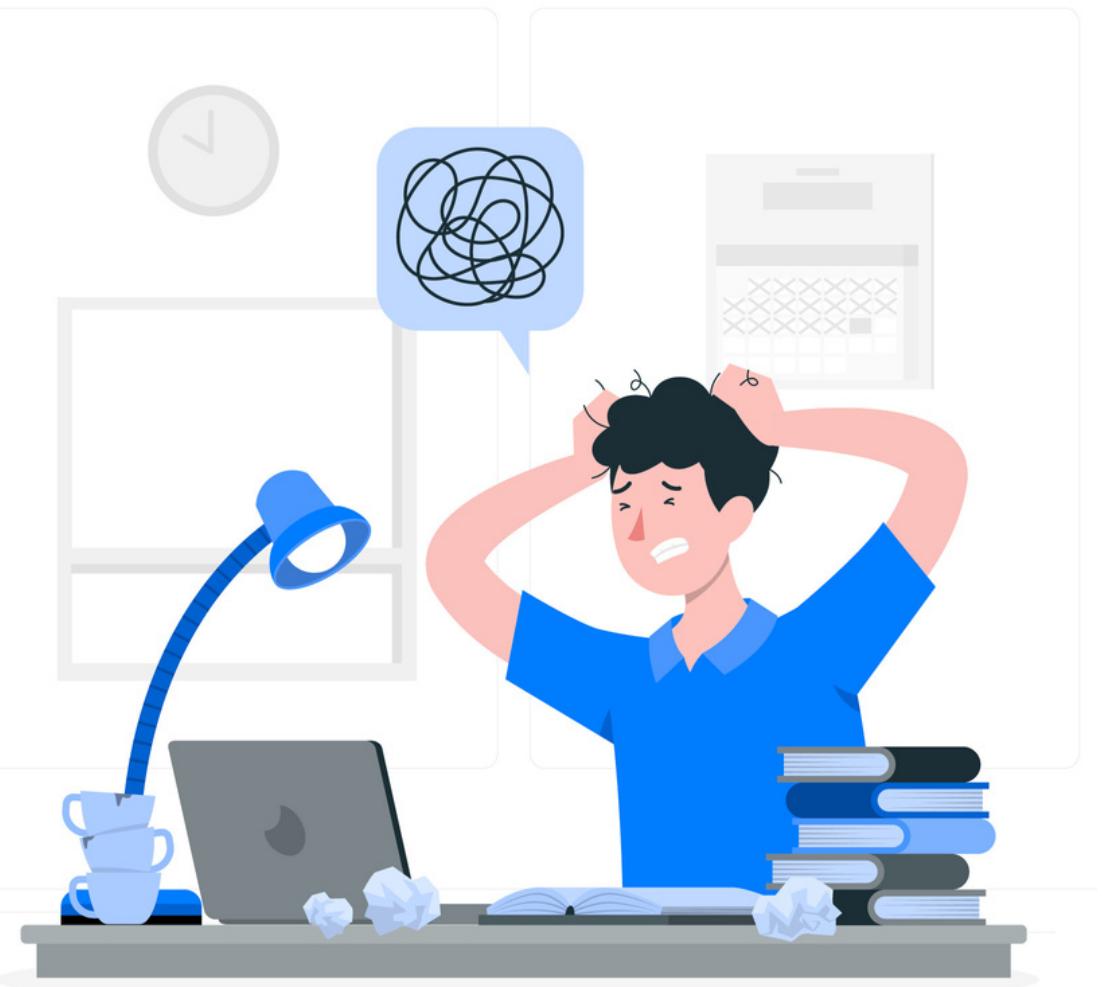
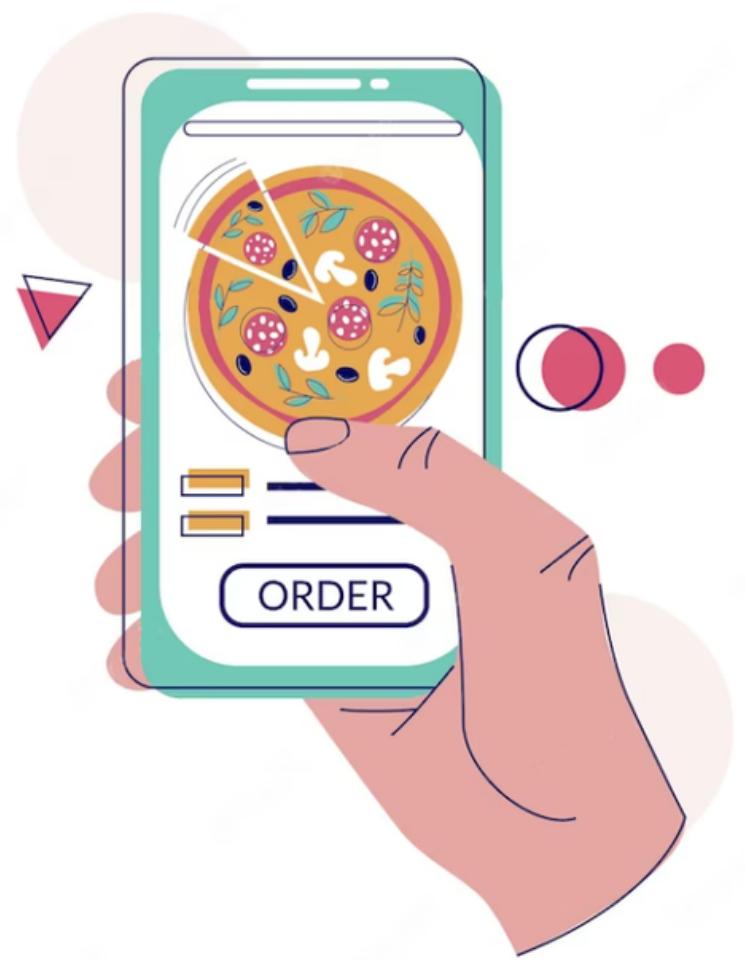
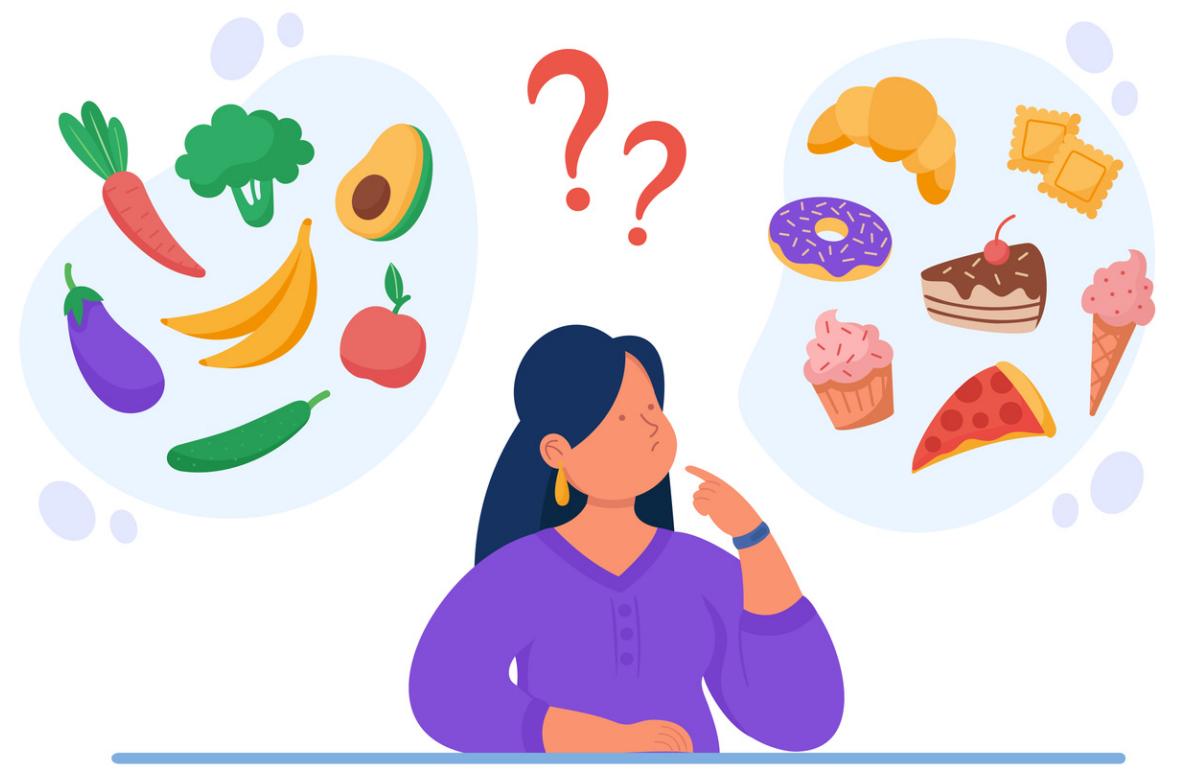


