

Predictive Analytics of Bike Sharing Rider Parameters

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Abstract : The evolution and escalation of bike-sharing programs (BSP) continue unabated. Since the sixties, many countries have introduced different models and strategies of BSP. These include variations ranging from dockless models to electronic real-time monitoring systems. Reasons for using this BSP include recreation, errands, work, etc. And there is all indication that complex, and more innovative rider-friendly systems are yet to be introduced. The objective of this paper is to analyze current variables established by different operators and streamline them identifying the most compelling ones using analytics. Given the contents of available databases, there is a lack of uniformity and common standard on what is required and what is not. Two factors appear to be common: user type (registered and unregistered, and duration of each trip). This article uses historical data provided by one operator based in the greater Washington, District of Columbia, USA area. Several variables including categorical and continuous data types were screened. Eight out of 18 were considered acceptable and significantly contribute to determining a useful and reliable predictive model. Bike-sharing systems have become popular in recent years all around the world. Although this trend has resulted in many studies on public cycling systems, there have been few previous studies on the factors influencing public bicycle travel behavior. A bike-sharing system is a computer-controlled system in which individuals can borrow bikes for a fee or free for a limited period. This study has identified unprecedented useful, and pragmatic parameters required in improving BSP ridership dynamics.

Keywords : sharing program, historical data, parameters, ridership dynamics, trip duration

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