Eagle Taxi

Shikun Wang (Jason) Xinran Gu

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Abstract

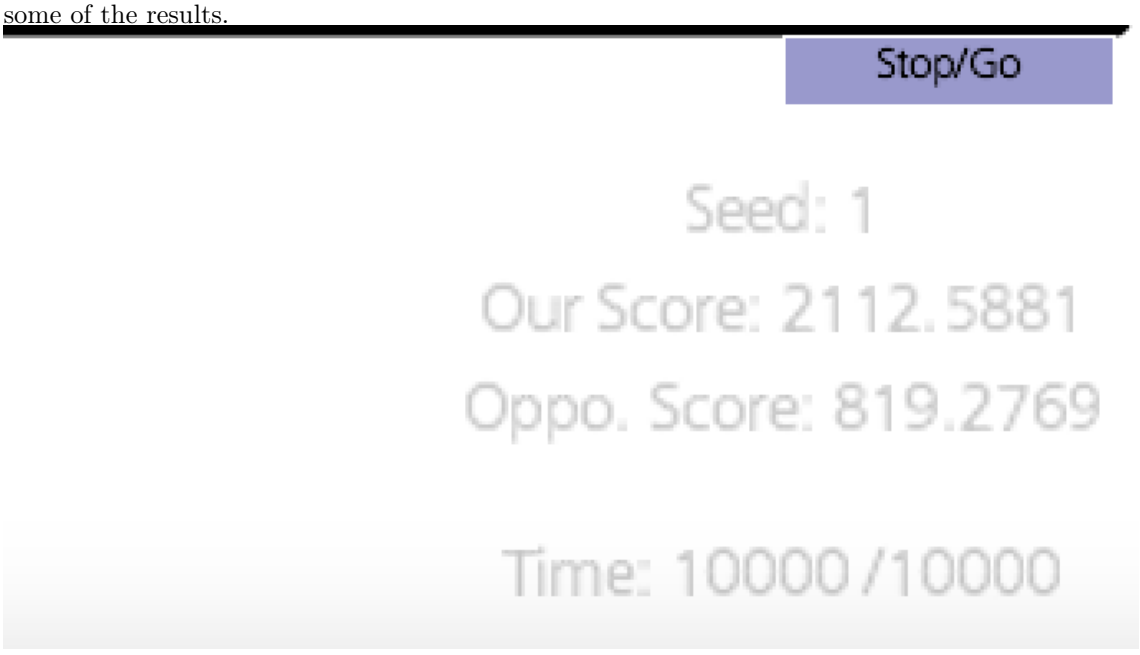
In this project, we are trying to compete with the other taxi companies through devising a better pick up-drop off algorithm. Our goal is to serve as many passengers and earns as much fare as possible in 10000 loops using more fancier strategy than the dump greedy search used by other two companies. We used the language called Processing with supplemented code, and implemented our strategy in function ourMove(int i).

