

EH MACS?

A too detailed way to answer a simple question



 SCAN ME

<https://qrco.de/bdqqr>





Posted by u/EconomicSanction 3 months ago 1 star Gift Share 6 Comment 5 Save 4

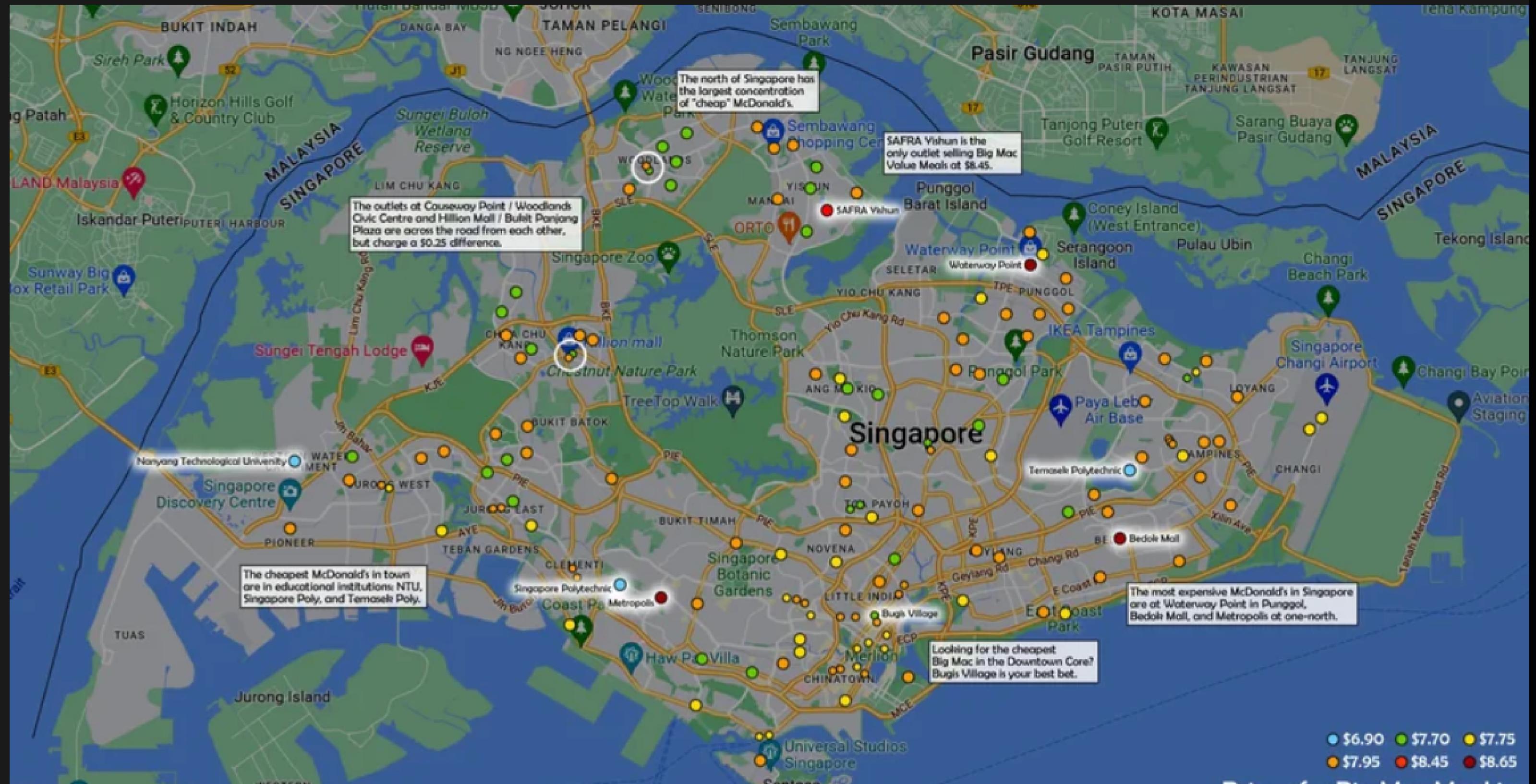


2.6k

Price of a Big Mac Meal across Singapore



I Made This





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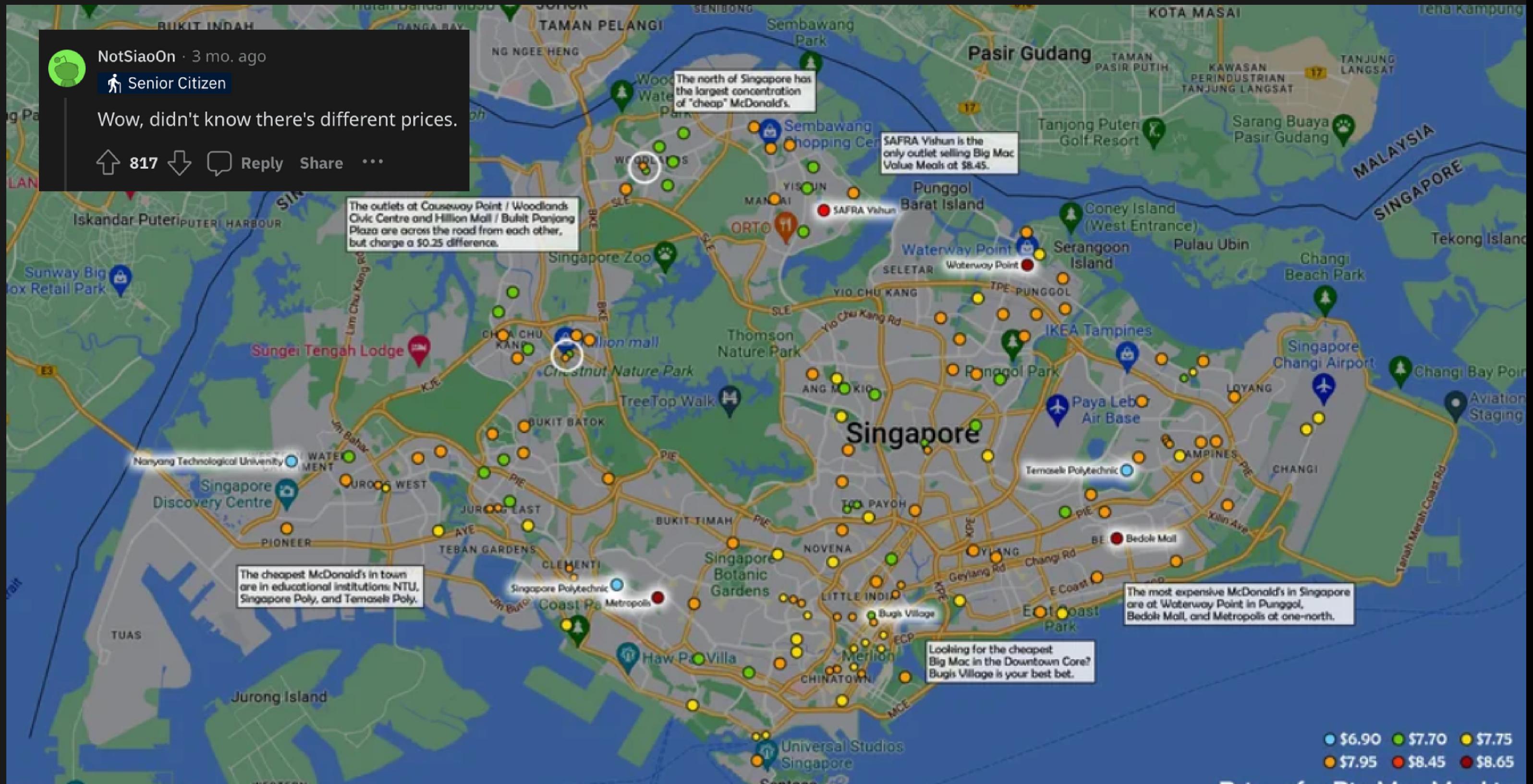


