## WHAT IS IT?

I am proposing a model that will show how the traffic jams form by adding a variable of a random broken car that breaks down and blocks a lane for a period of time. When the car starts to move again another random car will break somewhere else. As in the Traffic Basic model, a traffic can occur without any important cause and the drivers will react by changing lanes. The same rules that apply to traffic, could be apply to this model with the extra variable of a broken car. For example, the cars should move to another lane if they reach behind to another car. This event is a simulation of what Is happening in everyday life.

For this model I will add a slider to allow the user to select the number of the lanes for the model. Then I will experiment with the model to see if the traffic jam problem with a broken car can be solved with more than 2 lanes.

The agent-based change in this model is a car that breaks randomly during the traffic jam. That car should be coloured differently from the rest until it is repaired. Moreover, the length of the lanes could be adjusted and tested to see if they affect the overall flow of the traffic.

This traffic jam behaviour is called traffic waves. Traffic waves travel backward relative to the cars themselves and it’s the main property that I am planning to study for this project.

Through studying the templates, we discovered how small changes to the application could have a major impact on the larger system. For example, if we apply a semicolon, to the slow-down command, the traffic jam will be resolved because the vehicles have an adaptive cruise control. Furthermore, a single character can totally change the structure of the agents within a complex system entirely.