

## Tron - Java Project

By: Team 6

"Boatloads of Lab Time"

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The Tron movie is based on bikes that leave light trails behind them. If another player hits its own trail or another's, then that player is dead. In this java project, we will simulate the idea from the movie, in a java program. The main purpose is to entertain users. If people are bored, they can pass time by playing this game.

The program will be used through mouse commands to navigate the menu and settings. The controls for the game itself will use the keyboard commands to control to two bikes. Arrow keys for the blue player and WASD for the red player. Thus, the game requires two players.

There are two bikes that run in any direction, depending on the arrows the user clicks. Each bike creates a trail running after it. When a bike hits its own trail, the other bike's trail, or the outer boundary of the window, the player crashes and the other player gains a point. The first player to reach five points wins. Also, in the startup menu, the players can choose whether they want to play with boosts. Each round, a player can use up to three boosts, instantly teleporting about 100 pixels ahead with a trail behind them. The place at which they boosted can also be seen by how their trail stretches out. The red player can boost by clicking the Q key and the blue player can do the same by clicking the / key.

## Classes:

- **Bike:** Creates the Bike object, with methods to move and change the attributes of the object
- **Button:** Object extending polygon that represents a button, used in Controls and Tron.
- **Controls:** Creates the panel on the right with the buttons, scoreboard, and boost tracker. Also takes in keyboard inputs to turn the bikes and apply boosts.
- **CoordinateSystem:** Similar to CoordinateSystem from DanceStudio, used for keeping track of the bike's coordinates.
- **Credits:** JPanel used in Tron to draw the credits image.
- **Game:** Creates the bikes and trails, has a lot of public methods for other classes to make changes, and also has methods to check for collisions.
- **Grid:** Draws the bikes, trails, and the background grid using update method.
- **Instructions:** JPanel used in Tron to draw the instructions image.
- **Move:** Moves the bikes forward based on a timer, and also checks to see if a bike hit an obstacle. Used in Controls.
- **Music:** Object that plays music with methods to pause and play music. Is played using a thread.
- **Trail:** Creates the trail object, with methods to turn and move the object.
- **Tron:** A JPanel class with a main method that creates the menu, and then creates more windows based on what the user chooses.
- **TronGame:** Creates the window with the Grid and Controls panels, starting the game.

#### Responsibility List:

**Controls, Game, Move, Tron, TronGame** ----- Akshat J.  
**Bike, Instructions, CoordinateSystem, Music** ----- Gokulkrishnan H.  
**Credits, Trail, Button, Grid** ----- Coby Y.  
**Red and Blue Bike gifs** ----- Coby Y.

#### Credit List:

**Tron Menu Background** ----- Tron Legacy Trailer Thumbnail  
- Used in the background of the menu  
**The Son Of Flynn Music** ----- Daft Punk  
- Used as background music in the menu and in-game.  
**CoordinateSystem** ----- DanceStudio  
- Very similar to our needs, and CoordinateSystem was adjusted to match them  
  
- Variety of questions on **Stack Overflow** and **Youtube** regarding Threads, ArrayLists, different listeners, etc. (Stuff we did not learn in class)

#### Known Bugs:

- If a bike makes a U-Turn very quickly, the bike crashes into its own trail.
- The points are repainted after the JOptionsMenu telling who won the round is closed. (Minor Bug, no impact)
- Bikes aren't drawn on the grid when the TronGame window is created until the start button is clicked.