Java Final Project Tron

By: Akshat Jain, Coby Young, Gokulkrishnan Harikrishnan

# Tron - 2 Important Features

Menu

- Start up features a menu

- Five buttons with different functions

In Game

- Two players controlling their respective bikes
  - WASD or Arrow Keys
- Each bike creates a trail behind it
- If a bike hits its own trail, another bike's trail, or the window's boundaries, it crashes. The other player gains a point.
- First player to five points wins the match
- Two game modes
  - Classic (No Boosts)
  - Boosts
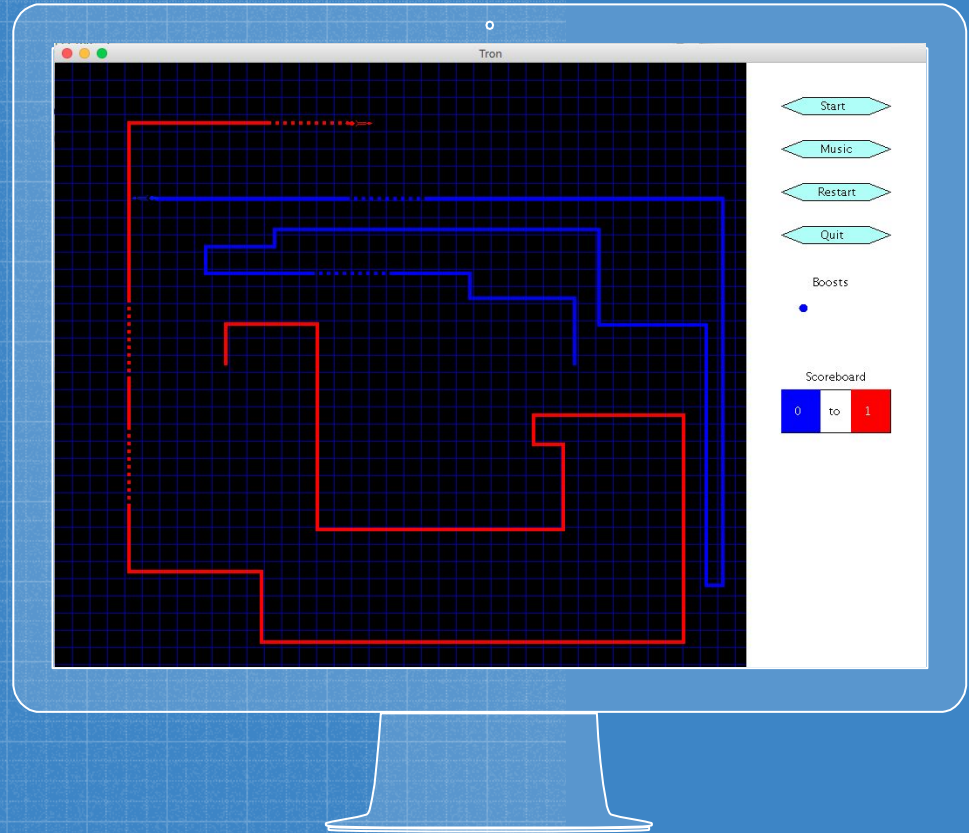
Classes Overview

Tron by Akshat

- Extends JPanel to form the Menu
- Has a main method which creates a window with a Tron JPanel
- Tron has five buttons, three of which create a window with a JPanel
  - Credits
  - Instructions
  - TronGame
- Quit button
- Toggle button to choose whether to have boosts

CoordinateSystem by Gokul

- The CoordinateSystem uses an AffineTransform object.
- Keeps track of the bikes position using coordinates.
- Allows the bike image to be rotated and moved to a new location.

Bike by Gokul

- Uses a CoordinateSystem
- Creates the bike object at an x and y coordinate using a given image.
- Methods allow the bike image to be moved and rotated.
- Stores the bike's direction, which can be accessed using accessor methods and is useful for turning the bike.

