Class Project - Rental Bike Analysis and Prediction

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Introduction:

Bicycle sharing frameworks are new age of customary bicycle rentals where entire process from enrolment, rental and return has turned out to be programmed. Through these frameworks, client can undoubtedly lease a bicycle from a position and return at another position. At present, there are about more than 500 bicycle sharing projects the world over which is made from more than 500 thousand bikes. Today, there exists awesome enthusiasm for these frameworks because of their key part in activity, ecological and medical problems. Aside from fascinating certifiable uses of bicycle sharing frameworks, the attributes of information being created by these frameworks make them appealing for the exploration. Restricted to other transport administrations, for example, transport or metro, the span of travel, take off and entry position is expressly recorded in these frameworks. This component transforms bicycle sharing framework into a virtual sensor arrange that can be utilized for detecting portability in the city. Consequently, it is normal that most of remarkable occasions in the city could be identified through checking this information.

Dataset:

We took dataset from UCI Machine Learning Repository. The data is about bike rental business in Portugal throughout the year, which consist of data about the time, hour, day of the month, Season, Day (Holiday, working) and climate details (Temperature, Wind, etc..) of the instance (rented bike). The dataset is imbalanced as some of the features need to be pre-processed (missing values and classification) to use in the analysis. The data set have around 17,300 instances and 16 features which are of the type of numeric, category and quantitative.

Analysis and prediction:

1) Analysis the pattern of Bike Usage According to Season- Frequency of the bike rented in various season.
2) Analysis the peak hours - What is the peak hours in various days like working, holiday and weekends.
3) Analysis of the peak usage of the week- Which day of the week, type of the day the bike rental is more.
4) Analysis of the atmosphere and ambiance - Which is best climate for the bikers.

Inferences and Result expected:

1) Peak season, month, day of the week.
2) Max resource allocation time.
3) Result to increase or decrease the number of Bike for next year.
4) Best time invest to see max gain.
5) Pattern to fix the price of the Rental.
6) Scheme and offer plan to max profit.

Conclusion:

Currently people started to reduce the usage of the natural and looking for alternate source and using Bicycles are healthy, also many have passion and interest in Cycling. This is one of the established service in many developed countries like UK, USA. All these factors attract market people to invest in this. From the Results we can infer many common things like Climate, Time, Week from the data though it is about Portugal. There are factors used in the model is common worldwide. So we are doing this analysis to find the best pattern for Portugal as well few factors for cycle rental market.