

# Predicting Bike Sharing Demand in Seoul and D.C.

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Upon the end of the pandemic, people have finally started to regain normal daily lives. Such a movement includes resuming outdoor activities, such as bike riding for commute and leisure.

Bike sharing business has been continuously gaining popularity since D.C.'s launching of the public bike share system in 2010. With growing interest in eco-friendly lifestyles and demand for outdoor activity to compensate for covid, bike sharing business can be considered as one of the promising business plans.

One of the most challenging aspects of the bike sharing business is how to efficiently distribute the bikes to different stations in accordance with accurately predicted demand. Failing to do so can lead to inefficient maintenance and uneven allocation of the bikes which results in overcrowding at one station while vacating the other. This will precipitate customer dissatisfaction and, ultimately, cost-ineffective business.

Therefore, developing accurate demand prediction methods can help improve the usability, accessibility, and profitability of bike sharing systems.

In order to tackle this issue, our team has looked into the past bike sharing data from two different cities, Seoul and D.C., identified the most significant factors that affect bike sharing demand, and tested 7 prediction models to find the best one.

Our analyses suggest that the most important factors that impact bike sharing demand are 1) temperature and 2) hours (e.g. increasing demand in rush hour), and the most accurate prediction model is XGBoost. The results are consistent with the two datasets.