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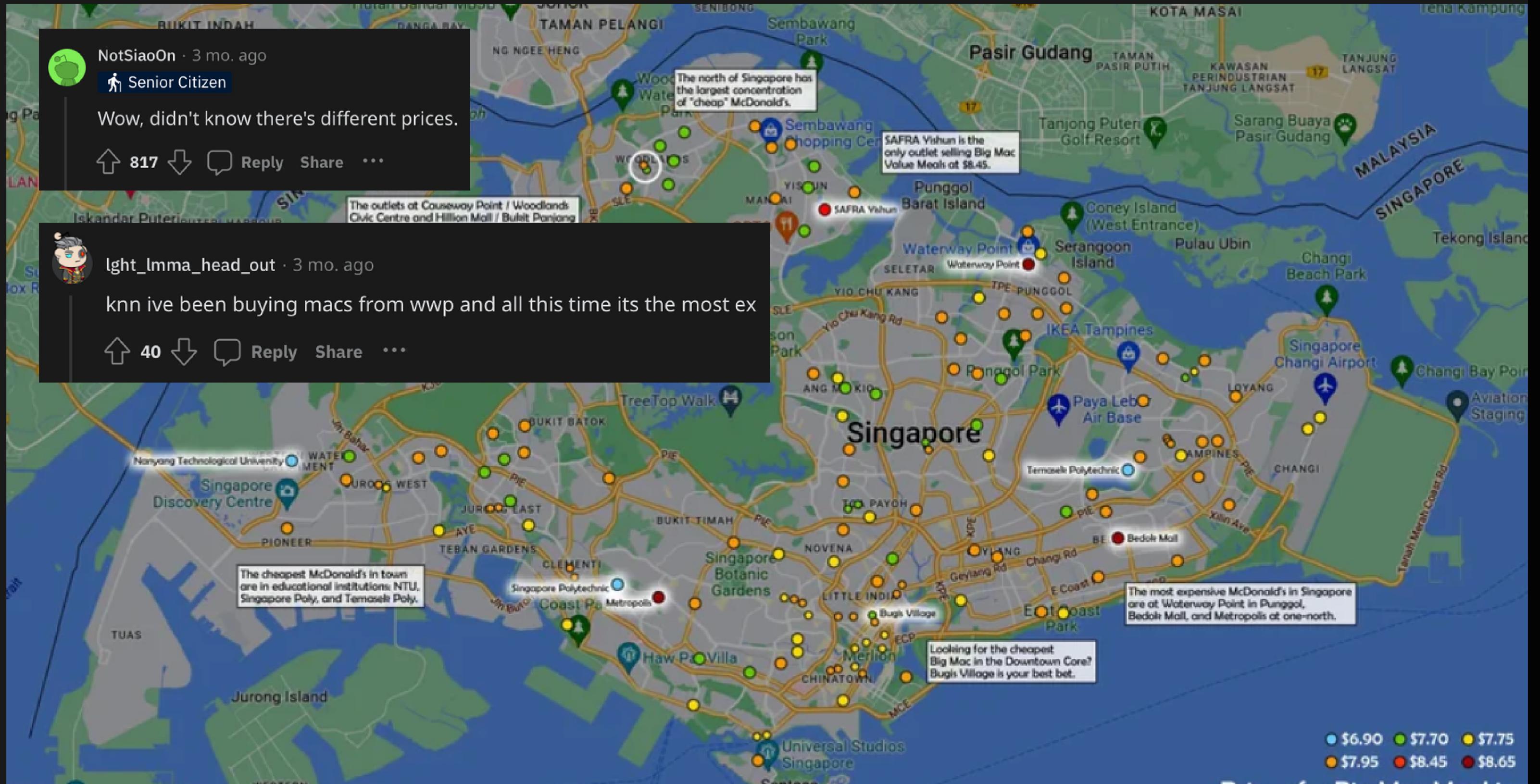


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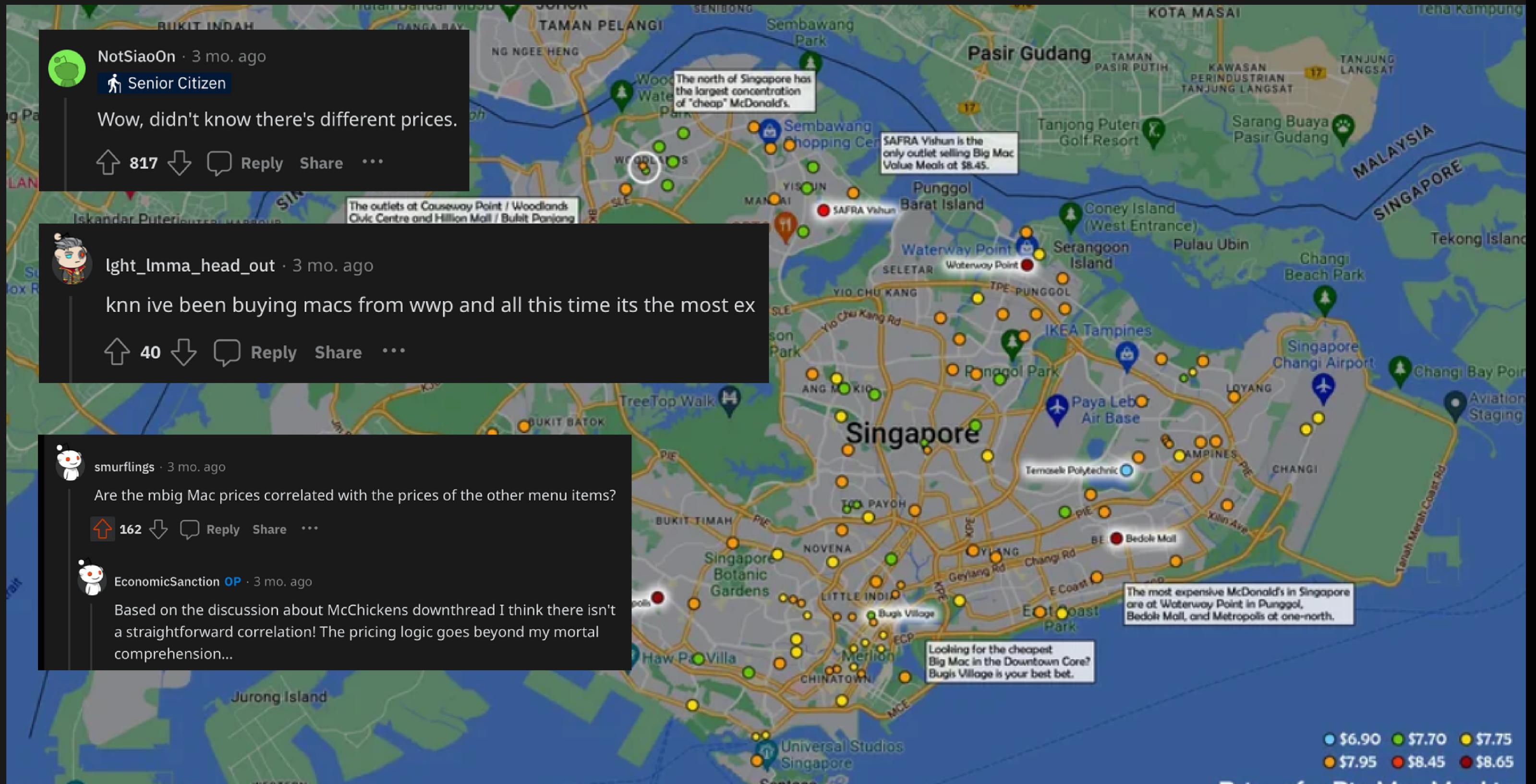


