BIKE RENTAL

PREDICTION

ABSTRACT

Bike sharing systems are a means of renting bicycles where the process of obtaining membership, rental, and bike return is automated via a network throughout the city.

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-Ankita Das
(anki.das23@gmail.com)
-Kavita Desai
(kdarch14@gmail.com)
-Prasant Vijay Karn
(prasantvkarn@gmail.com)

INSIGHTS OF DATA

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1. **ABOUT DATASET**:

   - instant: record index
   - dteday : date
   - season : season (1:winter, 2:spring, 3:summer, 4:fall)
   - yr : year (0: 2011, 1:2012)
   - mnth : month (1 to 12)
   - hr : hour (0 to 23)
   - holiday : weather day is holiday or not (extracted from [Web Link])
   - weekday : day of the week
   - workingday : if day is neither weekend nor holiday is 1, otherwise is 0.
   - weathersit : 1: Clear, Few clouds, Partly cloudy, Partly cloudy 2: Mist + Cloudy, Mist + Broken clouds, Mist + Few clouds, Mist 3: Light Snow, Light Rain + Thunderstorm + Scattered clouds, Light Rain + Scattered clouds 4: Heavy Rain + Ice Pallets + Thunderstorm + Mist, Snow + Fog
   - temp : Normalized temperature in Celsius. The values are derived via (t-t_min)/(t_max-t_min), t_min=-8, t_max=+39 (only in hourly scale)
   - atemp: Normalized feeling temperature in Celsius. The values are derived via (t-t_min)/(t_max-t_min), t_min=-16, t_max=+50 (only in hourly scale)
   - hum: Normalized humidity. The values are divided to 100 (max)
   - windspeed: Normalized wind speed. The values are divided to 67 (max)
   - casual: count of casual users
   - registered: count of registered users
   - cnt: count of total rental bikes including both casual and registered

2. **BASIC INSIGHTS:**

   - **Total** number of **Bike Renters**: 3292679
   - **Total** number of **registered User**: 2672662
   - **Registered User** who **actually Rented Bikes 81.17 %**
   - **Total** number of **Non-Registered User: 620017**
   - **Non-Registered** User who **actually Rented Bikes**: **18.83 %**
   - Bike Rental per hour: **189**
   - Bike Rental per minute: **3**
   - There are **all numerical variable** only **the date time is object** type.
   - There is **high positive correlation** between **temperature and actual feel of temperature** and also a positive correlation between **Registered User and Count of bikes**.

3. **INSIGHTS :**

   - **SEASON** - Fall has the highest value counts of **4496** followed by summer, spring, winter.
   - **2012** has the **most** value counts and than 2011.
   - In **monthly** wise there is a very **rare change** but **May, July** has the **highest** value counts.

- Persons who **were not in holiday** has **most** value counts.
- **Friday** has the most value counts followed by Sunday but there are **rarely any difference**. all most all days of the week has same value counts.
- Persons during the **working day** has **more** value counts.
- **Clear, Few clouds, Partly cloudy, Partly cloudy** has the **most** value counts.
- **Temperature** - In the temperature it is **normalised by dividing 41** but we multiplied again with 41 to see the actual range and the temperature range between **(0.82-41).**
- **Actual feel of the temperature** was **normalised by dividing by 50** but we multiplied again with 50 and the range is between **(0-51).**
- **Humidity** was **normalised by dividing by 100** but we multiplied again with 100 and the range is between **0-100**.
- **Windspeed** was **normalised by dividing by 67** but we multiplied again with 67 and the range is between **0-47.998(0 --- Calm less than 1 mph (0 m/s)).**
- Range of **casual** users are **(3-304).**
- Range of **Registered** users are **(13-585).**
- Count, which is the **target variable** has total rental bikes including both casual and registered ranging between **(1-977).**
- **Temperature 40.18 degree** has the most counts of bike rent but the bikes are mostly rented with a range of **(28-41) degree**.
- And **for actual feel of temperature** has **most** counts are at a range of **(31-46) degree**.
- Most bikes are rented in the **17th and 18th hour** of a day.
- When **humidity** is ranging between **(17-43) kg-1** bikes are **mostly** rented but we can see as the humidity increases there is a decrease in renting bikes.
- We can see at **34 degree most** bikes were rented and they **were on holiday** and also we can see a range between **(28-37) degree persons who are in holiday and who are not in holiday** has the **most** counts and are of **same level** but **after 37 degree** persons who are **not in holiday were only who rented bikes**.
- In **Windspeed** we can also see there are almost **both holiday and non-holiday persons** are renting bike at **(0-36) m/s** but **after 36m/s** that people **who don't have holiday rented bike**.
- **Before 27kg-1 Humidity** and **after 89kg-1humidity** persons who **were not in holiday** rented the bikes **most**. But in the range between **(27-89) kg-1 humidity** both **non-holiday and holiday persons rented** bike but **at 63kg-1 and 72kg-1 humidity** people who **were in holiday rented** bikes.
- We can see when the month is between **June - September** and the **season is fall** we have **most** counts of bike rental.
- When it is **17th and 18th hour of the day** and it is **fall** has the **most** counts followed by summer and **winter least** we can see for the spring.

4. **INSIGHTS WITH RESPECT TO TOTAL COUNTS OF BIKE:**

- **SEASON:** For the Season **Fall(3)** there is more Bike Rental Counts of **1061129, i.e 32.23%,** followed by **summer(918589,27.90%), winter(841613,25.56%)** and least is **spring(471348,14.32%).**
- There is an **increase** in rents from **January to May** and have **most rentals** in between **June - September** and **again** a **decrease in flow**.
- When there is **no holiday** most bikes are rented - **3214244** bikes- **97.62%, holiday:78435 (2.38%).**
- Almost all days of the week has same rental counts but for **Sunday and Monday** we have **less** compare to other days and **Friday** has **highest of 487790 (14.81%)**
- When there is **Working Day** it has **most** rents of **2292410 (69.62%).**
- **For Clear, Few clouds, Partly cloudy, Partly cloudy,** i.e 1 of **2338173 (71.01%)** has the **most** bike rents followed by Mist + Cloudy, Mist + Broken clouds, Mist + Few clouds, Mist (2) and least has for Heavy Rain + Ice Pallets + Thunderstorm + Mist, Snow + Fog (4) of 223 (0.01%).
- For **2012** we have more rental counts of **2049576 (62.25%).**
- For the **17th hour** of day we have highest count of **336860 (10.23%).**

- From **May - September** we have almost **same** count - (8 : 351194 (10.67%), 6 : 346342 (10.52%), 9 : 345991 (10.51%), 7 : 344948 (10.48%), 5 : 331686 (10.07%)).
- For **temp- 28.70 degree: 177298 (5.38%)** has **highest** bike rental count.
- For **temperature we feel - 31.060 : 311459 (9.46%).**
- For **humidity - 83.0kg-1 : 93265 (2.83%)**
- For **windspeed** - (0.0000m/s : 350203 (10.64%), 11.0014m/s : 332998 (10.11%), 12.9980m/s : 332407 (10.10%)).