A greedy approach to trip schedule algorithm

The basic idea

A trip has either a pickup time or a arrival time. We can construct the time frame by getting estimate trip time by using google map API. Therefore we are able to convert the input file to a list of time frames, then sort these trip from the starting time. The algorithm processes the data from the first one. It compares all other trips that starts before the end of the current trip and consider if it could merge with one of them. After merging, it pull all overlapping trips again and do the same thing until cannot merge trips any more or reach the end of the list.

Merge trips

Consider the two trips below:

Start	Time	Destination	Time
A	7:00	B	7:40
C	7:15	D	8:00

The algorithm first consider if the car could get to C in 15 minutes, then consider if the car could get to B and D in time. If we have another trip below that could be merged with the first trip:

Start	Time	Destination	Time
E	7:20	F	7:55

The algorithm determines with one to merge by how many trips could continue to merge. And if there is no other trip to merge, it determines the one arrive with earlier time, in this case, the latter one.

Potential problems

The best trip schedule may not follows the greedy approach. Because the algorithm process trips from the first starting one. It could merge a trip that could potentially merge more trips if

not merged.