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Price of a Big Mac Meal across Singapore



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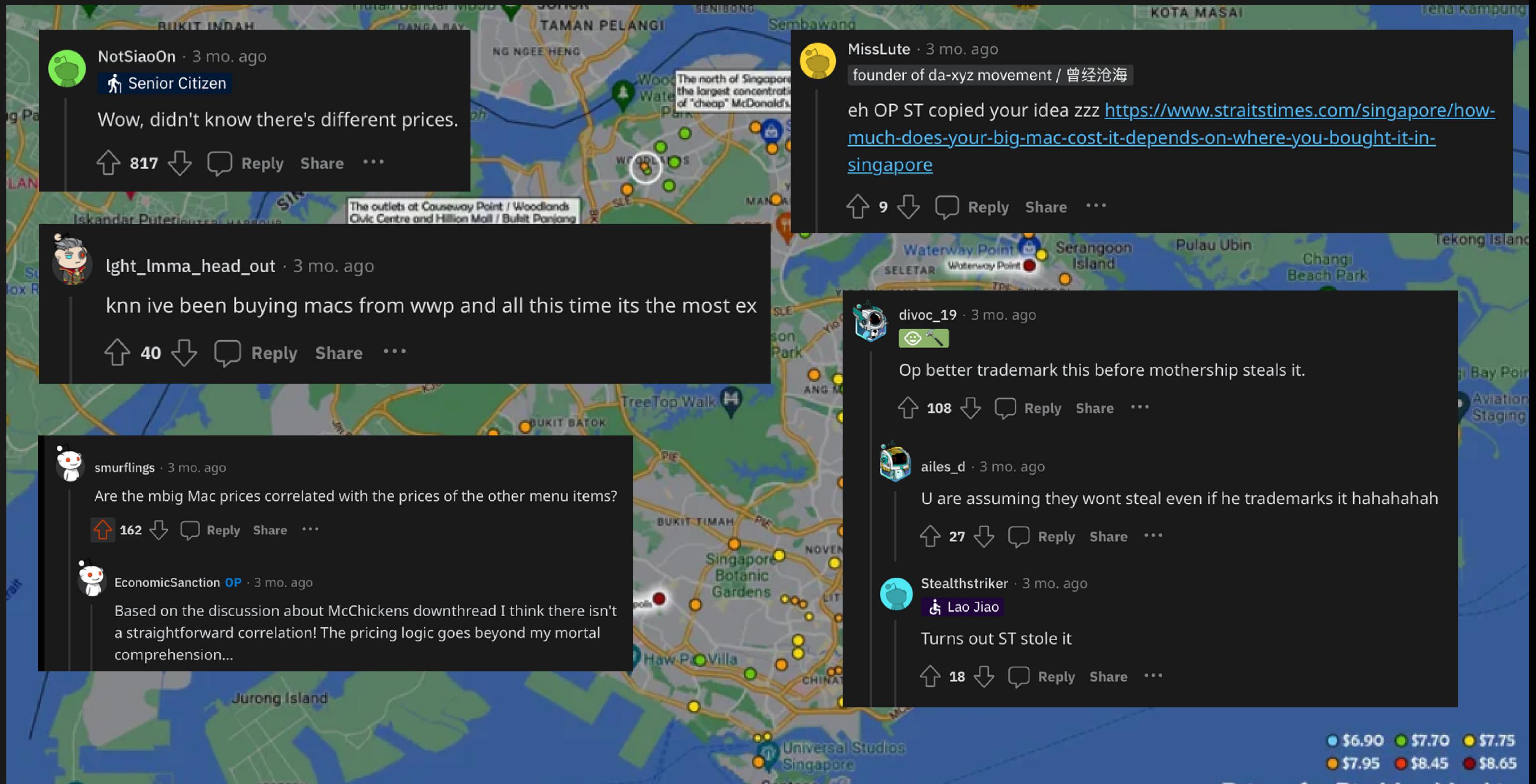


2.6k

Price of a Big Mac Meal across Singapore



I Made This



How much does your Big Mac cost? It depends on where you buy it in Singapore



ST found at least five prices for a Big Mac meal and the difference is up to 95 cents. PHOTO: ST FILE



Goh Yan Han
Political Correspondent

UPDATED 3 JAN 2023 AT 2:14 PM SGT ▾

f t ...

SINGAPORE - A Big Mac meal at the McDonald's outlet in Bedok Mall costs \$8.65. The same meal at the Jewel Changi Airport outlet costs \$7.75.

Price differences like this are common among fast-food chains across Singapore, The Straits Times has learnt.

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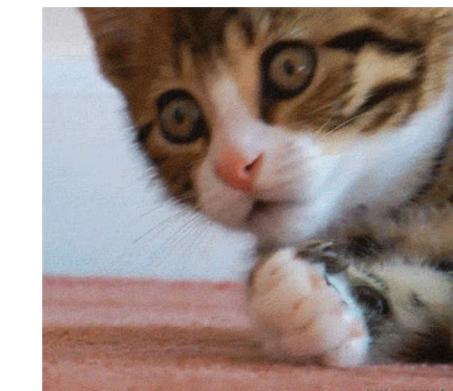
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Manual Scraping

X

Your order

 **Tampines West CC**
Serving Regular Menu: 12:00 - 03:59 [Change location](#)

 **McChicken® Meal** **\$ 5.90**
McChicken®
Medium French Fries™
Tea with Milk
No Add-On

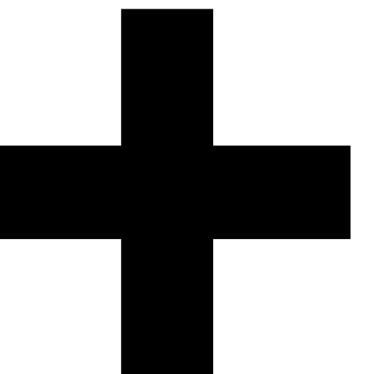
Subtotal **\$ 5.90**

[Order More](#) [Select Pickup Option](#)