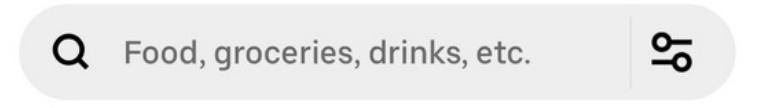
UberEats Using Coupons to Increase Revenue and Customer Engagement

Abhigyna Bhat, Ganesh Tadake, Kundan Suri, Chengxi Li, Mohamed Nuh









Papa Johns Pizza (189 Avenue U) 4.4
\$2.49 Delivery Fee • 35–50 min

Based on your search


McDonald's® - Brooklyn (Con... 4.5
\$4.49 Delivery Fee • 25–40 min


Burger King 4.5
\$2.99 Delivery

Popular near you


See all

 Home  Browse  Baskets  Account



Papa Johns Pizza (189 Avenue U)
★ 4.4 (196 ratings) • Pizza • \$
Open until 1:45 AM
Tap for hours, info and more

Delivery 35–50 min • \$2.49 Pick-up 10–20 min • 2.9 mi

See similar  **Group order**

Similar with \$0 Delivery Fee


Gyro&grill 4.5
\$0 Delivery Fee • 25–40 min


Wuddaburro 4.5
\$0 Delivery Fee

Picked for you

Spend \$25, Save \$5

Promotions

Get ₹100 off your order >

Available promotions

Limit of one per order

Provided by Uber Eats

\$5 off

\$25 minimum order • Use at Papa Johns Pizza
(189 Avenue U) • This promotion does not appl...

Valid for current order while supplies last

Selected Details

12:36 Estimated arrival

Order received. Working on it now...

