Market entry analysis: Washington D.C.

for Lime Cycles

Ironhack Week 4: SQL

DAs:
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Situation:

Lime Cycles is looking for opportunities to expand its footprint globally and is investigating potential markets in North America, including Washington DC.

Exploration:

Lime has hired a crack team of DAs to explore the public cycle rental data to answer a series of questions that will form the core of the business case for expansion to DC.

Rider segmentation

Charlie Commuter

Registered user

Frequent user

Weekdays

Tammy Tourist

Casual user

One-off user

Weekdays or holidays

Alex All-weathers

Registered or casual

Rides in snow or sun

Across all seasons

Freddie Fairweather

Registered or casual

Rides in sun or sunny cloud

Seasonal

Environmental factors

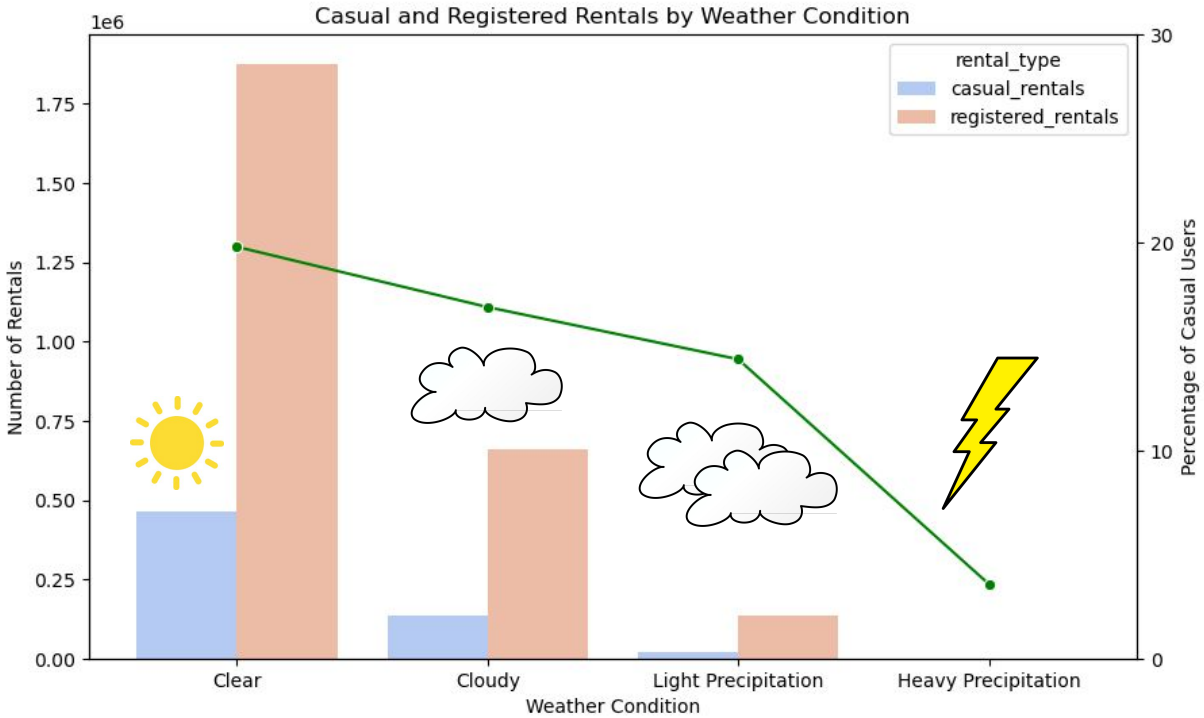
What are the typical riding conditions in Washington DC?

- Clear and low precipitation
- Average temperature ranges: 20-30°C
- Moderate wind speeds <24 mph

To what extent do the weather conditions impact types of rentals?

