

## Context

- The dataset records hourly bike rental counts from an automated bike-sharing system.
- It captures both environmental conditions and temporal information, making it suitable for predicting demand and analyzing usage patterns.

## Data Source

- Data comes from a real bike-sharing system, provided by Purwadhika for the Capstone project.
- Weather information is sourced from freemeteo.com.

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## Column/Feature Understanding

Column Name	Data Type	Description	Example Value
dateday	Date	Date of the record (YYYY-MM-DD)	2011-12-09
hum	Float	Normalized humidity (0–1, where 1 = 100%)	0.62
weathersit	Integer	Weather situation: 1 = Clear, 2 = Mist/Cloudy, 3 = Light Snow/Rain, 4 = Heavy Rain/Snow	1
holiday	Integer	Whether the day is a holiday (0 = No, 1 = Yes)	0
season	Integer	Season: 1 = Winter, 2 = Spring, 3 = Summer, 4 = Fall	4
atemp	Float	Normalized “feels like” temperature in Celsius (0–1)	0.3485
temp	Float	Normalized actual temperature in Celsius (0–1)	0.36
hr	Integer	Hour of the day (0–23)	16
casual	Integer	Count of casual (non-registered) users for the hour	24
registered	Integer	Count of registered users for the hour	226
cnt	Integer	<b>Total count of rental bikes (target variable)</b>	250

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## Key Points for Modeling

- **Target Variable:**

- cnt (total bike rentals per hour)
- **Predictor Variables:**
  - Use: hr, season, holiday, weathersit, temp, atemp, hum
  - Consider removing: casual and registered (to avoid data leakage, since their sum is cnt)
  - dteday can be used for time-based feature engineering (e.g., day of week), but is not directly predictive as a string.

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### Categorical Features

- season, weathersit, holiday, and hr (can be treated as categorical or ordinal, depending on the model).

### Numerical Features

- temp, atemp, hum (all normalized between 0 and 1).
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### Summary Table

Feature	Type	Role	Notes
dteday	Date	Optional	For time-based features, not used directly
hum	Numerical	Predictor	Normalized humidity
weathersit	Categorical	Predictor	Weather situation (1-4)
holiday	Categorical	Predictor	0 = No, 1 = Yes
season	Categorical	Predictor	1 = Winter, 2 = Spring, 3 = Summer, 4 = Fall
atemp	Numerical	Predictor	Normalized “feels like” temp
temp	Numerical	Predictor	Normalized actual temp
hr	Categorical	Predictor	Hour of day (0-23)
casual	Numerical	Remove	Data leakage risk (component of target)
registered	Numerical	Remove	Data leakage risk (component of target)
cnt	Numerical	Target	Total bike rentals per hour

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### How This Relates to the Business Context

- **Business Goal:** Predict hourly bike rental demand to optimize fleet management, staffing, and operations.
- **Stakeholders:** Bike-sharing operators, city planners, and users benefit from accurate demand forecasting.

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### Instructions for Word:

- Use "Heading 1" and "Heading 2" styles for section titles.
- Insert tables using the "Insert Table" feature for best formatting.
- Apply bold to important terms or variable names as needed.

This format will look professional and clear when pasted into a Word document.