Latest arrival by 12:50 PM ⓘ

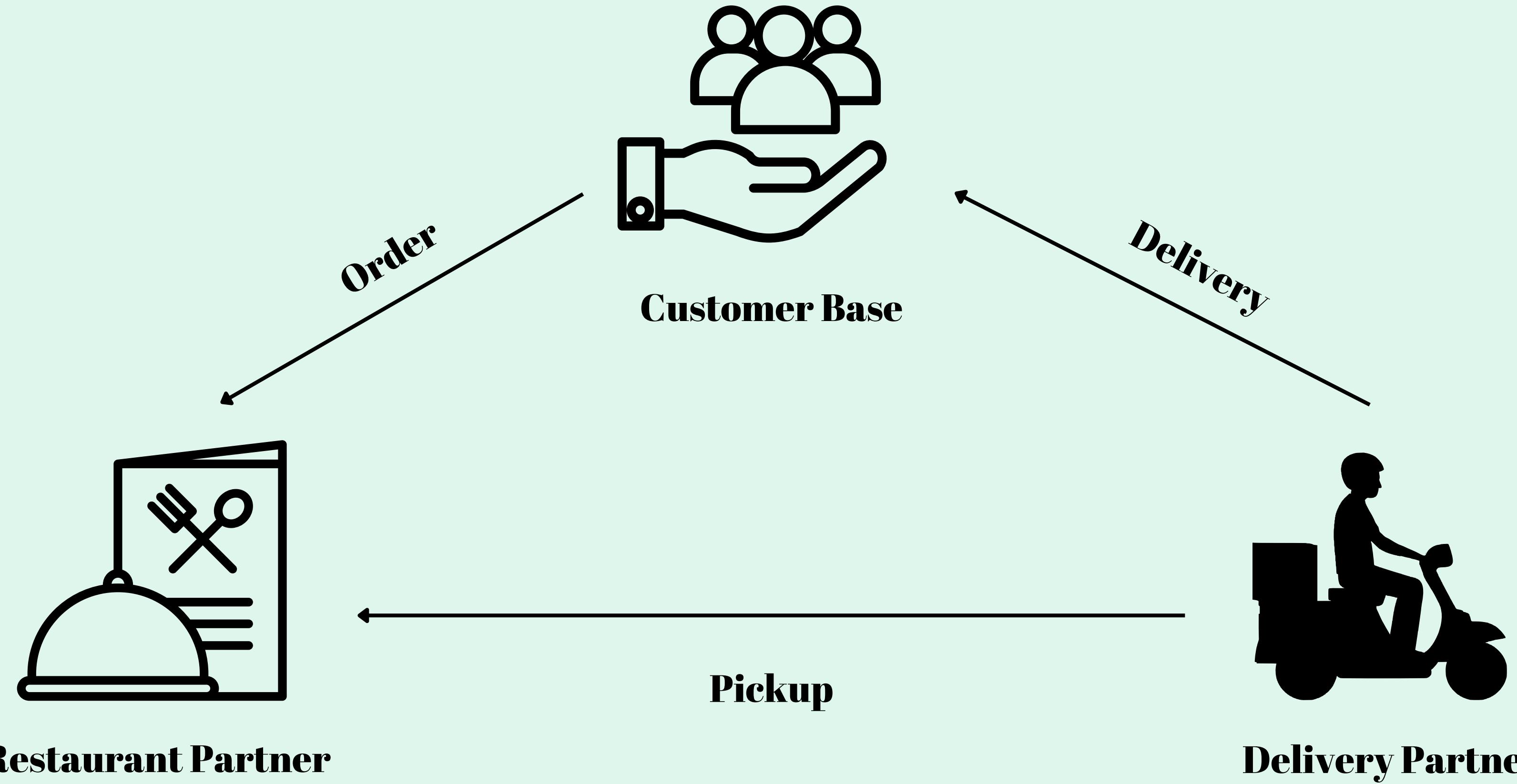


Delivery Details

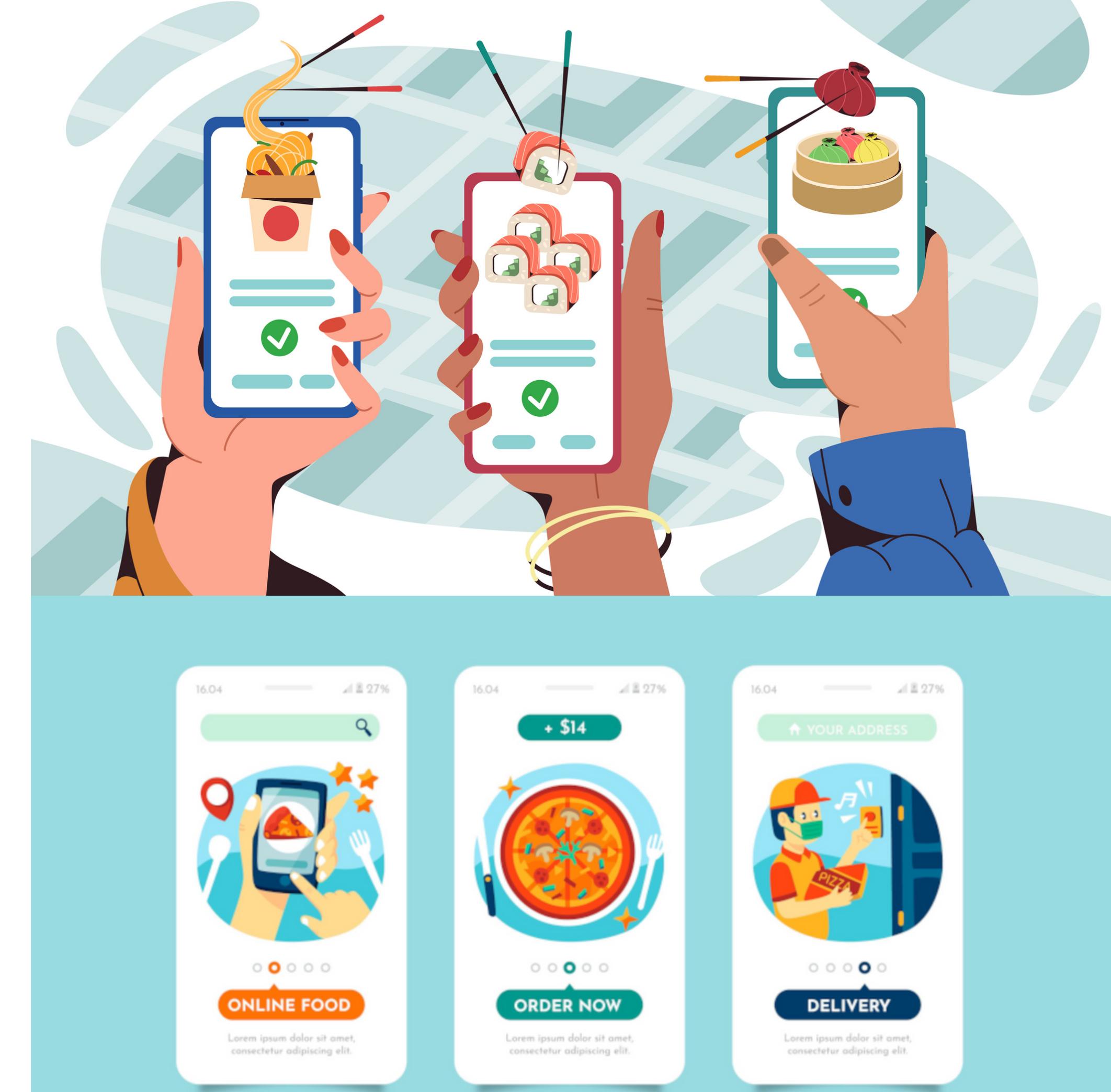
Address

123 Main Street, San Francisco, CA 94123

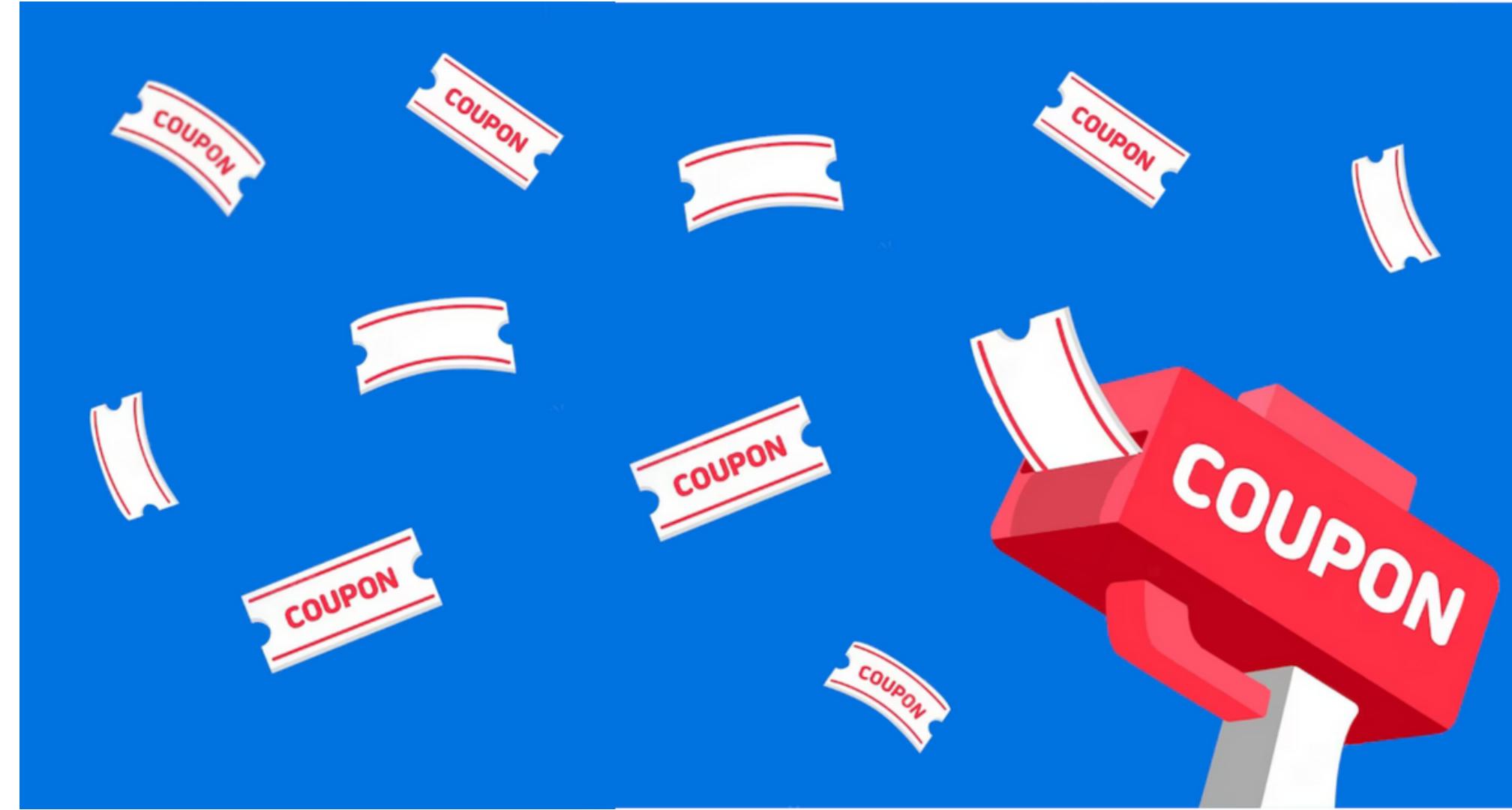
Background



Business Case



Business Case



Financial Implications

Assumptions

- Probability that customer accepts the coupon = 0.7
- Average order = \$30
- Delivery fee = \$6
- Driver fee = \$6
- Commission = 30%
- Discount = 25%
- Cost of adding coupon to the app per order= ~\$0

Payoff Matrix

TP :

$$=0.7(36(\text{Total cost}) - 6(\text{Driver fee}) - 30(\text{Order cost}) + (0.3*30)(\text{Comission}) - (0.25*30)(\text{Discount})) + 0.3(36(\text{Total cost}) - 6(\text{Driver fee}) - 30(\text{Order cost}) + (0.3*30)(\text{Comission}))$$