- When sunny the demand is doubled
- Apparent demand at casual rentals at high temperatures >30°C
- Relatively high registered rentals under non-favorable weather conditions - cloudy and rainy, low temperatures <10°C, strong wind

Rentals by Weather Condition

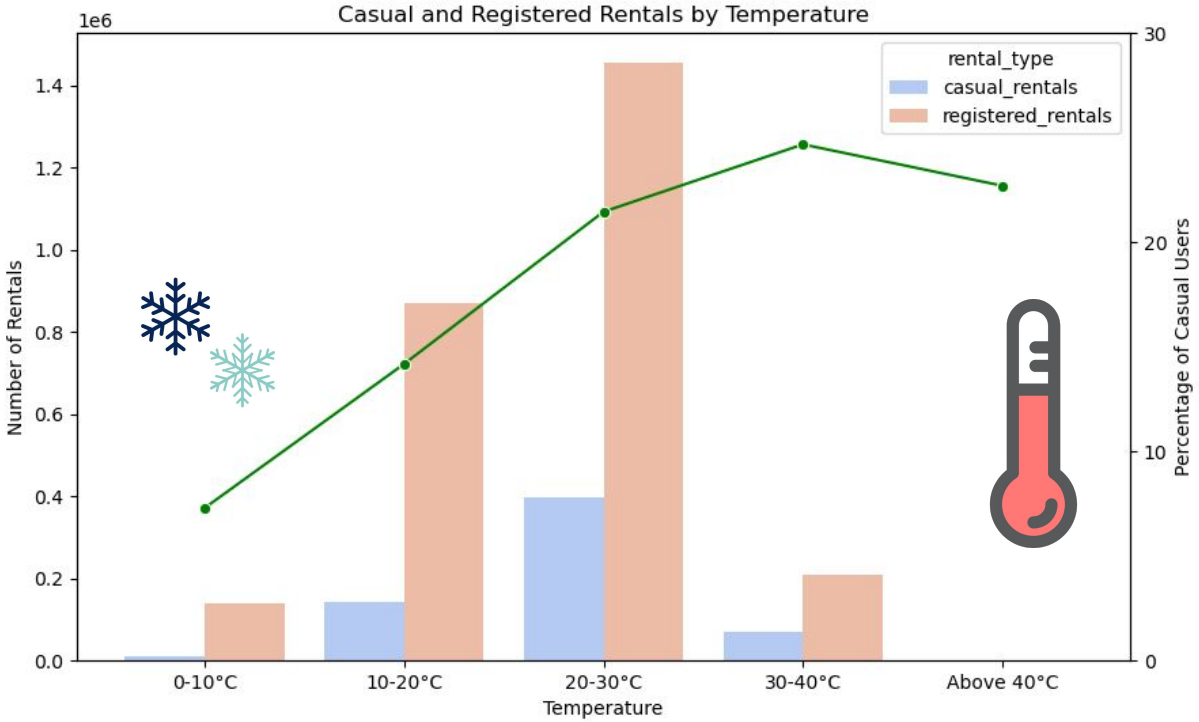


Insights

Most rentals under clear weather conditions

