered sections, starting with the number 1 and ending with the number 20, arranged in a circular pattern around the bullseye. Each number corresponds to a specific segment on the dartboard.

  - **Scoring Rings**:

    - **Outer Ring**: Surrounding each numbered section has a thin outer ring. Darts landed in this ring reward double the points of the corresponding segment.

    - **Inner Ring**: Inside the outer ring, there's another thin inner ring. Darts landed in this ring reward triple the points of the corresponding segment.

  - **Segmentation**: Each numbered section of the dartboard is further divided into smaller segments by thin line. These lines form a radial pattern from the center of the dartboard, separating each numbered section into smaller areas.

- Darts/bolts, depicted as X of different colors for each player, which will be displayed on the board, when a player is taking a shot

- A power bar showing at what power will the player shoot

- Game state

  - Each player has a list of the positions of the bolts the player has thrown this round

  - Remaining bolts for the turn

  - Player's score

  - Turn count

  - The player id whose turn is up

Game Objective

- Be the first player to reach the score of exactly 0 starting from 301 (decreasing depending on each numbered section hit)

Initial State

- The virtual dartboard is displayed on the screen

- Each player has a set score of 301

- Computer randomly decides which player starts and set the turn to the first player

How the game goes on

- Players take turns throwing virtual darts at the virtual dartboard

- On each turn

    - Using the cursor the player chooses on the dartboard the desired shot placement

    - Upon pressing on the board, the power bar starts to fill from the lowest shot power percentage, at differing speed and empties itself upon getting full, while the user continues to hold down the button

    - Upon release, the shot power percentage is taken, depending at what percentage the player released the button. The position of the hit is going to be random in a radius depending on how much the power bar got filled from the player's chosen position. The bolt is placed on the dartboard graphic.

    - Depending on the section that the bolt hit on the dartboard(or outside it), the player's score is decreased by the amount specific for the numbered section the bolt hit

        - If the player hits a numbered section that decreases his score below 0, the hit is ignored and the player's score remains unchanged

    - The previous steps repeat for each bolt, a player having 3 bolts at the starting of each round.

    - Once the player's turn end

        - The computer checks if the player has a score equal to 0/check for winning state and if the last throw landed on a double section, the points obtained by the player on that round can't exceed his current score, if they exceed his score nothing changes and the game keeps going until one of the player hits a double on his round to reach 0

        - If the game isn't over, the player's bolts are removed from the graphic

Final State

- The game ends when a player reaches the score of exactly 0

- Display corresponding message to the loser("YOU LOST") and the winner("YOU WON")

- Save the game stats(winner, loser, number of turns) in the game history

- Update the statistics for each player, add a loss to the loser and a win to the winner

Miscellaneous

- If a player disconnects from an ongoing game, a 30s timer will start and wait for the player who disconnected to return

- If timer ends, the game enters the final state, the winner is the player who remained in the game

- If one player disconnects, and before the timer finishes the other player also disconnects, and both timers finish, the game will end, and the winner is the player with the minimum score