TP = \$3.75

TN :

$$= 0$$

TN = \$0

FP:

$$= 0$$

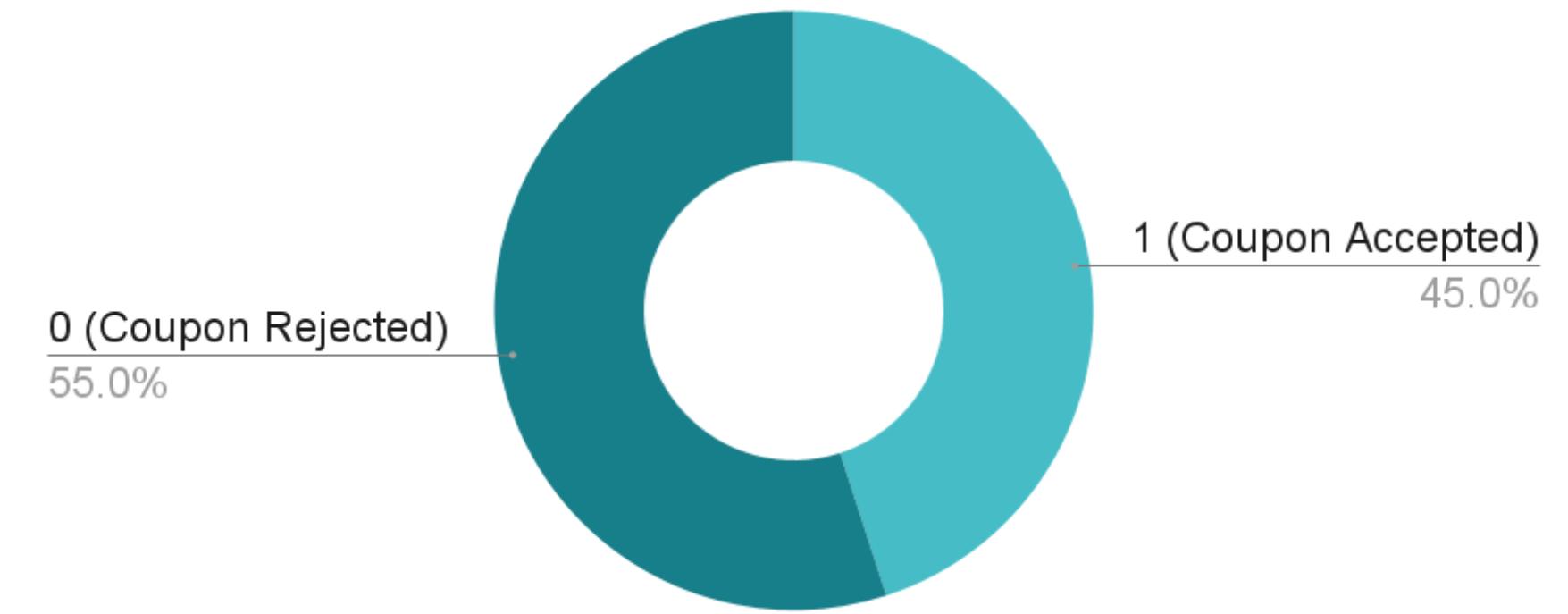
FP = \$0

FN:

$$= 0.3(36(\text{Total cost}) - 6(\text{Driver fee}) - 30(\text{Order cost}) + (0.3*30)(\text{Comission}))$$