~ 2 times more

Rentals by Temperature

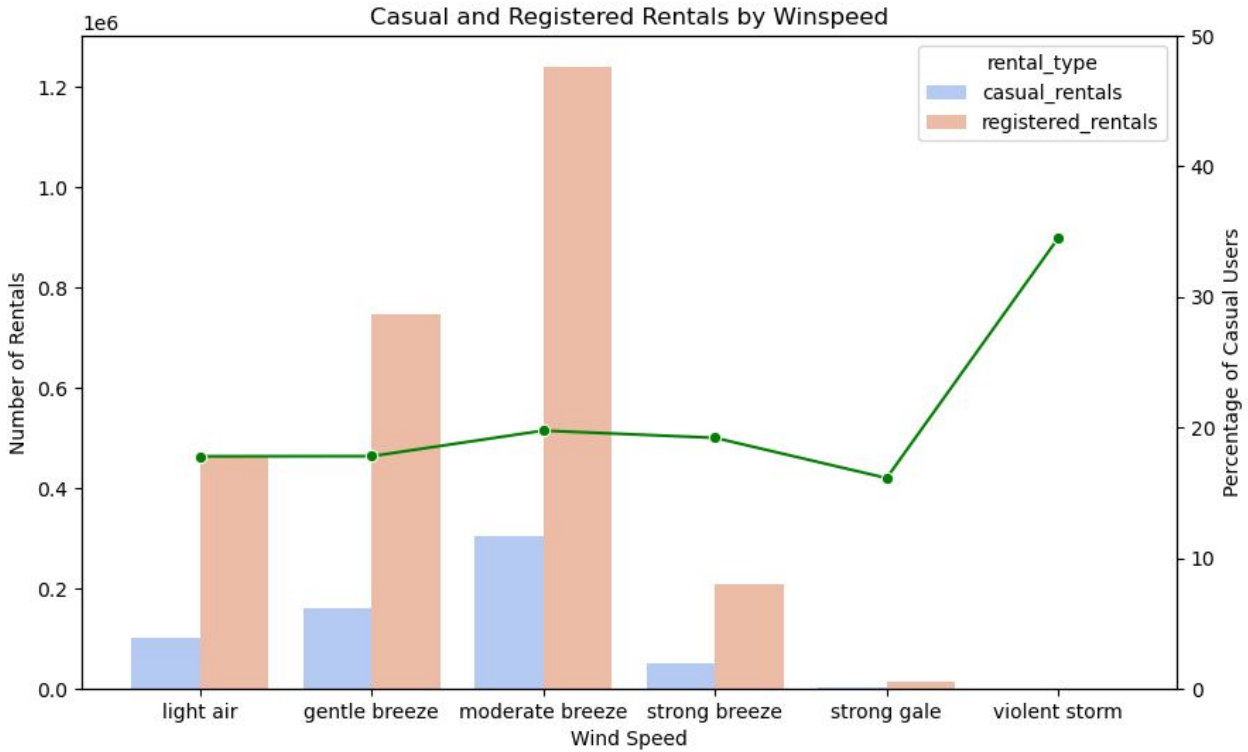


Insights

Most rentals at temperature range 20-30°C

Higher demand in casual rental at high temperatures 30-40°C

Rentals by Wind Speed



Insights

Most rentals during moderate breeze 12-24 mph

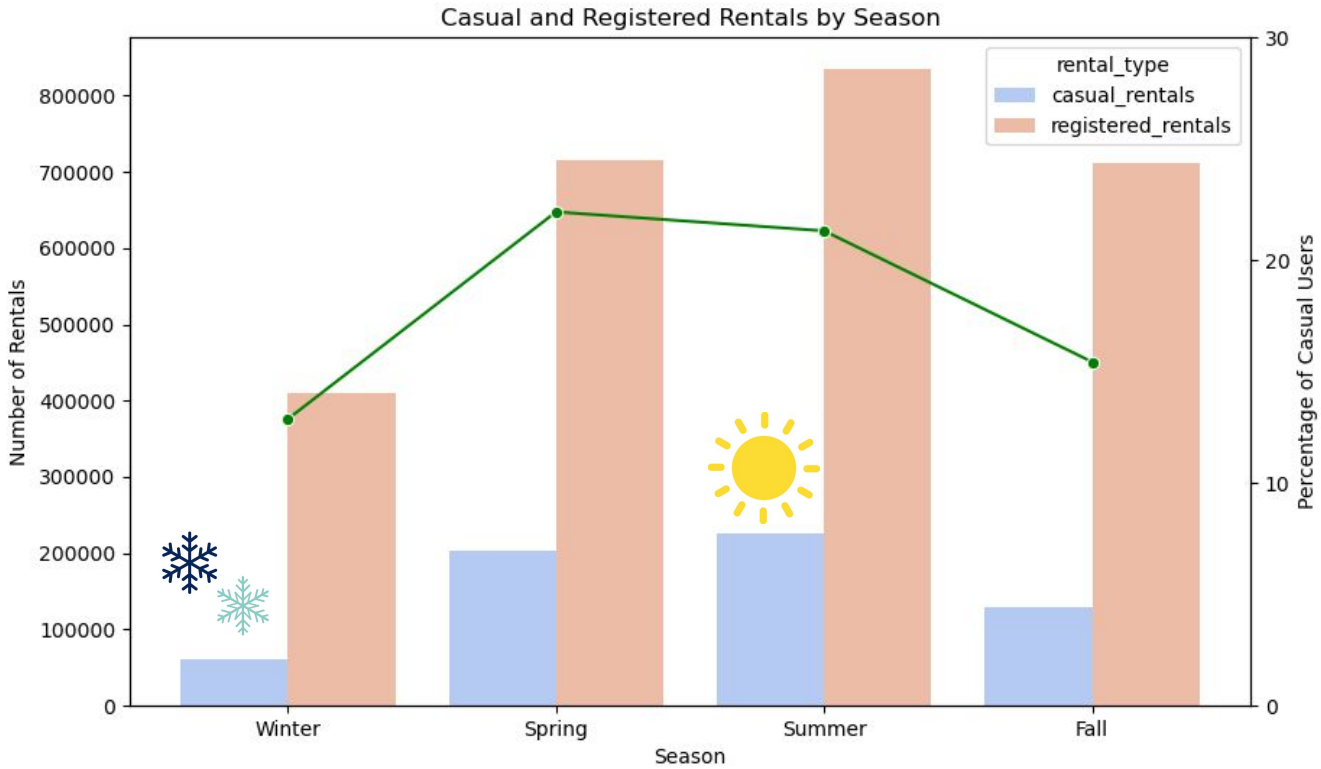
No apparent pattern for demand in casual rentals