Web Scraping



Octoparse



Google Maps



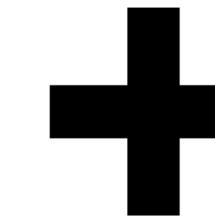
Supply Factors

Ingredients



Salary

Rental



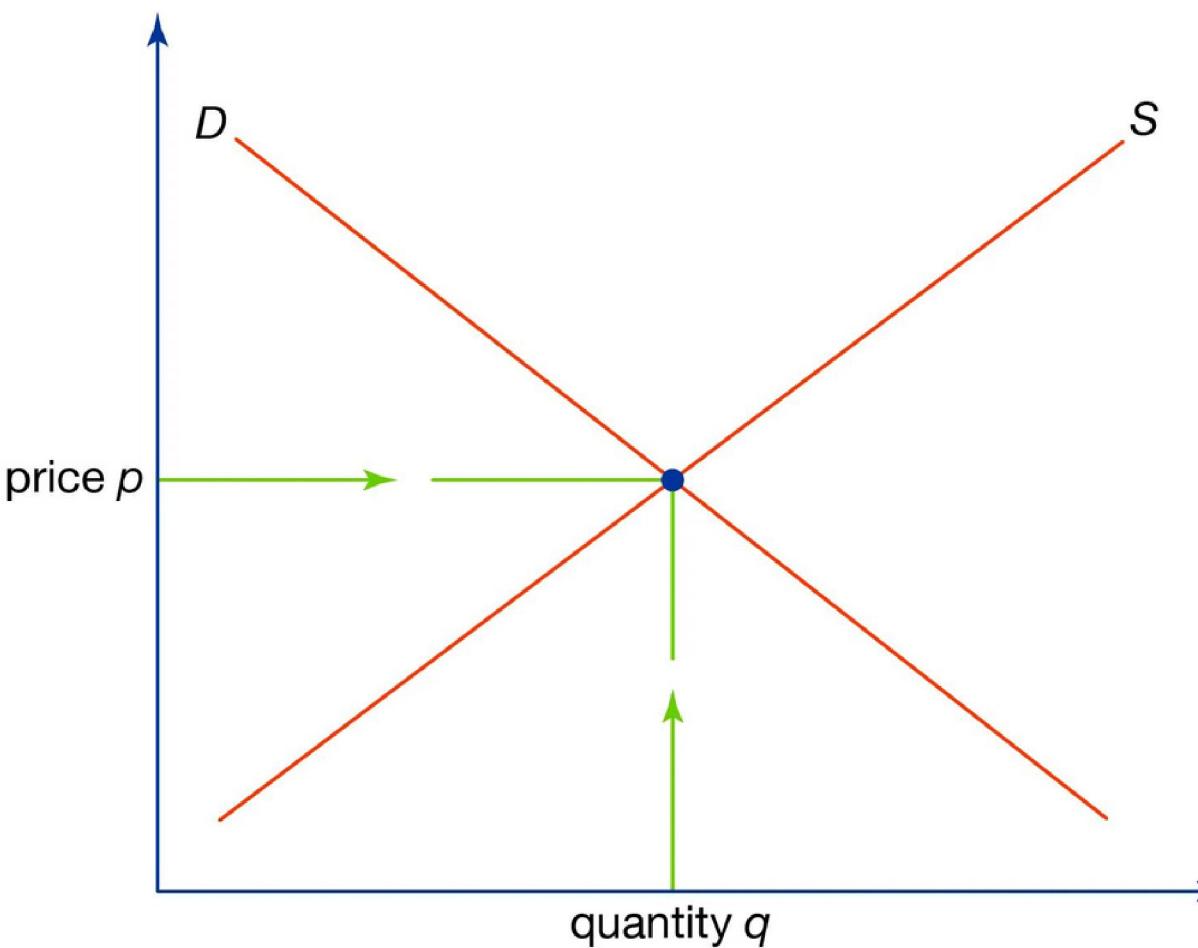
Demand Factors

of Customers

Income of Customers

Branding

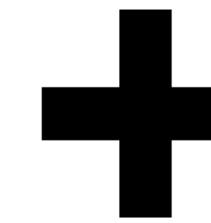
Supply and demand





Supply Factors

Ingredients
Salary
Rental



Demand Factors

of Customers
Income of Customers
Branding

Why McDonald's? Because they are the closest to being competitively priced!

- Menu actually has a price difference depending on where you buy it
- Huge presence and good coverage of the island to test hypothesis
- 140+ stores operating since 1979
- Every restaurant is "the same" so we have less factors to consider when solving our equation



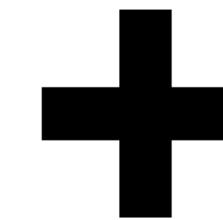
Supply Factors

Ingredients



Salary

Rental



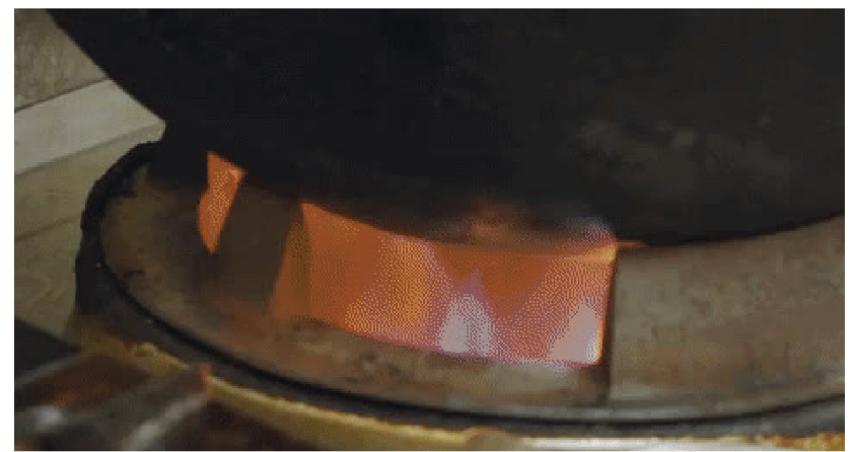
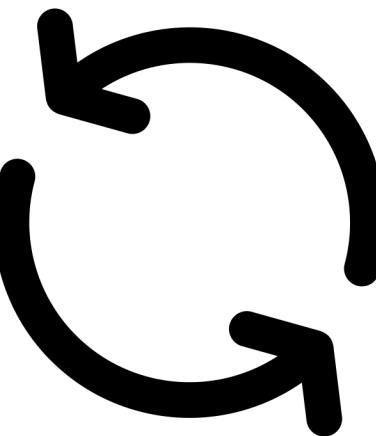
Demand Factors

of Customers

Income of Customers

Branding

After that we can solve every other F&B
to help capture market inefficiencies!