FN = \$2.7

Data Sources and Summary



Data Sources

Target Variable

Predictor Variables



Restaurant Related Fields

Coupon Type

Expiration

Bar

Coffee House

Carry out and Take away

Restaurant less than 20

Restaurant 20 to 50

Demographic Information

Education

Occupation

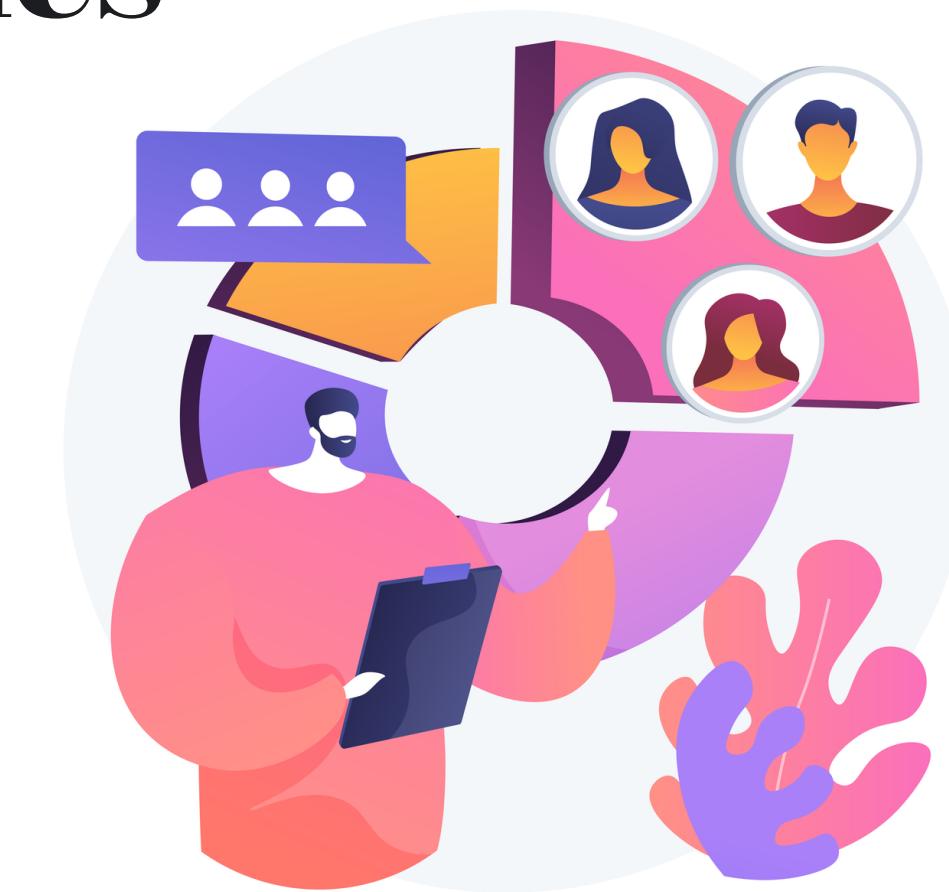
Income

Age

Gender

Marital Status

Has Children



Geographic Information

Time

Weather

Temperature

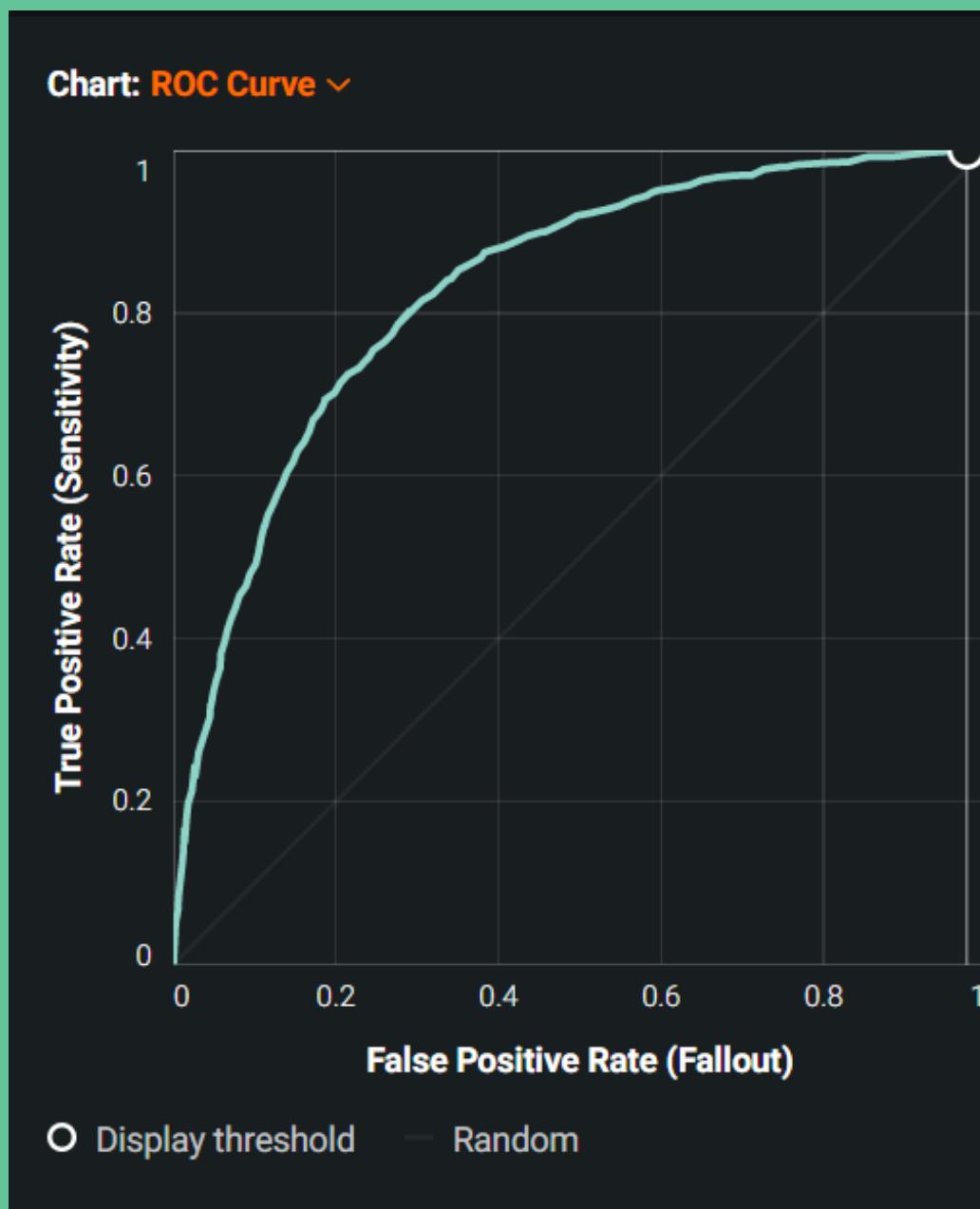
Distance from Restaurant > 15 min
drive

Distance from Restaurant > 25 min
drive

Model Performance and Metrics

Models	Threshold	Precision	Recall	F1	Accuracy	ROC AUC	Max Payoff
<u>eXtreme Gradient Boosted Trees Classifier</u>	<u>0.0419</u>	<u>0.5747</u>	1	<u>0.7299</u>	<u>0.579</u>	<u>0.8301</u>	<u>\$ 5411.25</u>
Random Forest Classifier	0.0362	0.569	1	0.7253	0.5692	0.804	\$ 5411.25
Keras Slim Residual Neural Network Classifier	0.0074	0.5688	1	0.7251	0.5688	0.7877	\$ 5411.25
Elastic-Net Classifier	0.0519	0.5688	1	0.7251	0.5688	0.74	\$ 5411.25
Logistic Regression	0.0382	0.5688	1	0.7521	0.5688	0.7399	\$ 5411.25

eXtreme Gradient Boosted Trees Classifier is the best Performing model



ROC Curve

Recall	1
Precision	0.5747
F1	0.7299
Accuracy	0.579
ROC AUC	0.8301
Max Payoff	\$5411.25

