

Paul Kwak

9/27/18

Software Design

HW #5

**Extended to 9/27**

1. Reflect on any design changes you made and write a paragraph or two explaining how you approached the design process, and ultimately what you liked and didn't like about your decisions. As in my original design, the quality of your design will be a tradeoff against the time you have and the extent to which you engage in upfront design versus incremental design. You will NOT lose points for pointing out things that you would like to improve in your design – this is all part of the reflective design process.
  - In order to implement adding another train that went the opposite direction, I first thought about creating a class called 'OppositeTrain', which would basically have the same properties and methods as the 'Train' class. However, I didn't like how it made the Observer/Observable pattern more complicated than it should've been. So instead I decided to go with a 'TrainFactory' class that held both the trains, and then could be iterated upon in terms of observing other objects in the scene. I liked this because it was a class that tracked all the trains in the vicinity of the station and thus even allows me to add more trains and tracks in the future since the conditionals determining state are based on a range of values that all trains follow.
  - For implementing an intersection, I decided to separate the roads into subroads, a.k.a lists to account for cars changing which road they are on. This lead to the creation of 5 roads in total, each represented by their location in the scene. For this design, I decided to build another class that held TJunction properties, and then had additional observational statements in my Car class that accounted not just for y, but the x direction.
2. In preparation for our future architectural focus, imagine that Mayor Buttigieg wants to build a simulation of traffic in South Bend and he asks if he can use your design – discuss whether your design (as-is) would scale up or not. List specific aspects that you think wouldn't scale well. (5 points)
  - If Mayor Buttigieg asked to scale this up, my current design doesn't allow me to scale this well. I need the exact coordinates for the roads and for the junction.