Trail by Coby

- The Trail Class is responsible for drawing the trails behind the bikes.
- This is done so by creating a 4 x 4 rectangle each time the bike moves and adding to the x or y coordinates of the previous rectangle (based on the direction).
- The x and y coordinates are stored in 2 ArrayLists
- Each time the draw method in the Trail class is called, the method iterates through the ArrayLists and draws each rectangle to form one trail.
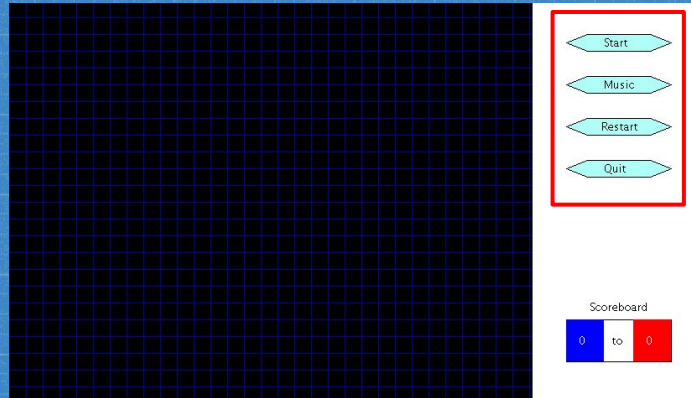
Game by Akshat

- This class puts together the red/blue bikes and red/blue trails.
- Provides a method to move the bikes and trails forward, used in the Move class, and a method to draw the bikes and trails, used in the Grid class.
- Also provides lots of accessor and modifier methods used in Controls to adjust the direction of the bikes and trails.
- Two important methods are also present. These methods are used in Move to check whether a bike has collided, using the ArrayLists of coordinates in Trail.

Music by Gokul

- Stores the music as a Clip.
  - The Son of Flynn by Daft Punk is used
- Plays music in a loop.
- Music can be paused/resumed using methods that classes such as Tron and Controls use.

Button by Coby

- Extends polygon to become a polygon shape
- Has fields and methods in order for the Button to perform functions.
- MouseListeners Tron and Controls use this to form buttons.

The Button object used in the Controls JPanel

Move by Akshat

- Implements ActionListener and has a Timer to process time events.
- Calls Game's makeNextStep repeatedly to move the bikes.
- Also calls Game's methods to check if the Blue or Red bikes crashed before moving them each time, in the actionPerformed method
- If one of the bikes do crash, creates an Option Window displaying who won the round.
- Has accessor and modifier methods for Controls to create and work with the Move Object
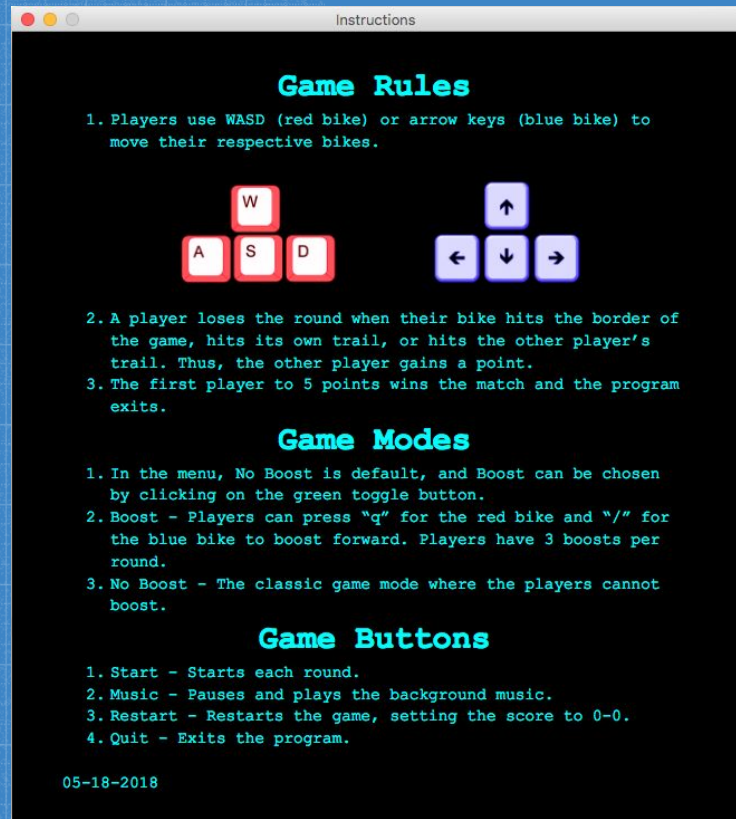
Grid by Coby

