

Real-Time Analytics for Rideshare App Optimization

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Goal

Rideshare users minimize expenditures and allow rideshare drivers to maximize profits.

- Riders can input information about their upcoming routes to estimate the projected costs for each service
- Rideshare drivers can determine which region of Boston to target for a given weather status and time to maximize expected profits

Project Overview

Uber and Lyft are two of the leading rideshare services in Boston

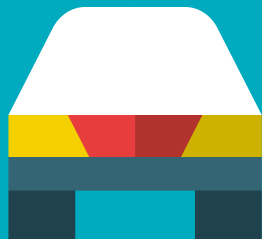
Pricing changes due to demand, location, time, weather, car type, etc.

GOAL:

Create an interactive dashboard for users and drivers to help them optimize their rideshare decisions

Data Collection

STEP 1



Kaggle Dataset

Uber & Lyft rides from
November and December
2018

STEP 2



Feature Selection

Price, weather, time of
day, month, ride type

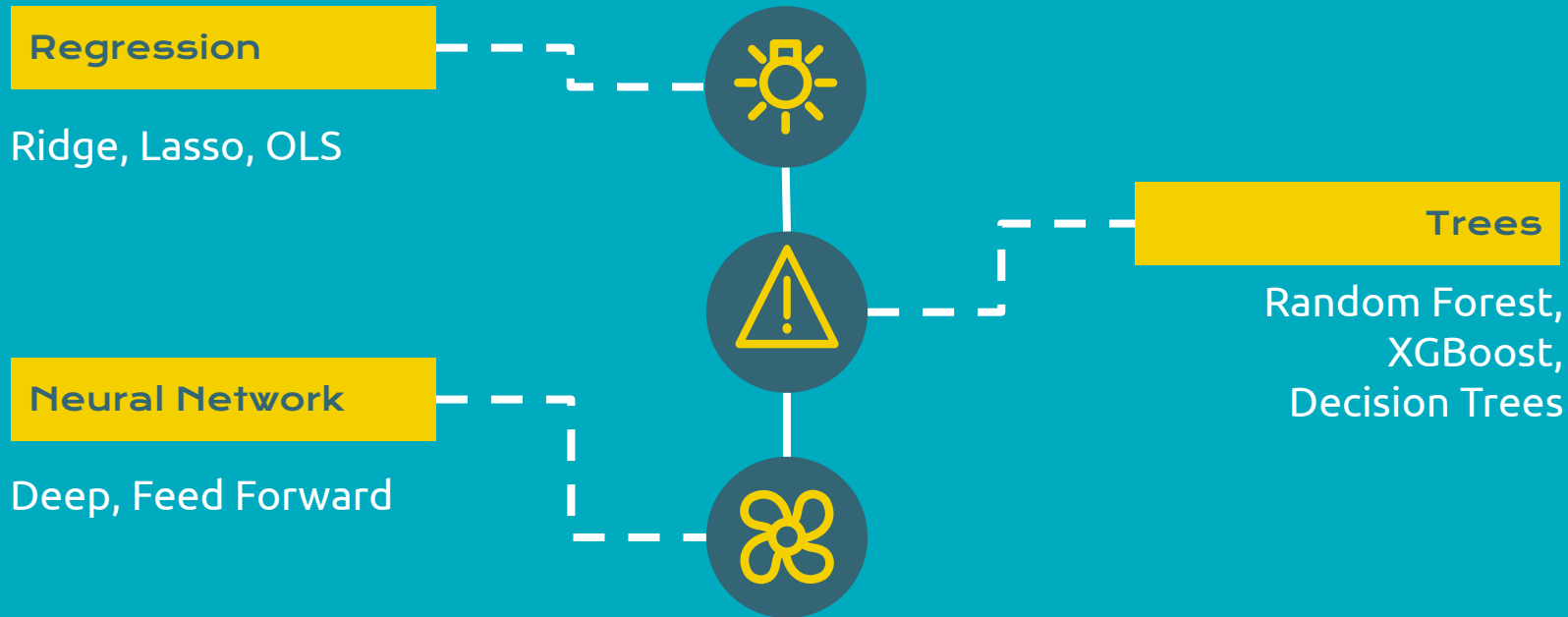
STEP 3



Data Preprocessing

One hot encoding, data
cleaning

Prediction Models



Our prediction models determine the best app to use for your trip

Example

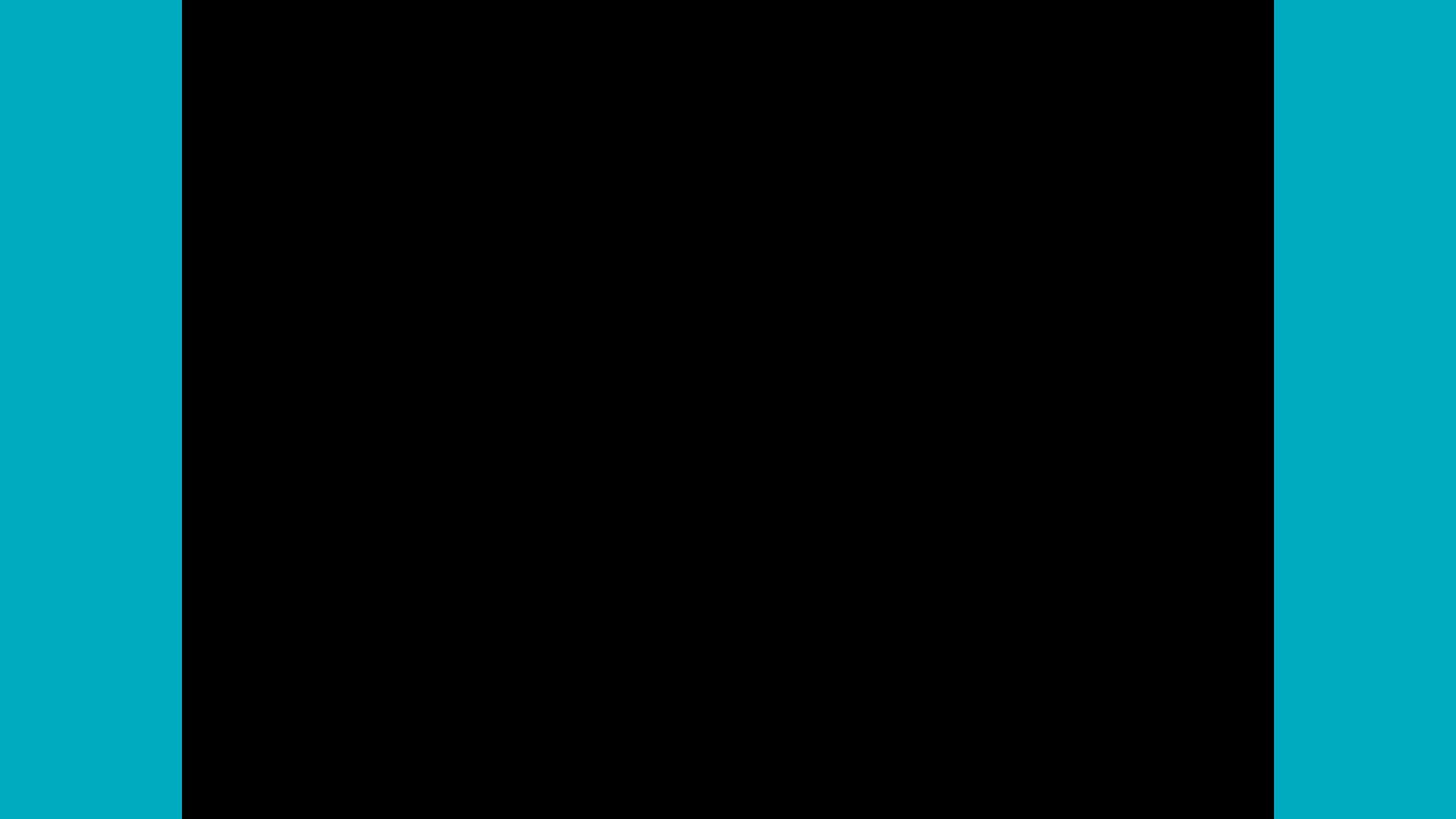
I'm traveling to Boston University from the financial district at 4 pm in November; clear weather, standard ride

