**Intro**

Looking at the code of games, experimenting with changing their behaviour and even writing your own games are fantastic ways to get exposure to software development. Skills picked up are readily transferrable to other kinds of coding exercises that you might see at school or university.

The Raspberry Pi comes with the Python programming language already on it as well as the PyGame library which offers functionality useful for building games, such as, helpers for drawing graphics on the screen. This means that we just need to create a text file with the code for our game in it and the Raspberry Pi already has everything it needs to run it.

Our goal was to develop a version of the old Tron arcade game which would run on the Raspberry Pi. In the game the players drive around the screen, leaving a trail behind them. If you crash into the side or another player then you die. Whoever survives longest wins. We have kept several versions of how the game looked as it progressed to demonstrate the journey from blank canvas to multi-player game.

**Version 0**

*Run: python tron-v0.py*

This version wouldn’t really be considered a game but it demonstrates how to draw a basic shape on the screen.

**Version 1**

*Run: python tron-v1.py*

*Commands: Use the arrow keys to move around*

Now we’ve wired up key-presses to allow the box to be moved around the screen. Between the drawing on the screen and responding to input we’ve now proven the major things we need to make the game.

**Version 2**

*Run: python tron-v2.py*

*Commands: Blue player is arrow keys, orange player is s, z, x, c*

We now have lines representing two players and can move them around with a set of keys each.

There is no way to die yet and the controls are not quite right. The cars should drive themselves and the keys are supposed to be used to turn left or right.

**Version 3**

*Run: python tron-v3.py*

*Commands: Blue player is arrow keys, orange player is s, z, x, c*

In this version you die if you crash into the side and it displays a message to say who won. It doesn’t detect players crashing into each other yet.

**Version 4**

*Run: python tron-v4.py*

*Commands: Blue player is arrow keys, orange player is s, z, x, c*

The players now start in opposite corners and the game doesn’t exit when someone dies, it lets you play again.

**Version 5**

*Run: python tron-v5.py*

*Commands: Blue player is left arrow key and down arrow key, orange player is z and x*

We now have a playable game. The cars drive themselves and you now just use two keys to turn left or right. We also now detect when players crash into each other

**Version 6**

*Run: python tron-v6.py*

*Commands: Blue player is left arrow key and down arrow key, orange player is z and x, purple is 1 and 2, green is n and m*

We have re-arrange the code to make it allow 4 players now. Each player gets a random start position now too.

**Version 7**

*Run: python tron-v7.py*

*Commands: Blue player is left arrow key and down arrow key, orange player is z and x, purple is 1 and 2, green is n and m, red is minus and equals*

Our final version prompts to lets you pick how many player you want between 2 to 5.

At this point we’ve got quite a playable game but you could take it further by adding a way for the user to input their name, display the keys on a help screen, keep scores between games or even add things to pick up like invulnerability or bombs.