What you see in the agent’s behavior. Does it eventually make it to the target location?

The Basic Agent is an agent with completely random moves which does not obey the traffic rules. This agent, as expected, behaved erratically and rarely reached to its destination.

Justify why you picked these set of states, and how they model the agent and its environment.

For modeling an agent which can behave in a more intelligent manner, a set of states must be defined. Ideally, these states should contain all of the necessary information about the environment that is needed for choosing the correct action that eventually helps the agent to reach its destination. The states are as follow:

1. The state of the traffic light (either 'Green' or 'Red') - Green = NS open, Red = EW open
2. The state of oncoming traffic.
3. The state of traffic om the right.
4. The state of traffic om the left.
5. The direction recommended by the route planner

For example, one of the states my agent can experience is ('green', None, None, 'forward', 'forward').

What changes do you notice in the agent’s behavior?

After implementing a simple version of Q-Learning (and an action selection method that gradually becomes less explorative as the number of iterations approaches 100), the behavior of the cab greatly improved:

* It started to obey the traffic lights
* Followed the directions provided by the route planner

Report what changes you made to your basic implementation of Q-Learning to achieve the final version of the agent. How well does it perform?

large number of combinations of learning parameters alpha, gamma, epsilon and initial are possible for Q-learning.

However, occasionally it still made mistakes when encountering other cars, even after 100 iterations.

Does your agent get close to finding an optimal policy, i.e. reach the destination in the minimum possible time, and not incur any penalties?

The learned policy after 100 iterations seems to be not close to the optimal policy. The cab seems to not follow the directions of the planner).