USER STORIES

User Story 1:

As a user, I want to be able to see that vehicles go through traffic lights conveniently when green and stop when red.

Priority: High

Estimate: 3 Hours.

Test: Continue to move vehicle when green light and stop when red light.

User Story 2:

As a user, I want to be able to create a city to be simulated.

Priority: High

Estimate 5 Hours.

Test: Enter city editing mode to create a city with set of road shapes & traffic lights.

User Story 3:

As a user, I want to be able to open a city to be simulated.

Priority: Medium

Estimate 2 Hours.

Test: Enter city editing mode to open a city to be simulated.

User Story 4:

As a user, I want to be able to edit a city to be simulated.

Priority: High:

Estimate 5 Hours.

Test: Enter city editing mode to edit a city with set of road shapes & traffic lights.

User Story 5:

As a user, I want to be able to see statistics of the number of vehicles and traffic lights, the average speed of the vehicles, & current active city.

Priority: Medium

Estimate: 2 Hours.

Test: Start simulation will be able to show statistics of the number of vehicles and traffic lights, the average speed of the vehicles, & current active city.

User Story 6:

As a user, I want to be able to enter simulation mode to update rate, run simulator, stop simulator, set vehicle spawn rate.

Priority: High:

Estimate: 7 Hours.

Test: Enter simulation mode can start / stop simulator, set vehicle spawn rate, update rate. When simulation started, random vehicles start spawning for end of roads.

**USER :**

* **Enter simulation mode / city-editing mode.**
* **Set vehicles spawn rate.**
* **Start / stop simulator.**
* **Create / edit / save / open a city with set of road shapes & traffic lights.**

**SYSTEM :**

* **Random vehicles spawn when simulation starts ( based on user's spawn rate set ).**
* **Shows statistics number of vehicles and traffic lights, the average speed of the vehicles, & current active city.**
* **2D top-down view.**
* **Vehicles types are only: Car, Bus, Motorbike.**
* **Simulates only roads, vehicles, & traffic lights.**
* **Roads has two lanes ( left & right lane ).**
* **Vehicles randomly selects if it turns and which way it goes.**
* **Vehicles disappears from city when it reaches end of road.**
* **Vehicles don't move continuously over a lane.**
* **Length of a car determines length of other vehicle types.**
* **Road shapes are straight, 4-way, 3-way.**
* **Traffic lights are green, yellow, red.**
* **Road is at least twice the length of a bus.**
* **A lane can contain some vehicles limited by length.**