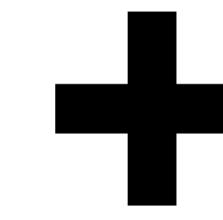
Supply Factors

Ingredients



Salary

Rental



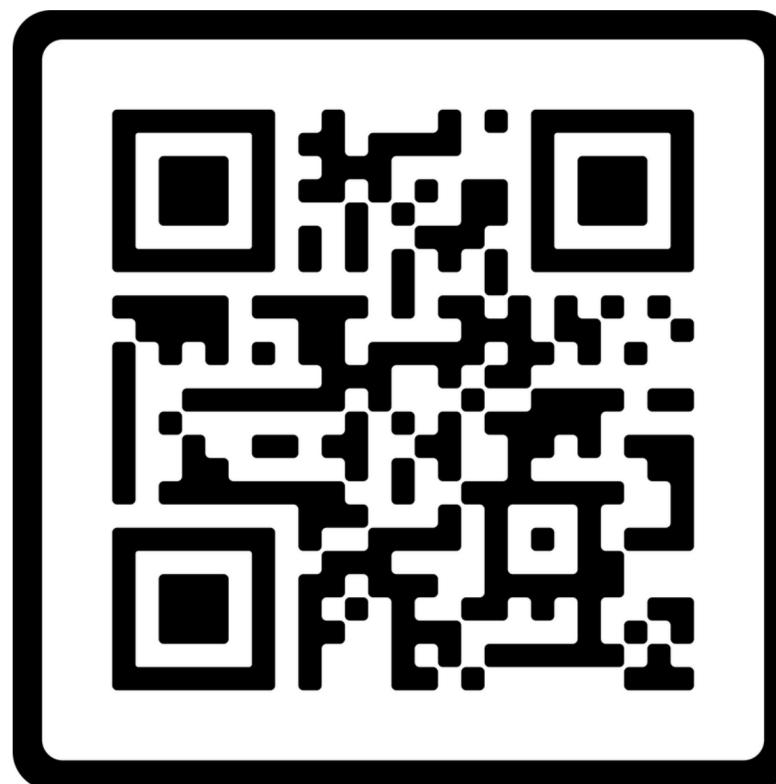
Demand Factors

of Customers

Income of Customers

Branding

Demo!



<https://qrco.de/bdqqrbr>

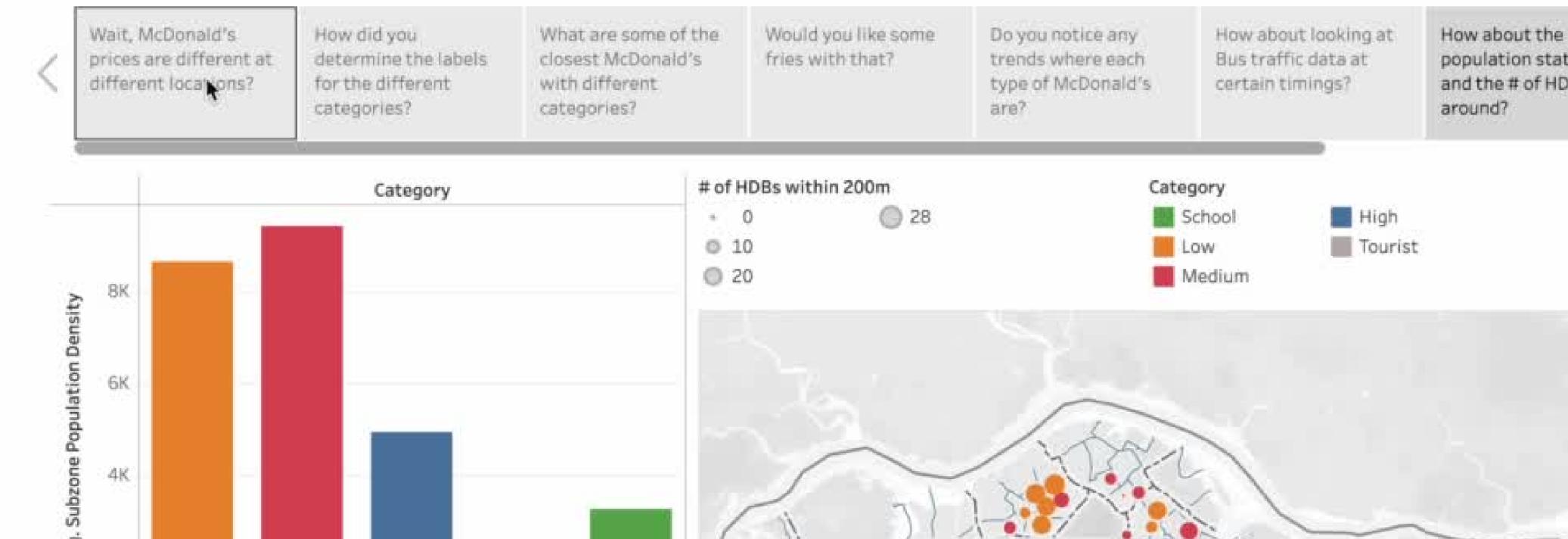
McDonald's Price Predictor · S: x +

← → C nicslvl-mcpredictor-app-6qi9oo.streamlit.app

🍔 I'm Modeling It!

This website predicts prices of a McDonald's based on the location of the restaurant in SG.

Wait, McDonald's prices are different at different locations? How did you determine the labels for the different categories? What are some of the closest McDonald's with different categories? Would you like some fries with that? Do you notice any trends where each type of McDonald's are? How about looking at Bus traffic data at certain timings? How about the population stats and the # of HDI around?



vg. Subzone Population Density

Category

Category	vg. Subzone Population Density
Low	8K
Medium	9K
High	4.5K

of HDBs within 200m

- 0
- 10
- 20

Category

- School (Green)
- Low (Orange)
- Medium (Red)
- High (Blue)
- Tourist (Grey)

McDonald's Woodgrove

Feature Selection

An approximation of...	using...	by calculating...	leaving us with...
# of Customers (variable)	Bus Traffic	Within X distance*, how much (in/out) bus traffic was there based on 24 hours on a (weekend/weekday) around a Macs?	24 hours x 2 day types x 2 traffic types x 4 distances = 384 features
Rental, Income of Customers	HDB Count	Within X distance*, how many hdb's are there around a Macs?	4 distances = 4 features
# of Customers (fixed), Income of Customers	Subzone Data	For a McDonald's what is the <ul style="list-style-type: none"> • Subzone Population? • Subzone Population Density? • Subzone Income? • Subzone Average Income? 	4 features

* There were 4 distances selected: 200m, 500m, 1km, 2km

1. Bus Traffic

\approx # of Customers (variable)

- We assume a fixed % of customers will go to Macs
- Data taken from LTA, 5083 bus stops
- Only past 4 months data available (Nov 22 - Feb 23)
- # of People who tap in / out at a particular stop
 - Weekend or weekday
 - What hour of the day (0-23)



2. # of HDB

\approx Rental, Income of Customers

- Initially wanted Public:Private property ratio. Land is scarce in Singapore, if its not used for HDB, its used for private / commercial purposes
- Data taken from data.gov, 12,626 different HDB blocks
- Last updated 4 Jan 2023



3. Subzone Data

\approx # of Customers (fixed), Income of Customers

- We assume a fixed number of people living around the area to go to that McDonald's based on their flat type
- Data taken from [Singstat](#), 332 different subzones
- Last updated Jun 2022