Apparent outlier/technical bug (?) during strong storms > 54 mph

Seasonal factors

How are rides distributed across the year?	- High demand during spring, summer diminishing in fall and low in winter. - March to May sees registered rentals double
Which weekdays are most popular?	- Registered rentals consistent from Monday - Friday - Casual rentals double during the weekend
To what extent do holidays change riding patterns?	- Registered users ride regularly during working days - No difference in casual rentals - During holidays the demand in total is lower

Rentals by Season

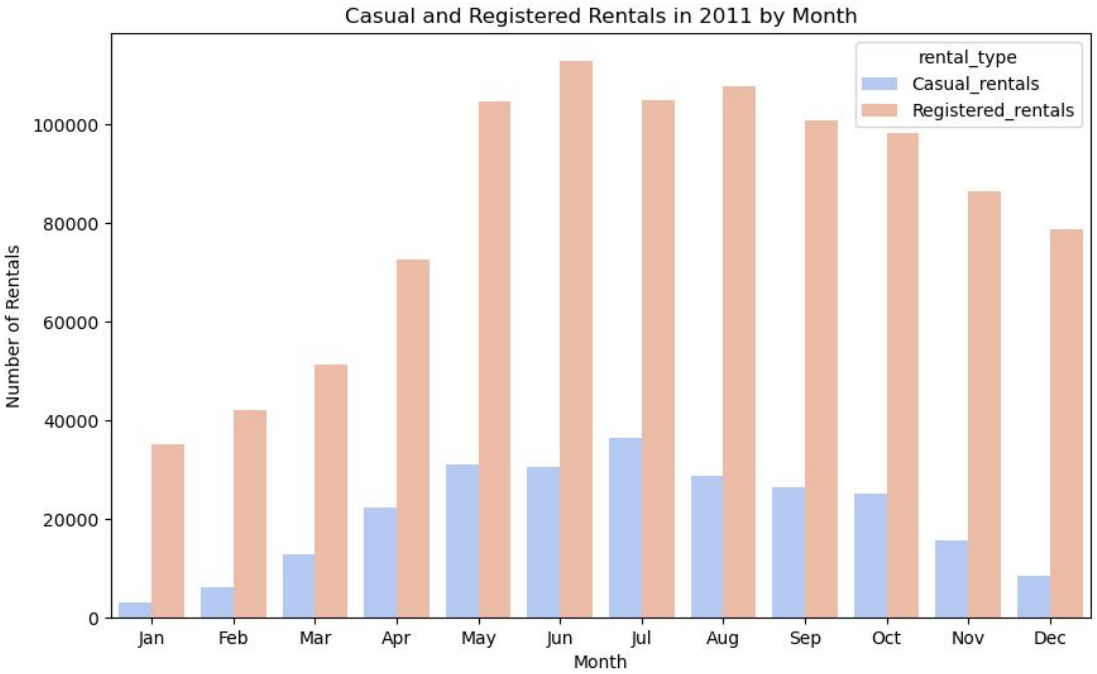


Insights

Most rentals are during summer & spring

Demand in casual rental is almost doubled during the high season

Rentals by month in 2011

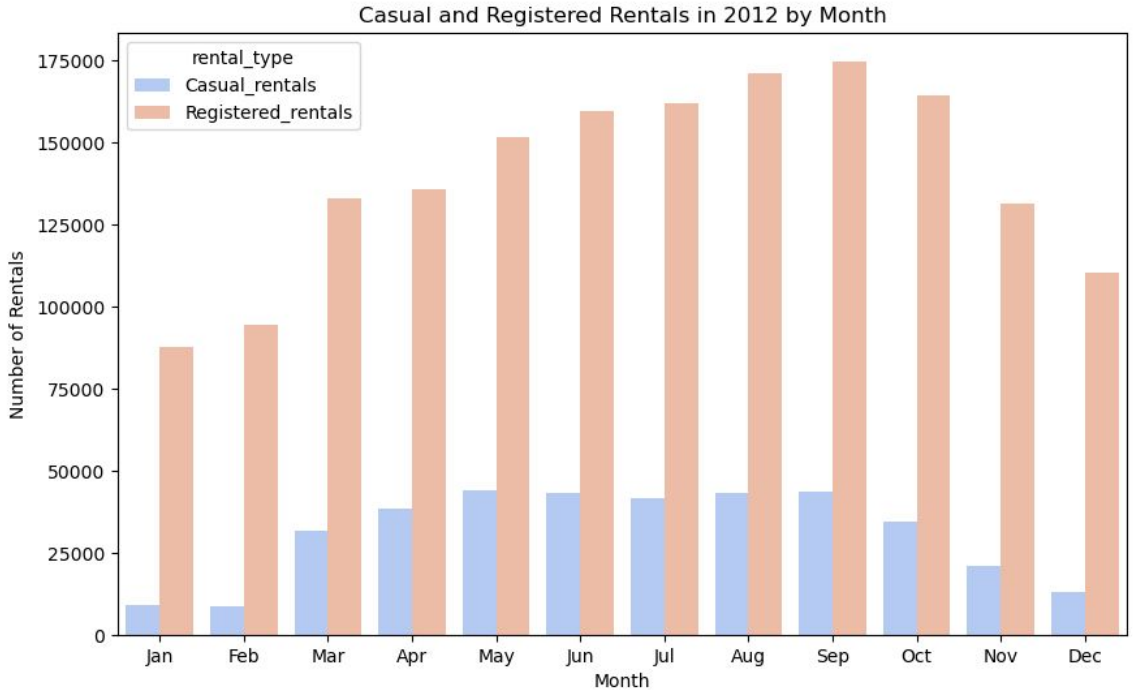


Insights

Rental patterns reflect seasonal change