- Extends JPanel to become a JPanel
- Draws the two bikes and their respective trails when repainted.
- Draws the grid background
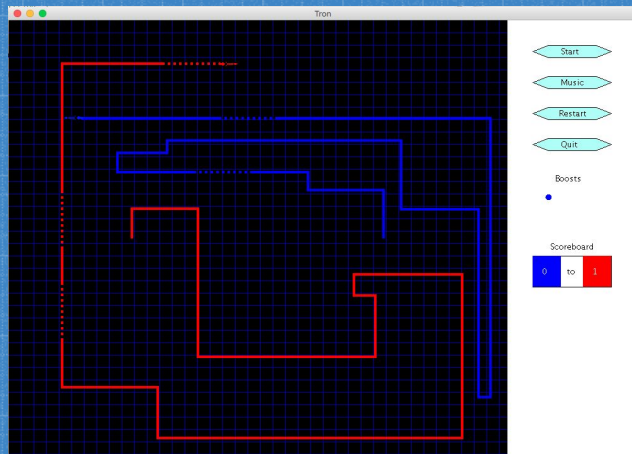
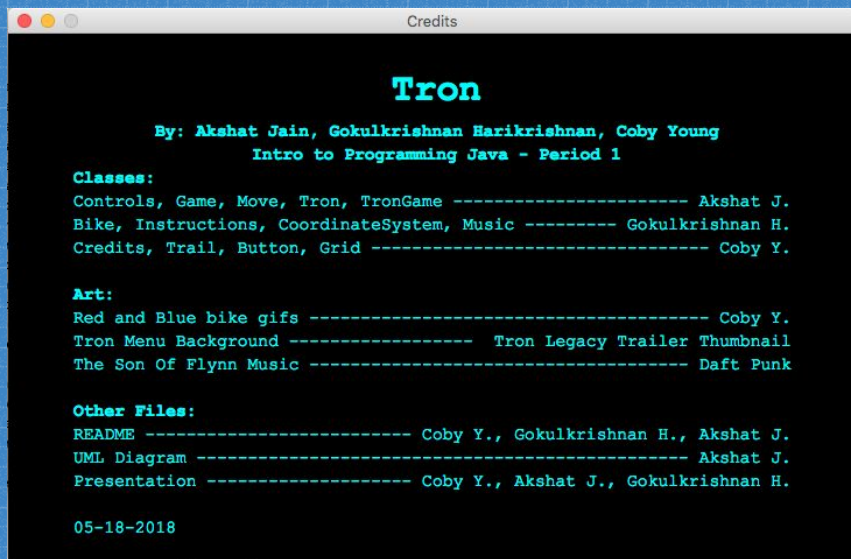The grid repainting the bikes and their trails

Instructions by Gokul

- Extends JPanel to become a JPanel

- Draws the instructions.png image, which features the instructions relating to the game

- Added to a window in the Tron Class

Credits by Coby

- Extends JPanel to become a JPanel
- Draws the credits.png image, which features the credits relating to the game
- Added to a window in the Tron Class


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Credits

                    Tron

        By: Akshat Jain, Gokulkrishnan Harikrishnan, Coby Young
                Intro to Programming Java - Period 1
Classes:
Controls, Game, Move, Tron, TronGame ----------------------- Akshat J.
Bike, Instructions, CoordinateSystem, Music --------- Gokulkrishnan H.
Credits, Trail, Button, Grid ------------------------------- Coby Y.

Art:
Red and Blue bike gifs ------------------------------------ Coby Y.
Tron Menu Background ------------------  Tron Legacy Trailer Thumbnail
The Son Of Flynn Music ------------------------------------- Daft Punk

Other Files:
README ------------------------- Coby Y., Gokulkrishnan H., Akshat J.
UML Diagram ----------------------------------------------- Akshat J.
Presentation -------------------- Coby Y., Akshat J., Gokulkrishnan H.

05-18-2018
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The Credits JPanel

Controls by Akshat

- Creates a control panel on the right, with four buttons.
- Implements MouseListener and MouseMotionListener to utilize the buttons
- Implements KeyBoardListener to take in keyboard inputs
- Extends JPanel and is added onto TronGame
- Using keyboard inputs, the object turns and boosts the bikes
- Also presents the score and number of boosts left
- Prompts users with a window when the match is over