Metrics

TP	1068
FP	1443
TN	26
FN	0

Threshold: 0.0419

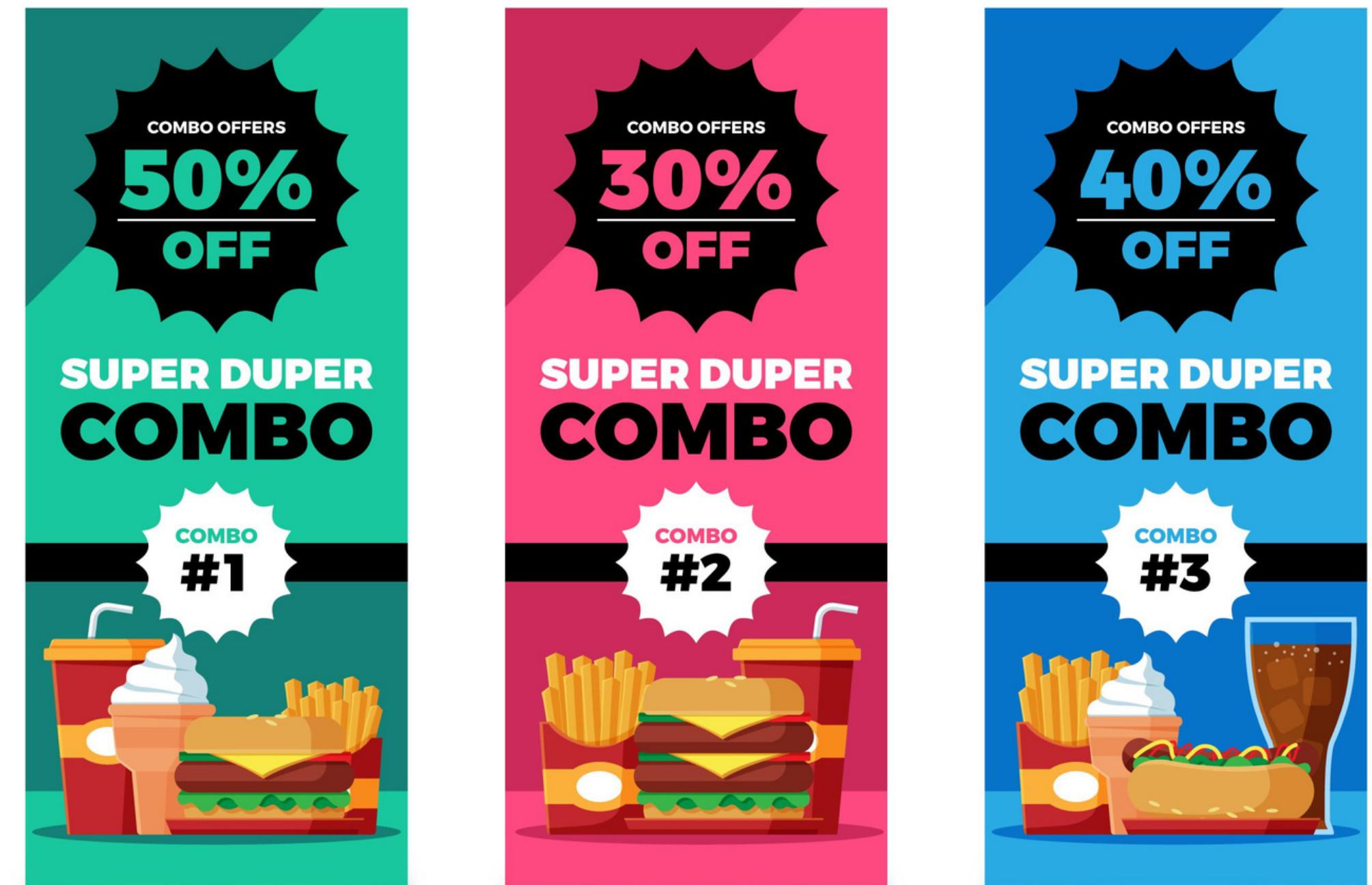
Payoff

Top 4 Predictors

- 
- 1 Coupon
 - 2 Expiration
 - 3 Time
 - 4 Occupation

Coupon

What type of coupon is more likely to be accepted by customers?



Coupon



BurgerFi Brooklyn

★ 4.7 (500+ ratings) • Burgers • \$ • ⓘ

Open until 9:30 PM

Tap for hours, info and more

Delivery
15–30 min

Pick-up
10–20 min • 0.3 mi

See similar ▾ Group order

Picked for you

THE CEO

\$13.31 • 865 Cal.

Double Premium Wagyu Blend, Homemade Candied Bacon-Tomato Jam, Truffle Aioli, Aged Swiss Cheese. (Cals 865)



NEW! BBQ RODEO BURGER

\$11.99 • 655 Cal.

All-Natural Angus Beef grilled with Charred Jalapeños, topped with Pepper Jack Cheese, Crispy



Spend \$30, Save \$5



Applebee's (Brooklyn Junction)

★ 4.6 (466 ratings) • American • \$\$

Open until 10:00 PM

Tap for hours, info and more

Delivery
65–80 min • \$0.49

Pick-up
15–25 min • 4.2 mi

See similar ▾ Group order

Similar and faster



The Kettle Black (Bay Ridge)

ⓘ \$0 Delivery Fee • 30–45 min

4.6

Mussels & ⓘ \$0 Delivery Fee

Picked for you

Spend \$40, Save \$11



Cafe Gossip

★ 4.8 (257 ratings) • American • \$\$ ⓘ

Open until 12:45 AM

Tap for hours, info and more

Delivery
20–35 min

Pick-up
10–20 min • 1.2 mi

See similar ▾ Group order

Buy 1 get 1 free

Avocado Salad ❤️

\$15.95

Avocado, lettuce, tomato, cucumber, onion, seasoned with olive oil and lemon



Buy 1, get 1 free

Penne Alla Vodka

\$19.50

Marinara sauce and vodka.



