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Big Data Analysis Approach for Comparison New York Taxi Drivers' Operation Patterns between Workdays and Weekends Focusing on the Revenue Aspect

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Abstract : The records generated by taxicabs which are equipped with GPS devices is of vital importance for studying human mobility behavior, however, here we are focusing on taxi drivers' operation strategies between workdays and weekends temporally and spatially. We identify a group of valuable characteristics through large scale drivers' behavior in a complex metropolis environment. Based on the daily operations of 31,000 taxi drivers in New York City, we classify drivers into top, ordinary and low-income groups according to their monthly working load, daily income, daily ranking and the variance of the daily rank. Then, we apply big data analysis and visualization methods to compare the different characteristics among top, ordinary and low income drivers in selecting of working time, working area as well as strategies between workdays and weekends. The results verify that top drivers do have special operation tactics to help themselves serve more passengers, travel faster thus make more money per unit time. This research provides new possibilities for fully utilizing the information obtained from urban taxicab data for estimating human behavior, which is not only very useful for individual taxicab driver but also to those policy-makers in city authorities.

Keywords : big data, operation strategies, comparison, revenue, temporal, spatial
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