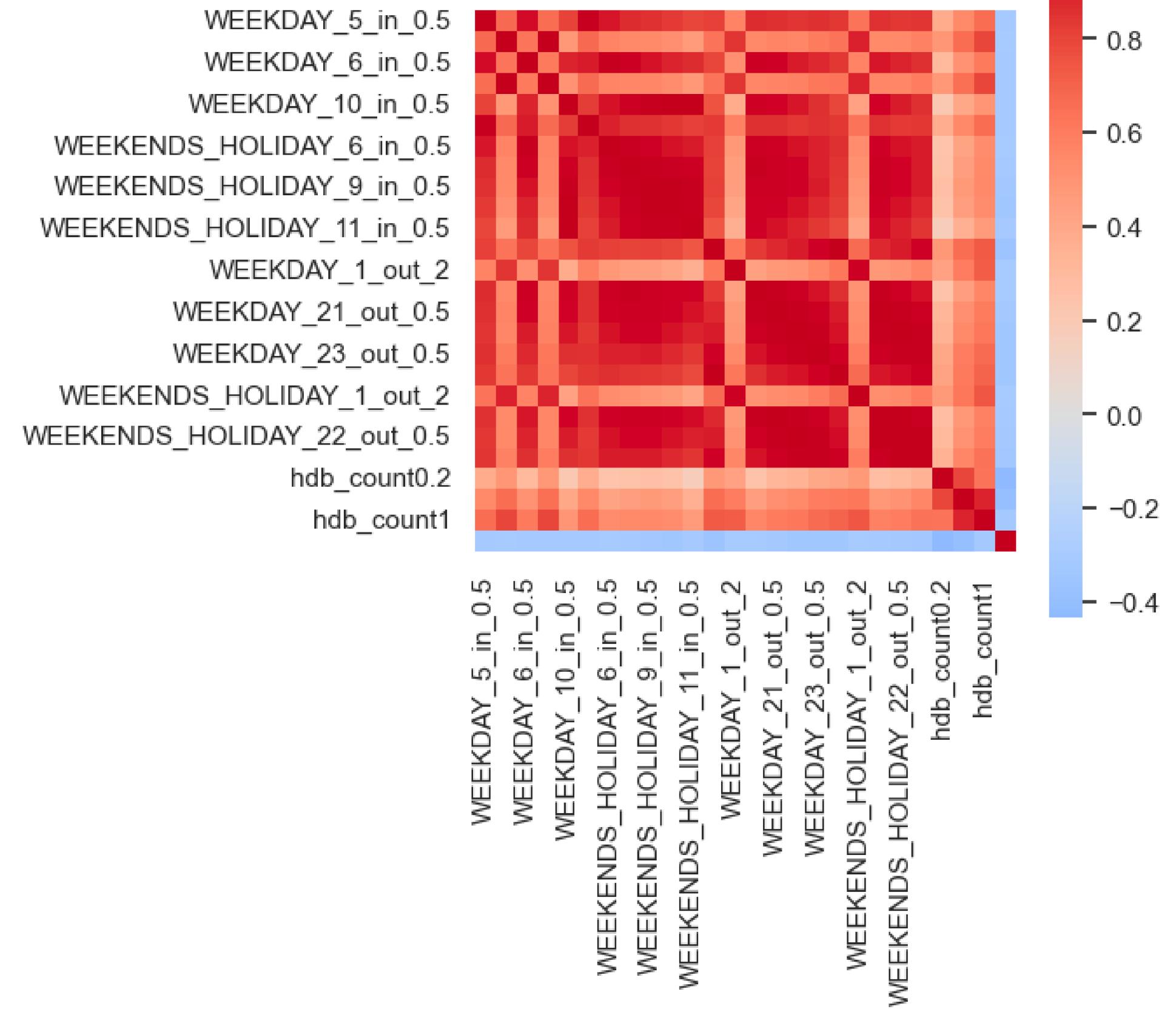


01

We look at features >0.3 absolute correlation
Tap in timings in the morning and tap out timings at night are negatively correlated

02

HDB count is negatively correlated

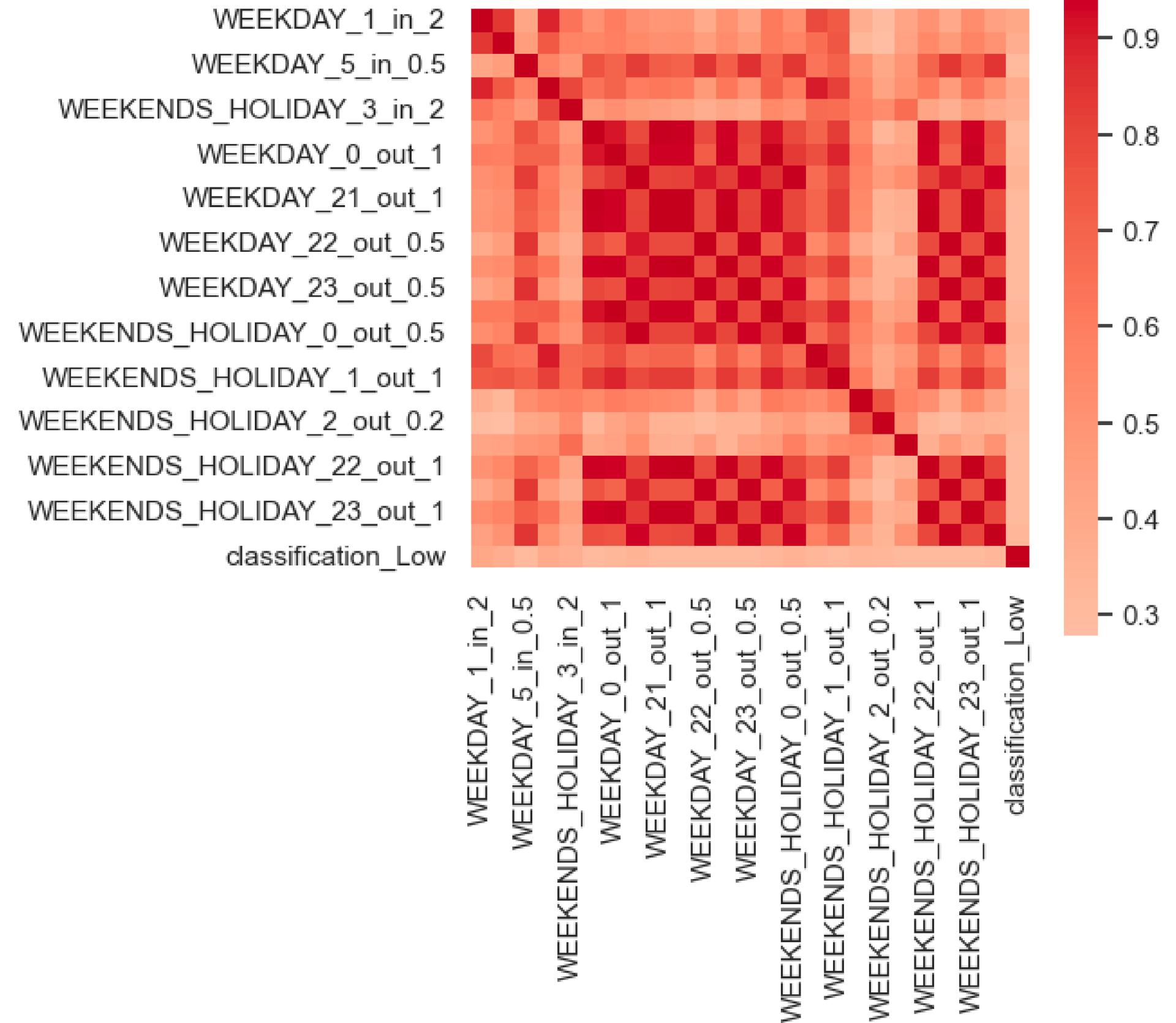


"HIGH" McDonald's

01

Tap in timings in the early morning and tap out timings at night are positively correlated

