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Lab Ten

Comparison table between my algorithm and my competitor's algorithm

Competitor	My algorithm
The results show that the algorithm helps improve the probability of successful parking and minimizes the user waiting time. Also, the results depict that the proposed reservation-based parking policy has the potential to simplify the operations of parking systems, as well as alleviate traffic congestion caused by parking searching.	We used multiple linear regression to better understand the relationship between the independent and the dependent variables. Then we used time series to help us identify the numerous patterns in the correlated data. As well, we performed the time series analysis to get a better understanding of the impact that out variables had on the ozone layer. This operation took 3 mins.
Users have to select the parking lots in surrounding area, which are near to their start points. Therefore, it results in the reduction of average driving distance during the peak hours.	Loading and cleaning the data. This operation took about 3 minutes. This operation was run on Zeppelin.
With the algorithm average waiting time is approximately 20 mins.	Binding the interpreter (Spark) took around 5 mins.
The average waiting time for the service to the user and the average total time of the user in the system, including the waiting, travel, and service times	We switched to the R interpret to help in the reduction and optimization of our code. This operation took around 3 mins.

reduces.	
The results show that the algorithm achieves better performance than the system with no parking planning.	Merged the parking and pollution dataset. Chose the "ozone" layer as the dependent variable. It took about 2 mins.
Based on the results of the simulation, we can conclude that if we only use the distance parameter in planning for parking, the network performance will be lower than that of the normal network.	We used R in the code implementation. We wanted to perform a time series analysis and multiple linear regression. This operation took around 3 mins.
The average driving distance is decreasing at peak time, rather than increasing. That is because, after users learn the states of parking lots, they tend to reserve the nearest parking lot to their destination.	We ran the multiple linear regression to identify our most important variables. This took about 3 mins.
The proposed network realizes the best performance in the range from 60 to 70 vehicles arriving at each car park.	The ozone layer was used as the dependent variable and the vehicle count, total spaces, and garage code as the independent variables. This took around 2 mins.
In the range from 70 to 90 vehicles arriving at each node, the pair ($\alpha = 0$ and $\beta = 1$) realizes the best performance.	The creation of the Resilient Distributed Dataset (RDD) pairs creates a partitioned collection of elements that can be operated on in parallel with our dataset. This operation took around 3 mins.
Users have to select the parking lots in	Time series analysis was performed to

surrounding area, which are near to their start points. Therefore, it results in the reduction of average driving distance during the peak hours.	analyze and extract the meaningful statistics and characteristics and parts of the data. It was also performed to get a better understanding of the impact that our variables had on the ozone layer. This operation took around 3 mins.
The simulation of the system achieved the optimal solution when most of the vehicles successfully found a free parking space. The average waiting time of each car park for service becomes minimal, and the total time of each vehicle in each car park is reduced.	The multiple regression analysis and the time series analysis helped tremendously in identifying any potential outliers and helped us in improving our model.

References

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Patil, M., & Sakore, R. (2014). Smart parking system based on reservation. *International Journal of Scientific Engineering and Research (IJSER), ISSN (Online)*, 2347-3878.