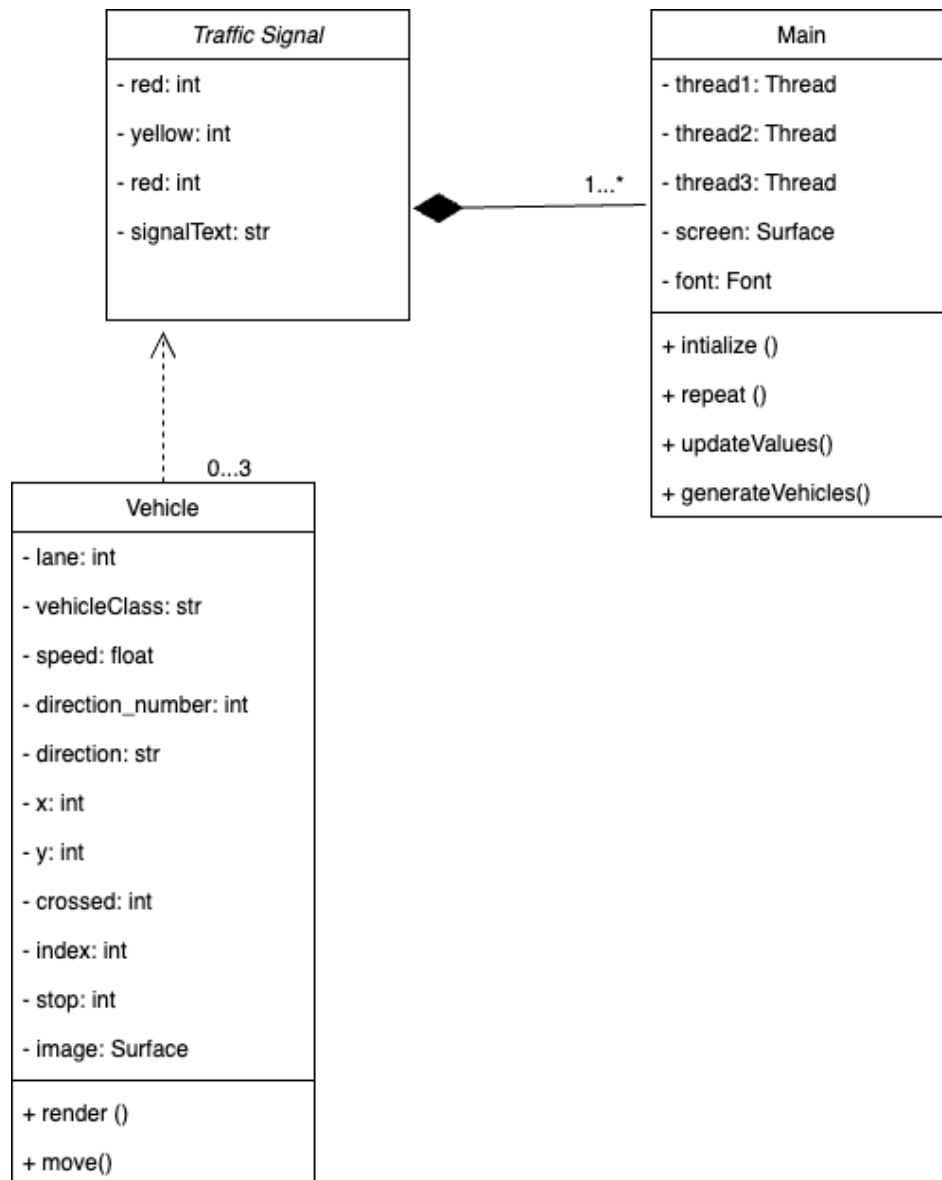# Design Documentation

Andy Kenmoe

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1 UML Diagram

[1]

1.1 Description

The UML diagram illustrates the class structure for the traffic simulation system. The primary classes are TrafficSignal, Vehicle, and Main. The TrafficSignal class is initialized with attributes for the respective signal colors (red, yellow, green).

The Vehicle class is built using Pygame, an open-source Python library designed for creating multimedia applications and video games. Pygame is used to create the display, load the images, handling and drawing the event. Python is used to create pixels that represents vehicles..

There is a composition relationship between the Traffic signal and the Main function because the traffic signal can only be utilized when the main function is active.

The Main class initializes the simulation, manages threads, and handles the simulation loop, continuously rendering vehicles. The Vehicle class depends on the traffic signal in its movement and direction.

References

[1] Mihir Ghandhi. Traffic intersection simulation using pygame). *Medium*, 2021.