Months with holidays are more popular with casual renters

Rentals by month in 2012

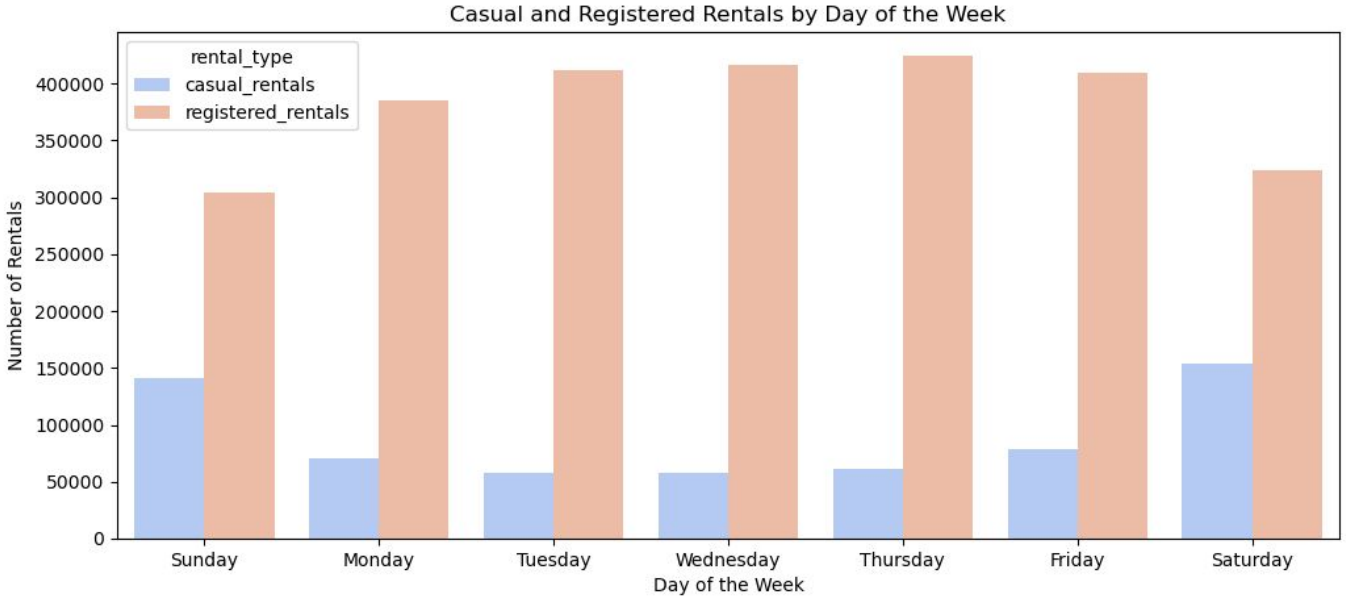


Insights

Rental patterns similar to 2011

Drastic increase in number of users from 2011 to 2012

Rentals across the week

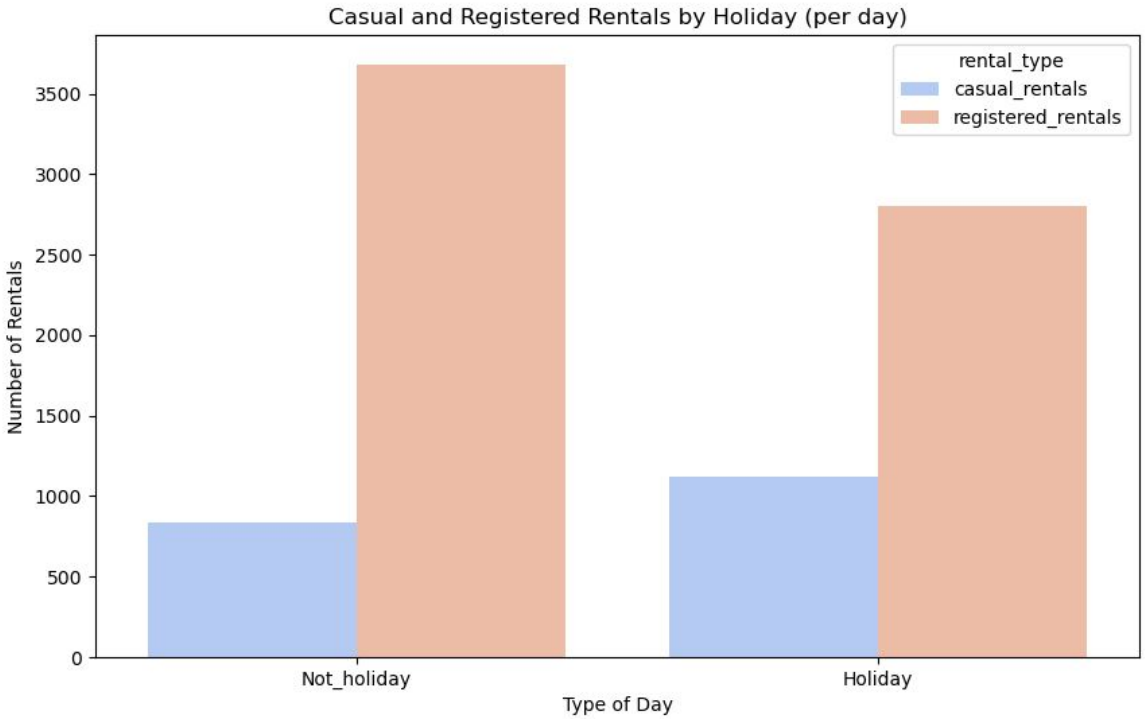


Insights

Most registered rentals during working weekdays

Most casual rentals during the weekend

Working hard or hardly working?



