**Bike-sharing rental**

**Dataset Dictionary:**

|  |  |  |
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| Sr.No | Column Name | Column Description |
| 1 | Instant | Index number |
| 2 | Dteday | Date (Format: YYYY-MM-DD) |
| 3 | Season | Season Name |
| 4 | Yr | Year |
| 5 | Month | Month (1-12)(Jan-Dec) |
| 6 | Hr | Hour(0 to 23) |
| 7 | Holiday | Whether the holiday is there or not |
| 8 | Weekday | Day of the week |
| 9 | Workingday | Whether it is a working day or not |
| 10 | Weathersit | Weather situation |
| 11 | Temp | Normalized temperature in Celsius |
| 12 | Atemp | Normalized feeling temperature |
| 13 | Hum | Normalized humidity. The Values are divided by 100 |
| 14 | Windspeed | Normalized Wind speed. Values are divided by 67 |
| 15 | Casual | Count of casual users |
| 16 | Registered | Number of registered users |
| 17 | Cnt | Count of total rental biked including both casual and registered |

**The objective of this project is**

***To build a predictive model that can accurately forecast the demand for bike rentals based on various factors such as time of day, weather conditions, holidays, and other relevant factors.***

**The steps that will be followed to carry out this project are as follows:**

1. **Data Collection:**  
   Collect the data from various sources such as bike-sharing companies, weather stations, and other relevant sources. [Already Provided]
2. **Data Cleaning and Preparation:**  
   Perform data cleaning and preparation tasks such as  
   - Imputing missing values  
   - handling outliers  
   - transforming data to make it suitable for analysis.
3. **Exploratory Data Analysis (EDA):**  
   - Conduct exploratory data analysis to gain insights into the data with visualization like scatter plots and bar plots.  
   - Finding the correlation between the features and how they influence the other features.  
   - Also identify patterns and relationships and select relevant features.
4. **Feature Engineering:**  
   Select features from the existing ones that may help in improving the predictive power of the model.
5. **Model Building:**  
   Build machine learning models using various algorithms such as  
   - linear regression  
   - decision trees  
   - random forest  
   - neural networks.
6. **Model Evaluation:**  
   Evaluate the performance of the model using various metrics such as  
   - mean squared error (MSE)  
   - mean absolute error (MAE)  
   - R-squared.
7. **Model Tuning:**  
   Fine-tune the model by adjusting hyperparameters to improve its performance.
8. **Deployment:**  
   Deploy the model to production and monitor its performance over time.