Web Application



Result

You should use Uber and it will cost you \$16.22





Q-Learning

Q-Learning: Making route decision based off of rewards

**Weather
Conditions**

Clear vs. Rainy

Time of Day

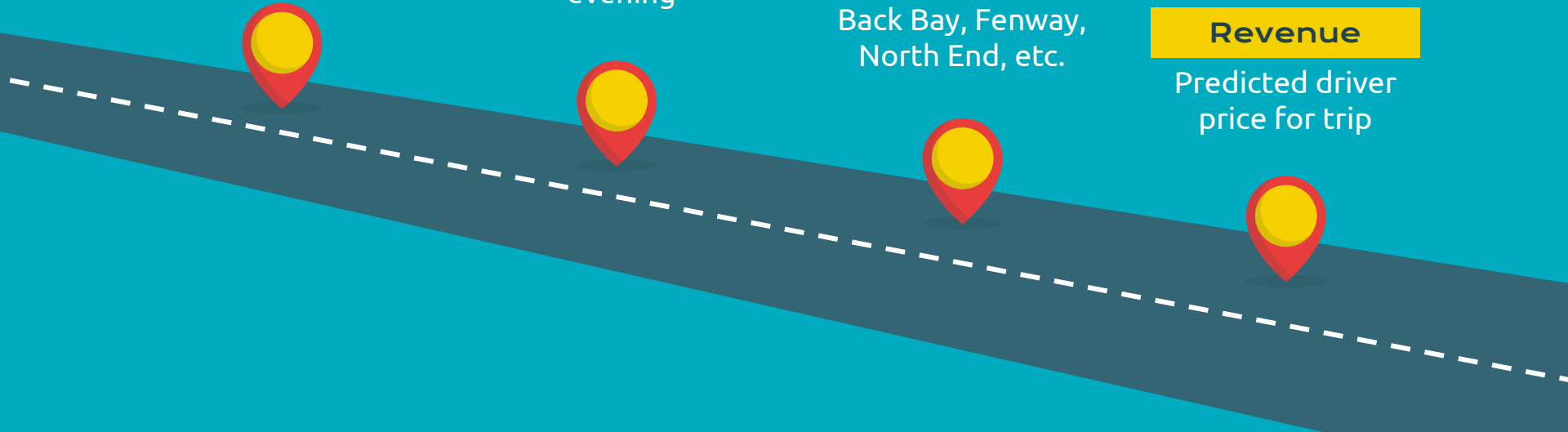
Morning, afternoon,
evening

**Start
Location**

Back Bay, Fenway,
North End, etc.

Revenue

Predicted driver
price for trip



Using Q learning to determine the optimal route for drivers

Example

I'm in the financial district
at 5 pm on a Friday; clear
weather



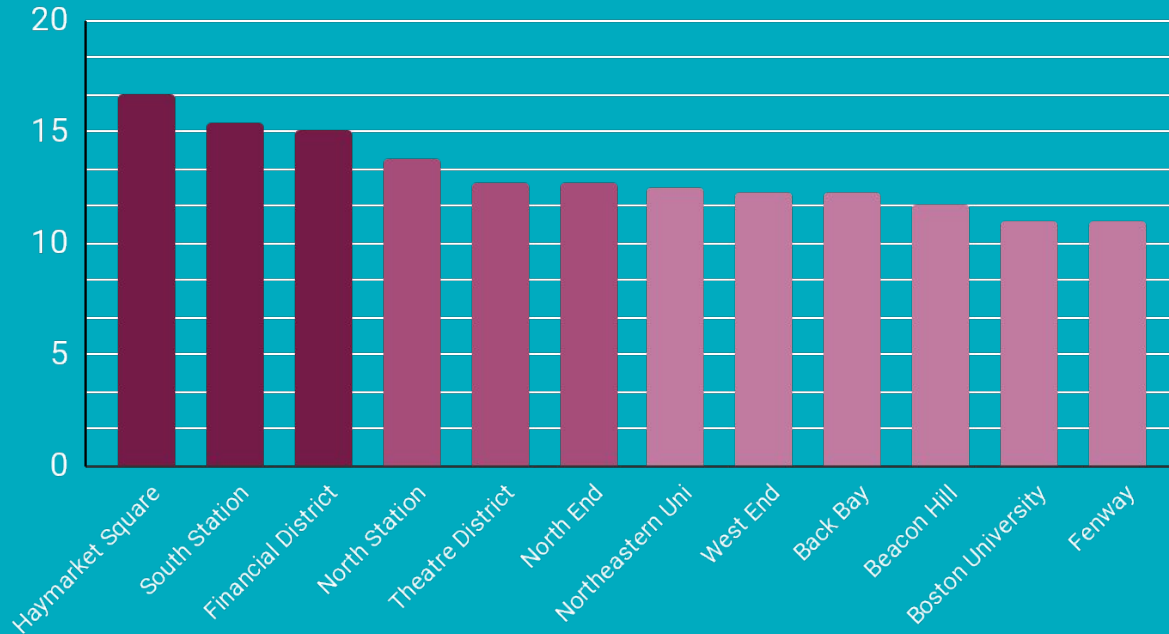
Algorithm/Dashboard

Result

You should accept a
ride that goes to
south station in
order to maximize
long term income
from rides

