Project Scenario:

We have to analyse how weather would affect bike-sharing demand in urban areas. To complete this project, we need to first collect and process related weather and bike-sharing demand data from various sources, perform exploratory data analysis on the data, and build predictive models to predict bike-sharing demand. Then, we will combine results and connect them to a live dashboard displaying an interactive map and associated visualization of the current weather and the estimated bike demand.

Data collection:

1) **Seoul Bike Sharing Demand Data Set -**

Rental bikes are available in many cities around the globe. It is important for each of these cities to provide a reliable supply of rental bikes to optimize availability and accessibility to the public at all times. Also important is minimizing the cost of these programs, in part by minimizing the number of bikes supplied in order to meet the demand. Thus, to help optimize the supply it would be helpful to be able to predict the number of bikes required each hour of the day, based on current conditions such as the weather. The Seoul Bike Sharing Demand Data Set was designed for this purpose. It contains weather information (Temperature, Humidity, Windspeed, Visibility, Dewpoint, Solar radiation, Snowfall, Rainfall), and the number of bikes rented per hour and date.

We will use this dataset to build a linear regression model of the number of bikes rented each hour, based on the weather.

Attribute Information

- Date : year-month-day
- Rented Bike count - Count of bikes rented at each hour
- Hour - Hour of he day Temperature-Temperature in Celsius
- Humidity - unit is %
- Windspeed - unit is m/s
- Visibility - unit 10m
- Dew point temperature - Celsius
- Solar radiation - MJ/m2
- Rainfall - mm Snowfall - cm
- Seasons - Winter, Spring, Summer, Autumn
- Holiday - Holiday/No holiday
- Functional Day - NoFunc (Non Functional Hours), Fun(Functional hours)

2) **Open Weather API -**

The Open Weather API allows users to access current and forecasted weather data for any location including over 200,000 cities. OpenWeather collects and processes weather data from different sources such as global and local weather models, satellites, radars and a vast network of weather stations. The data we will be connecting to provides the weather forecast for every 3 hours over the next 5 days.

3) Global Bike Sharing Systems Dataset

The Global Bike Sharing Cities Dataset is an HTML table on the Wikipedia page List of bicycle-sharing systems: https://en.wikipedia.org/wiki/List_of_bicycle-sharing_systems. It lists active bicycle-sharing systems around the world. Most systems listed allow users to pick up and drop off bicycles at any of the automated stations within the network.

4) World Cities Data

The World Cities Data contains information such as name, latitude, and longitude, about major cities around the world.