We look at features >0.3 absolute correlation

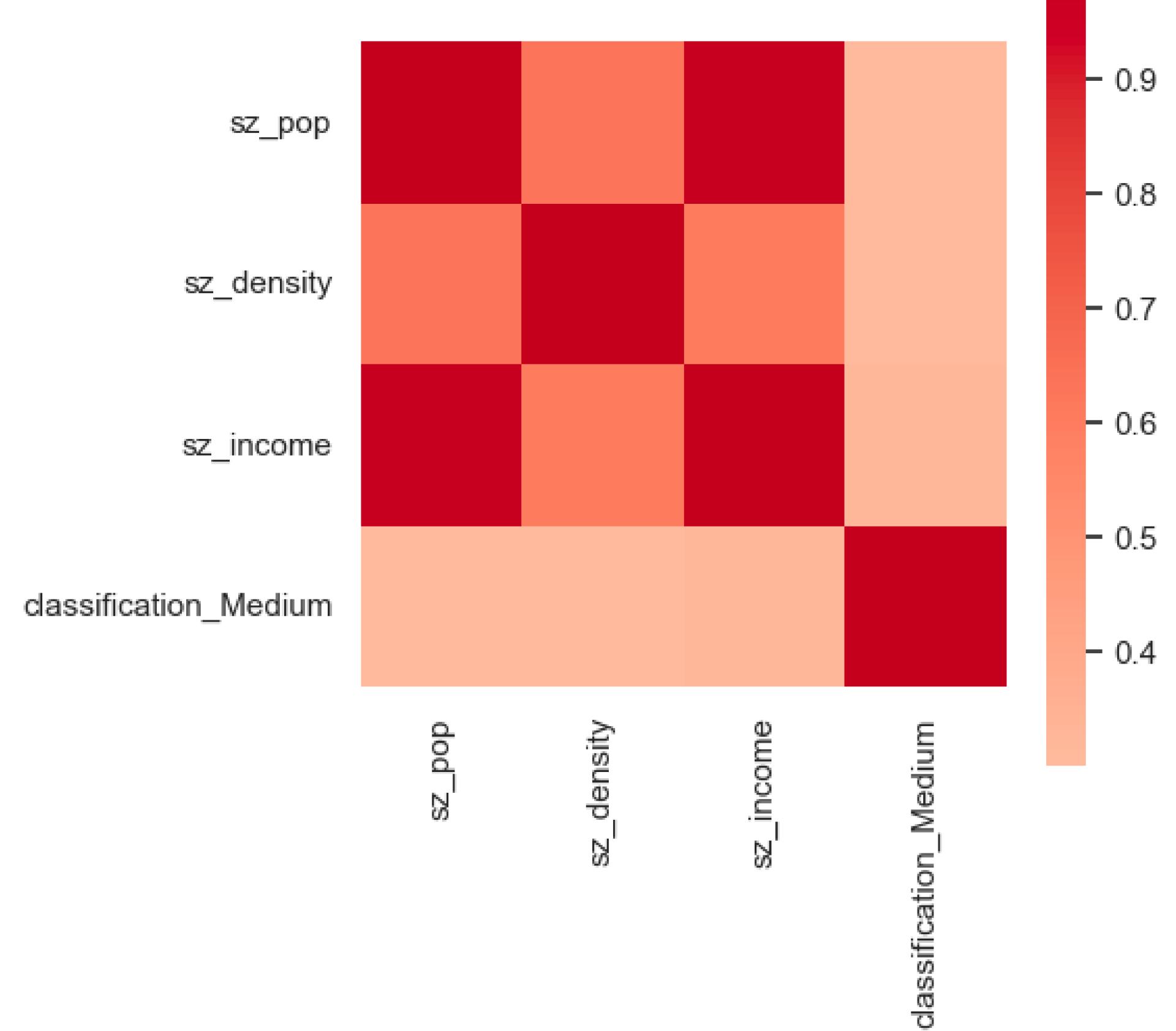


"LOW" McDonald's

We look at features >0.3
absolute correlation

01

Somewhat positive correlation
to subzone population, density
and income



"MED" McDonald's

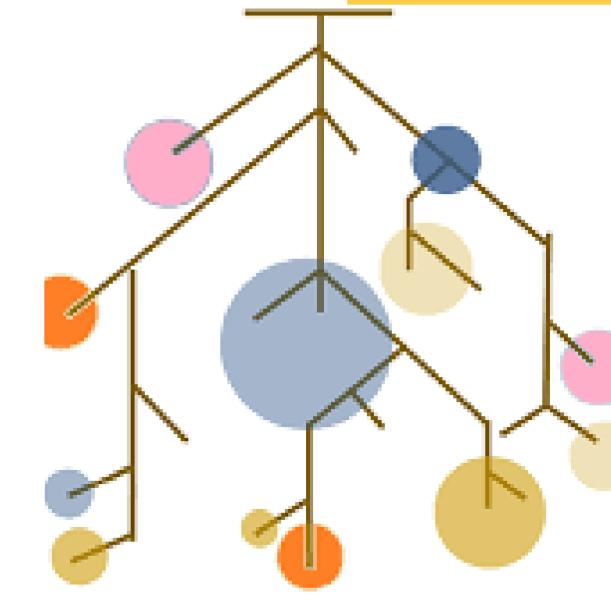
Unused features



- Planning area Makan Index
- Hawker Centre count
- 24 hours Macs or not
- Average age of HDB in the subzone
- Subzone average income

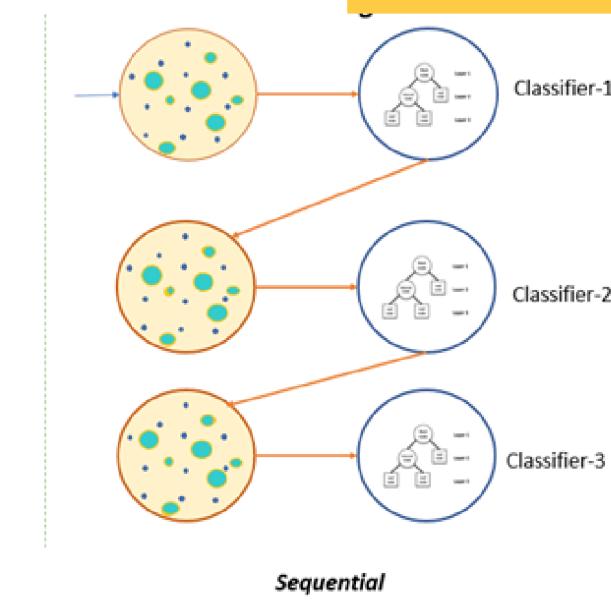
Model Results

- Baseline is 33% to get a classification right
- All algorithms were oversampled to make up for the class imbalance
- We aim for accuracy because all classes are equally important to get right to test out the hypothesis