TronGame by Akshat

- Extends JFrame to create game window

- Uses a Controls, Grid, and Game object to put the game together
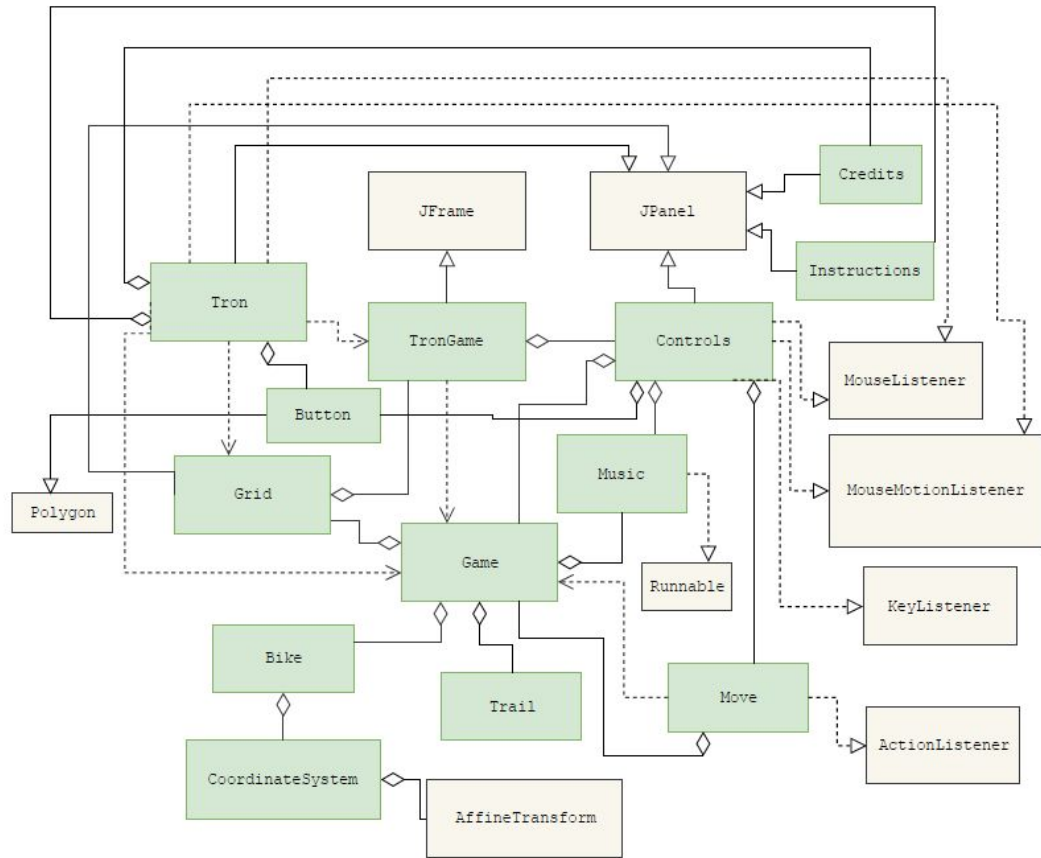
- Created in Tron when user starts game.
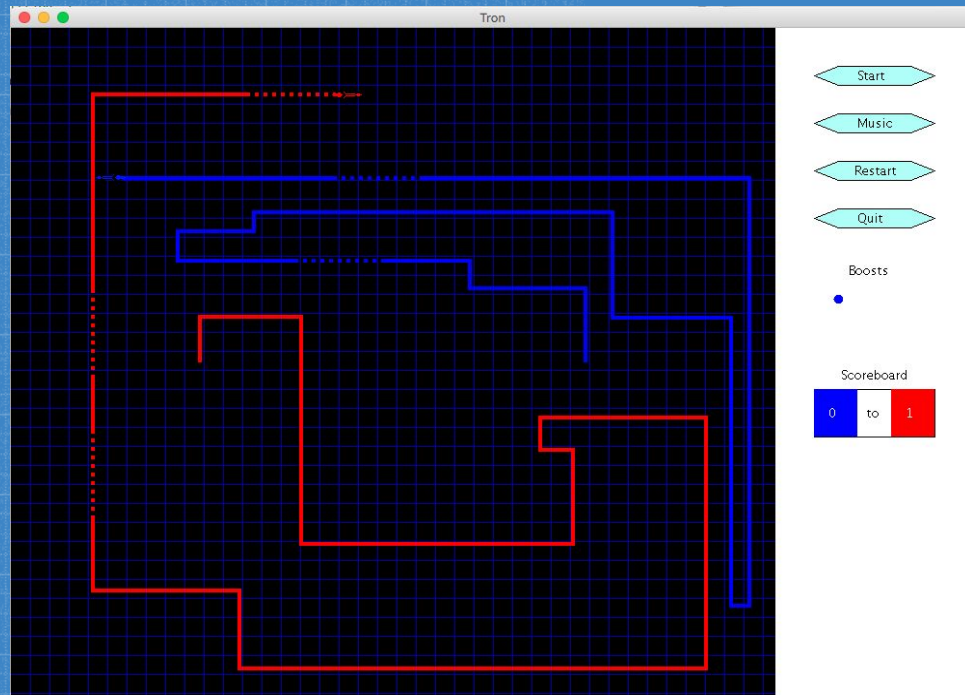
1661

**Total Lines of Code in
13 Classes**

UML Diagram

Thanks for Listening!

Any Questions?