Insights

Most registered rentals during not holidays and fewer registered rentals during holidays

More casual rentals during holidays

In total higher demand during not holidays

Optimum fleet size

estimated

Average daily rentals: 4,504 → **Average rentals per bike per day** c. 5 → **Active bikes required:** 900

Constraints:

estimated

Bike recharge cycle: 2 per week → **Bike recharge duration**: 1 day → **Extra bikes required:** 256

estimated

Bike repair cycle: 2 per year → **Bike repair duration**: 1 week → **Extra bikes required:** 34

estimated

Bike attrition: 50 per year → **Extra bikes required:** 50

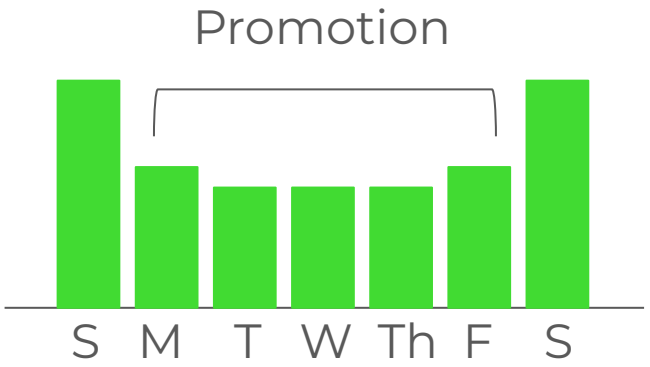
Total bikes required: 1,240 @ $200 each

Initial cost: $248,000

Market share generation

Promotions in rental troughs

- Casual users:
  - Monday-Friday lower rates
  - Holiday promotions 🇺🇸
- All users:
  - Winter signing on bonus: 1 free ride a month
  - Referral bonuses
  - Loyalty programmes rewarding distance goals achieved (health benefits)
  - First 10 minutes free if cycle parked in designated zone (city tidiness)



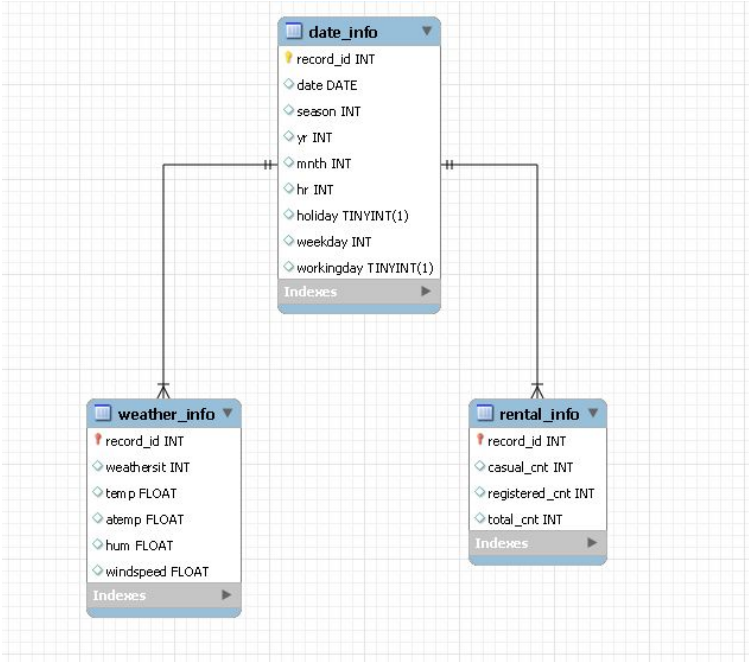
SQL setup

17,000+ entries

Repeating primary keys across tables to ensure consistency

Issues with date duplication as the dataset was composed of hourly entries

Many entries stored as integers with respective keys (e.g. weather description, holiday status, etc.)



Thank you!