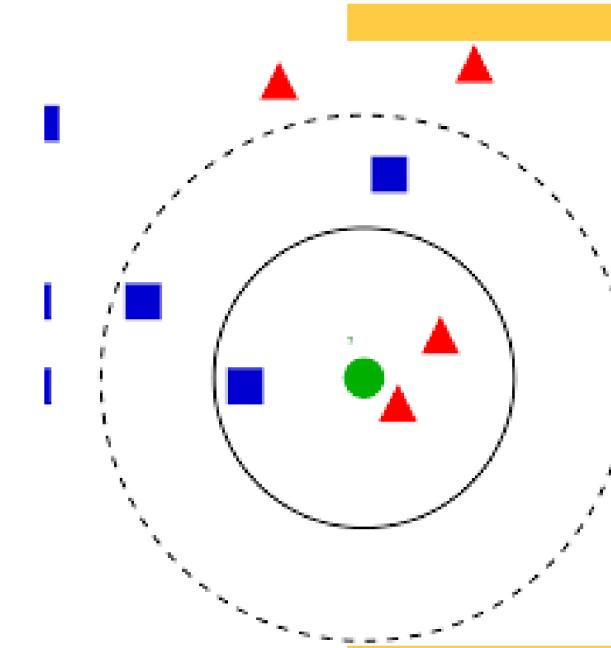
Random Forest

Stratified Kfolds Train: 0.72
Test: 0.71
Split: 75 : 25



Gradient Boosting Classifier

Stratified Kfolds Train: 0.64
Test: 0.6
Split: 75 : 25



KNN

Stratified Kfolds Train: 0.57
Test: 0.43
Split: 75:25

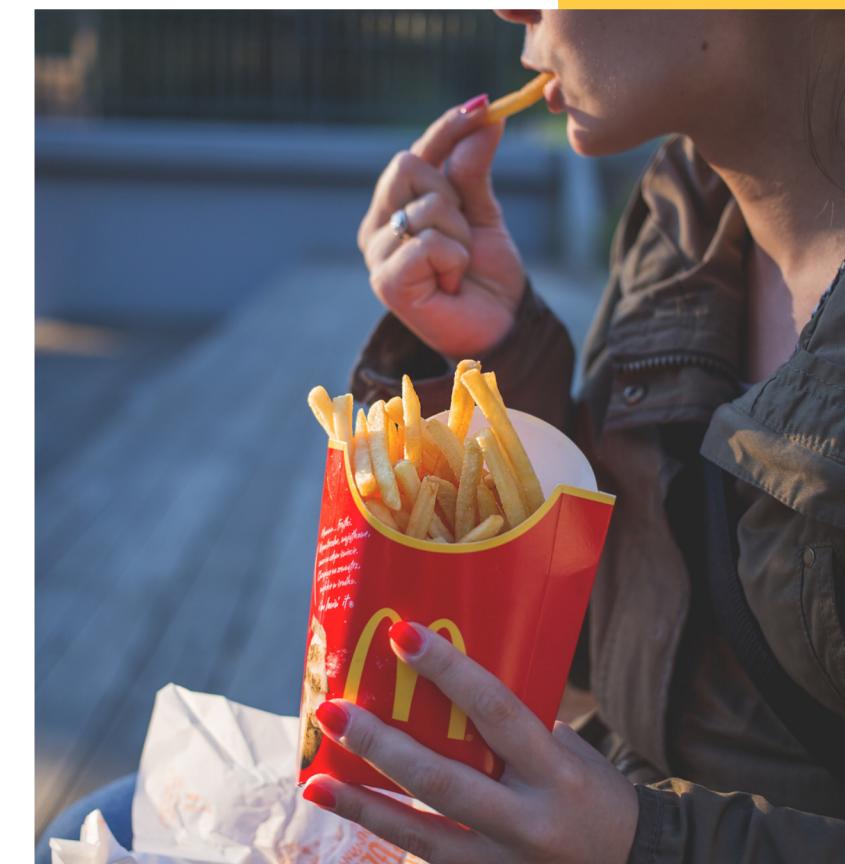
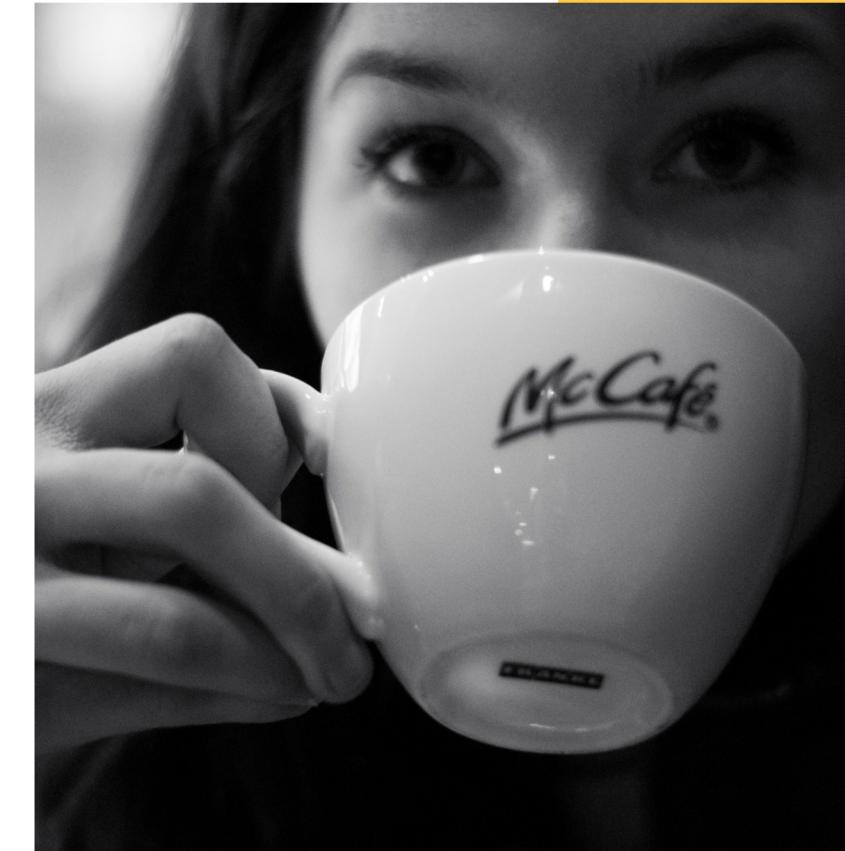
Next Steps

To improve past 72%

- **Add more data:** New features are required to predict the "outliers"
- **Add more data:** Consider other F&B that have different pricing in their menus

For other use cases

- **Optimize for a particular class** e.g. I only want to know where I can price higher



THANK YOU!

Q & A



 SCAN ME

Demo: <https://qrco.de/bdqqrbr>

Github: <https://github.com/NicsLvl/McPredictor>

