

Tron Game

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Description

Create a game, with we can play the light-motorcycle battle (known from the Tron movie) in a top view. Two players play against each other with two motors, where each motor leaves a light trace behind of itself on the display. The motor goes in each seconds toward the direction, that the player has set recently. The first player can use the WASD keyboard buttons, while the second one can use the cursor buttons for steering. A player loses if its motor goes to the boundary of the game level, or it goes to the light trace of the other player. Ask the name of the players before the game starts, and let them choose the color their light traces. Increase the counter of the winner by one in the database at the end of the game. If the player does not exit in the database yet, then insert a record for him. Create a menu item, which displays a highscore table of the players for the 10 best scores. Also, create a menu item which restarts the game.

Description of the task

The classes are created: TronGame, GUI, Window, Player, Bike, BaseBike, Trail, TopScores, TopScore

UML Diagram



Description of the most interesting methods

Player class

- **isOutOfBoundary()**: Method to check if the player goes to the boundary of the game level
- **isInLightTrace(Player player)**: Method to check if the player's bike goes to the light trace of the other player

Bike class

- **move()**: Method which moves and shifts the x and y coordinates (according to the speed)
- **drawTrail(Graphics g, Color c)**: Method which draws the trail left by the bike

BaseBike class

- **collides(BaseBike bike)**: Method which checks if the bike collides with the other bike or not

TopScores class

- **getTopScores()**: Method to get the top scores
- **putTopScore()**: Method to put the top score
- **increaseScore()**: Method which increases +1 the score each time when the user wins
- **updateScore()**: Method to update the score of the current user if he wins

Event-Handlers

- **MenuRestart**: When button is clicked, the event handler restarts the game.
- **MenuGameExit**: When a button is clicked in the GUI, the accompanying event handler is triggered. And the game exits.
- **Move**: Event handlers for controlling the game with WASD and arrow buttons.
- **Game reset**: In case of a win, the event handler resets the game by calling the method to start a new game.
- **Start timer**: The event handler starts the timer when the game start button is clicked.

Test

- Testing whether the close button executes the windows.
- Testing whether the game outputs the correct count when winning it.
- Testing when the bike goes out of boundary the player loses the game.
- Testing when the player crosses the trace of the other player the game lost.
- Testing that when the player crosses his own trace, he should not lose the game.
- Testing that the game can be reset.