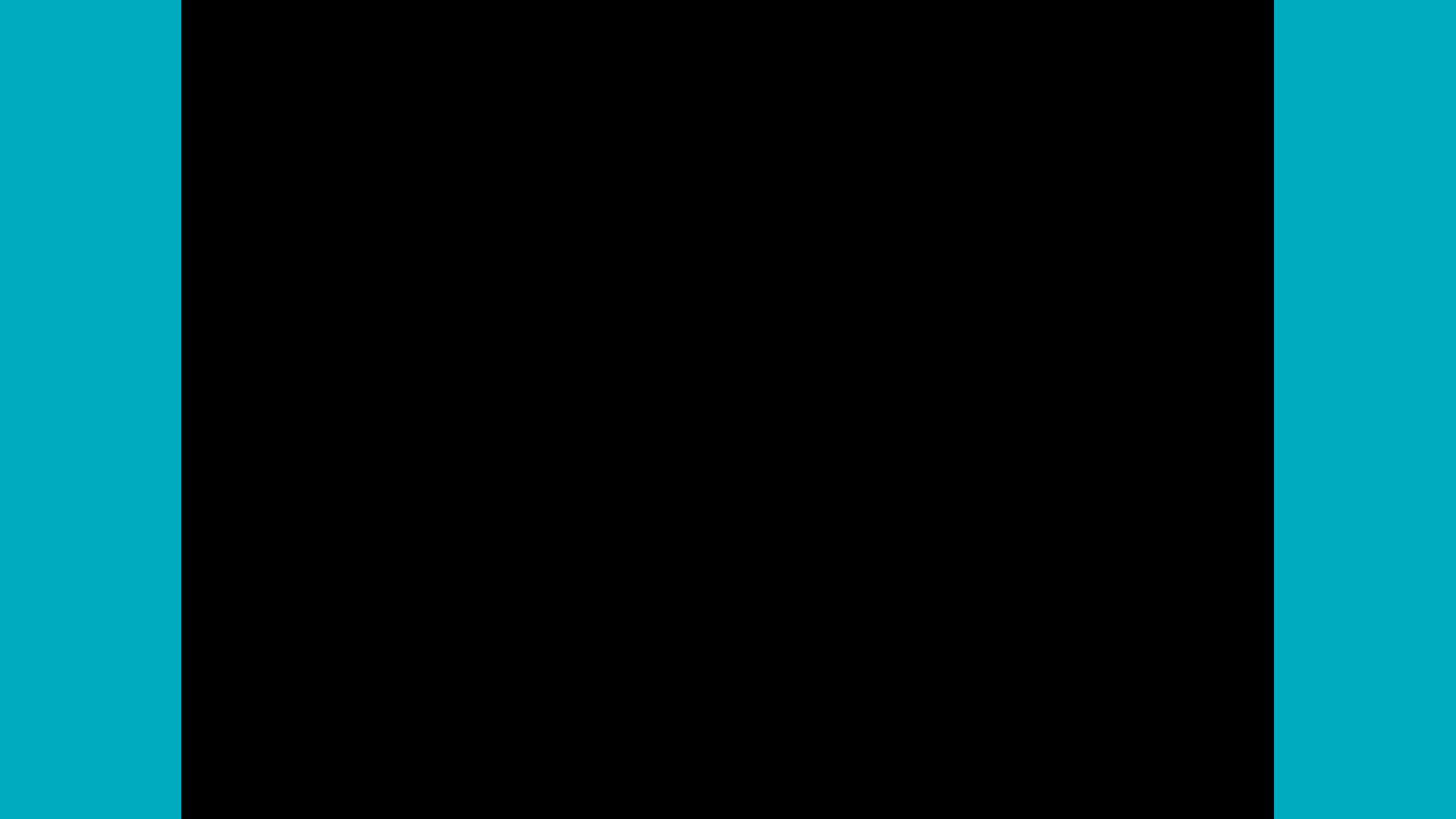
Results from the Q-Table reveal revenue maximizing practices for drivers