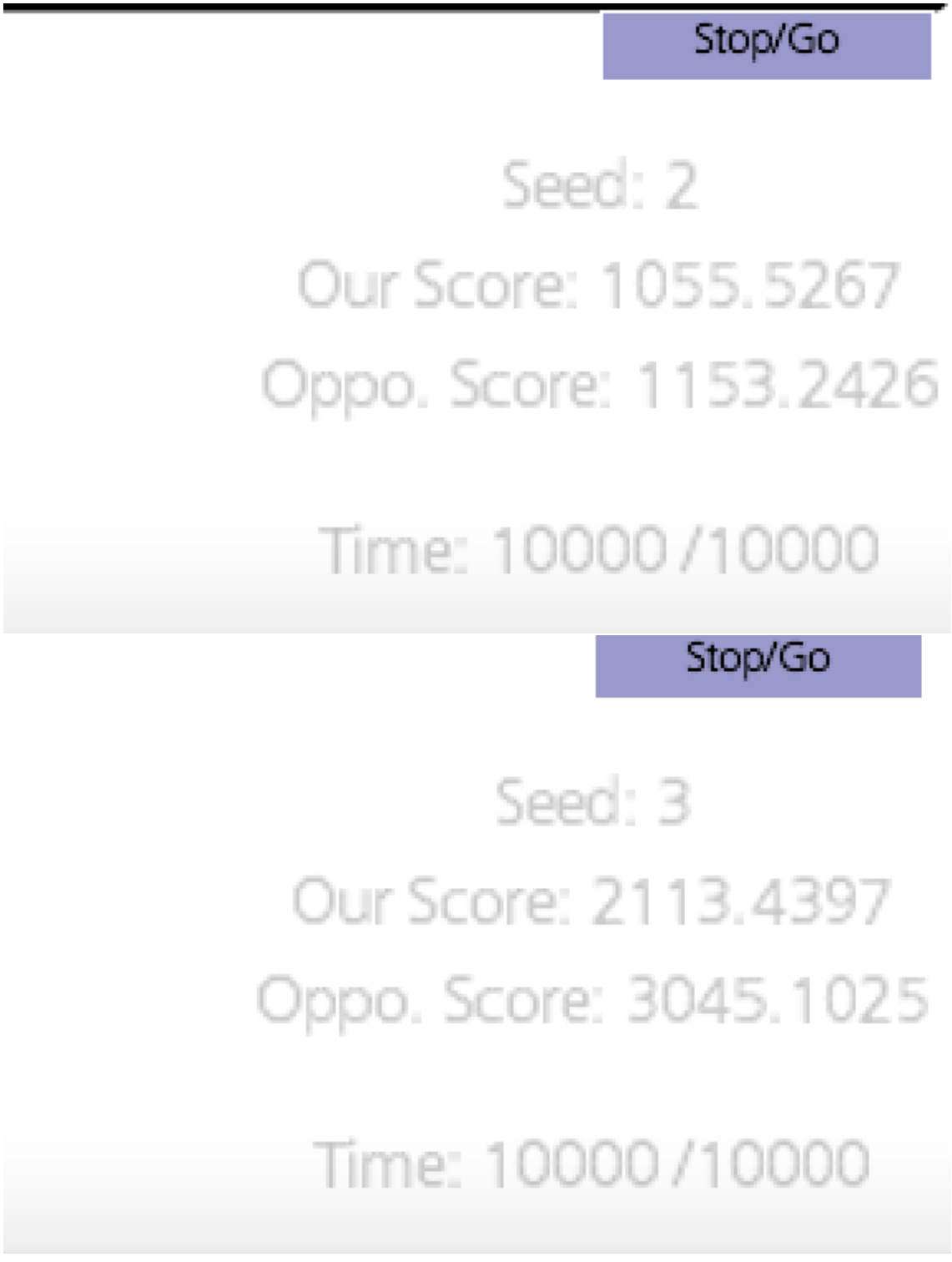
1 Summary of strategy

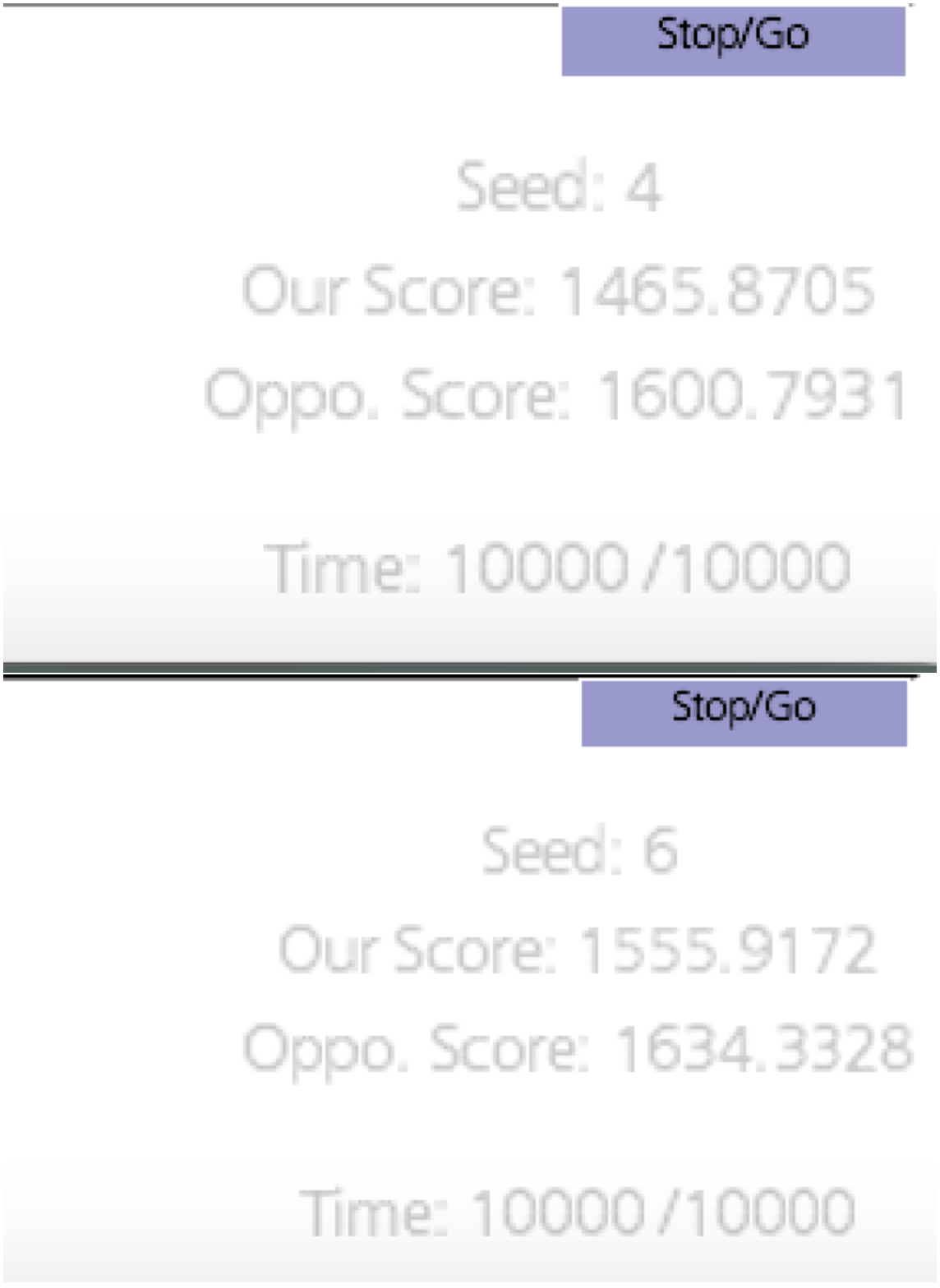
As a taxi driver, I have two strategies for different state I am in: focusing on picking up passengers that can bring maximum benefit for me and focusing on dropping off passengers as soon as possible. If the number of passenger on the car is less than two people, I choose the first strategy. In paritcular, at each loop, I first rank all passengers by their score, which is calculated by the distance from their initial position to their destination. Then starting from the passenger with the high score(longest traveling distance), we mark this passenger as target and start to pick up. Then, if we have three or more than three passengers, we would use the second strategy, which is to drop off passengers with shortest traveling distance, which means the one has smallest score calculated above.

2 Summary of experiments

We tried different seed, and sometimes we can beat the opponent, sometime we cannot.Here is some of the results.




Stop/Go
Seed: 2
Our Score: 1055.5267
Oppo. Score: 1153.2426
Time: 10000 /10000
Stop/Go
Seed: 3
Our Score: 2113.4397
Oppo. Score: 3045.1025
Time: 10000 /10000



As you can see, we run the experiments with five different seeds, and only in one of the five cases, we won. But in all cases, we score more than 1000 points, which means that our strategy can secure that we can score high points but cannot reduce the number of points opponent scores.