**Analytics Methods 1**

**Project Title**: **Fundamental Analysis of Bike Rental Dataset**

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We will explore the following dataset from UCI machine learning repository:

Link : [Bike sharing rental dataset](https://archive.ics.uci.edu/ml/machine-learning-databases/00275/Bike-Sharing-Dataset.zip)

Data set: This data set is related to years 2011 and 2012 from Capital Bikeshare system, Washington D.C., USA. Bike rental data is in two format hourly and daily. We will be analyzing daily data trend.

Abstract: Bike sharing systems are new generation of traditional bike rentals which allow people to borrow a bike from a place and return it at another place belonging to the same system. Currently, there are about over 500 bike-sharing programs around the world which is composed of over 500 thousands bicycles. This system is also important in traffic, environmental and health issues.

1. Size of the Data

The Dataset has the following fields: Observations: 731 and Variables: 16

Response Variable: cnt variable is the response variable from the dataset which shows the total number of rental bikes.

Explanatory Variables:

* season - spring, summer, fall, winter
* yr - Year (2011, 2012)
* mnth - 12 months
* Holiday - yes (1), no (0)
* weekday - Sunday(0) to Saturday(6)
* workingday - Yes(1) No (0)
* weathersit - 4 levels of weather
* temp - Temperature (Normalized Value)
* atemp - feels like temperature (Normalized Value)
* hum - Humidity (Normalized Value)
* windspeed - (Normalized Value)
* casual - count of normal users
* registered - count of registered users
* cnt - total counts( sum of casual & registered)

1. Research Question:

* Statistical Test to see whether weekend has an impact on rental bikes.
* We will create a linear regression model to predict daily counts based on explanatory variables.

1. Associated Tasks:

* Exploratory Analysis
* Hypothesis Test
* Regression
* Prediction

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