Rewards by Location

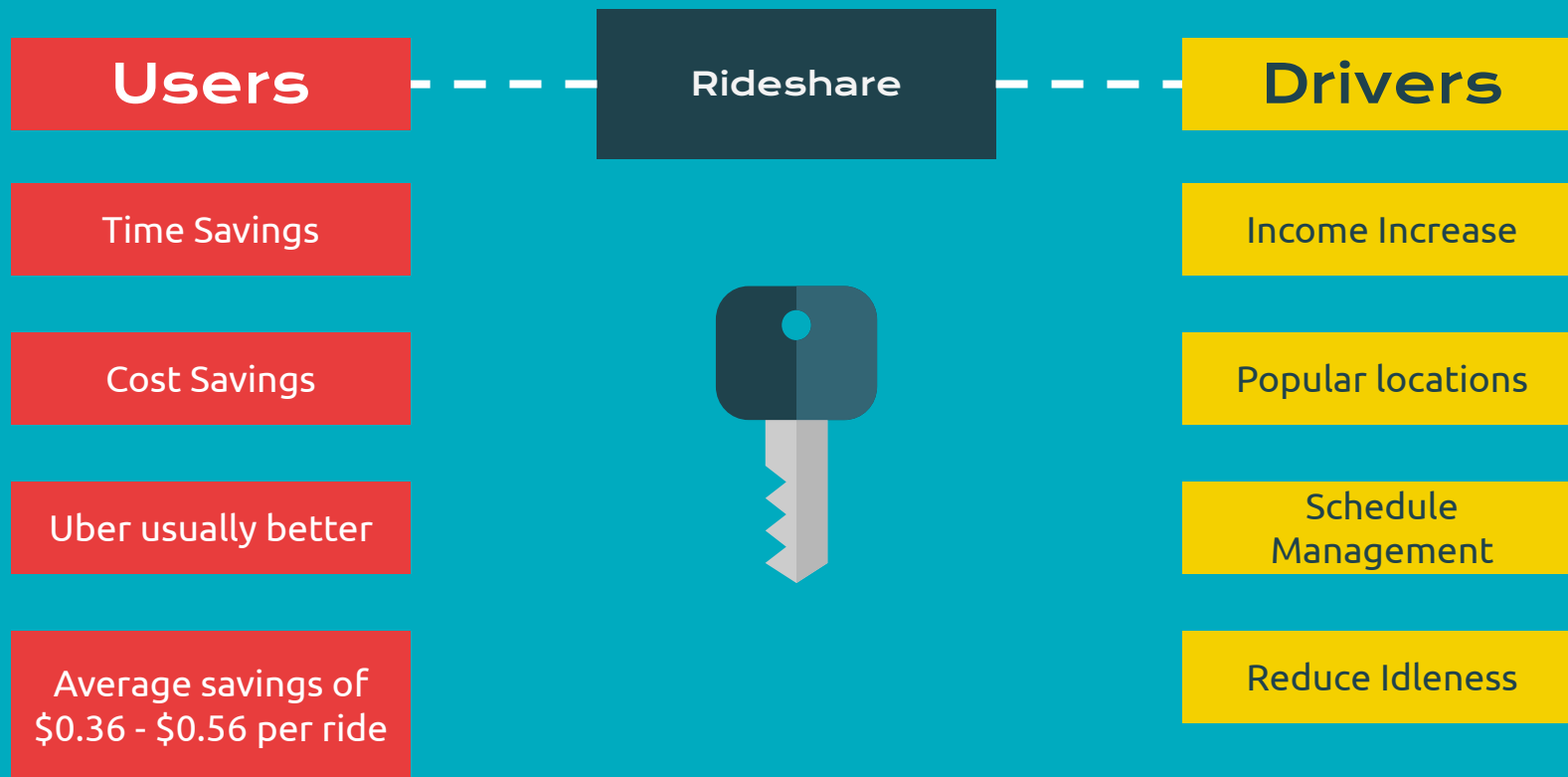


Key Takeaways

- Haymarket, South Station and Infanical District are the most profitable regions
- Key driver timings are 5 to 7 PM (workdays) and 10PM (weekends)



Results/Impact



Thank You
Questions?