Buy 1, get 1 free

Spend \$30, Save \$8

Carry Out

Bar

Coffee House

Coupon



Sunnyvale Farms Sandwiches & Wraps (...)

Sandwiches • \$\$ • ⓘ

Open 24 hours

Tap for hours, info and more

Delivery
20–35 min

Pick-up
5–15 min • 0.8 mi

See similar

Group order

Picked for you

New York Pastrami

\$15.29

Sliced pastrami with swiss cheese, coleslaw, pickles, and russian dressing on your choice of bread.



Turkey Club

\$14.29

Sliced roasted turkey breast with



Spend \$15, Save \$3



Divine Pizza

★ 4.8 (42 ratings) • Kosher • \$

Open until 8:00 PM

Tap for hours, info and more

Delivery
45–60 min • \$0.49

Pick-up
5–15 min • 2.9 mi

See similar

Group order

Picked for you

18" Classic Cheese Pie

\$19.99

Our most popular cheese pizza pie



Pizza special #2

\$27.99

1 classic 18" pie , 6 pcs garlic knots, large fries, bottle of water.

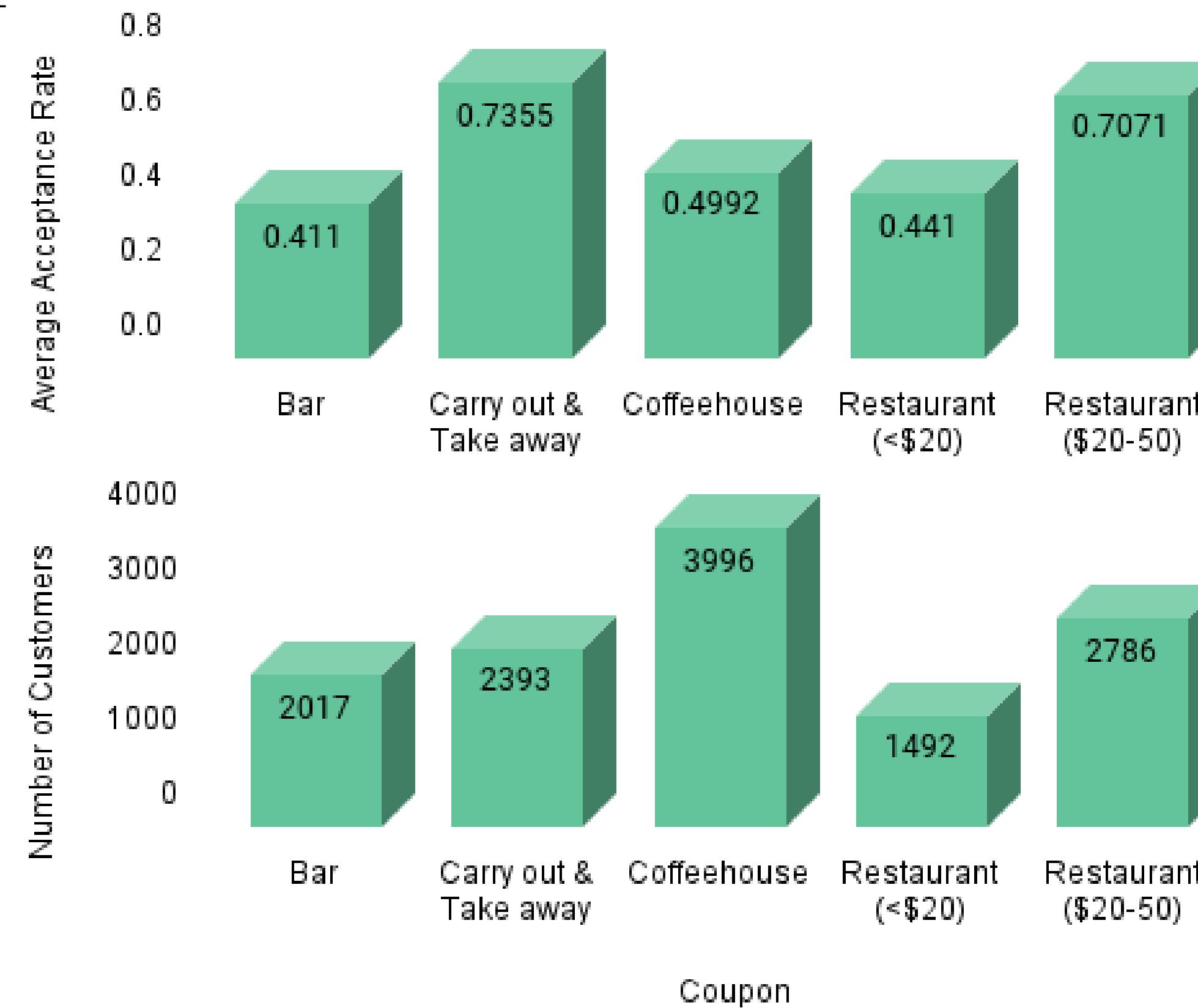


Spend \$25, Save \$5

Restaurant <20

Restaurant 20 to 50

Coupon



Expiration

What is the
optimal duration
for a coupon's
expiration period
to increase its
likelihood of
being accepted?



Expiration

**50% off (up to \$20)
convenience**



Use by May 16, 2023 3 AM
At select convenience stores • \$20
convenience stores • \$20 minimum ord...

[Shop now](#)

[Details](#)

**20% off (up to \$20)
liquor**



Use by May 22, 2023 3 AM
At select liquor stores • \$40 minimum
liquor stores • \$40 minimum order • Delive...

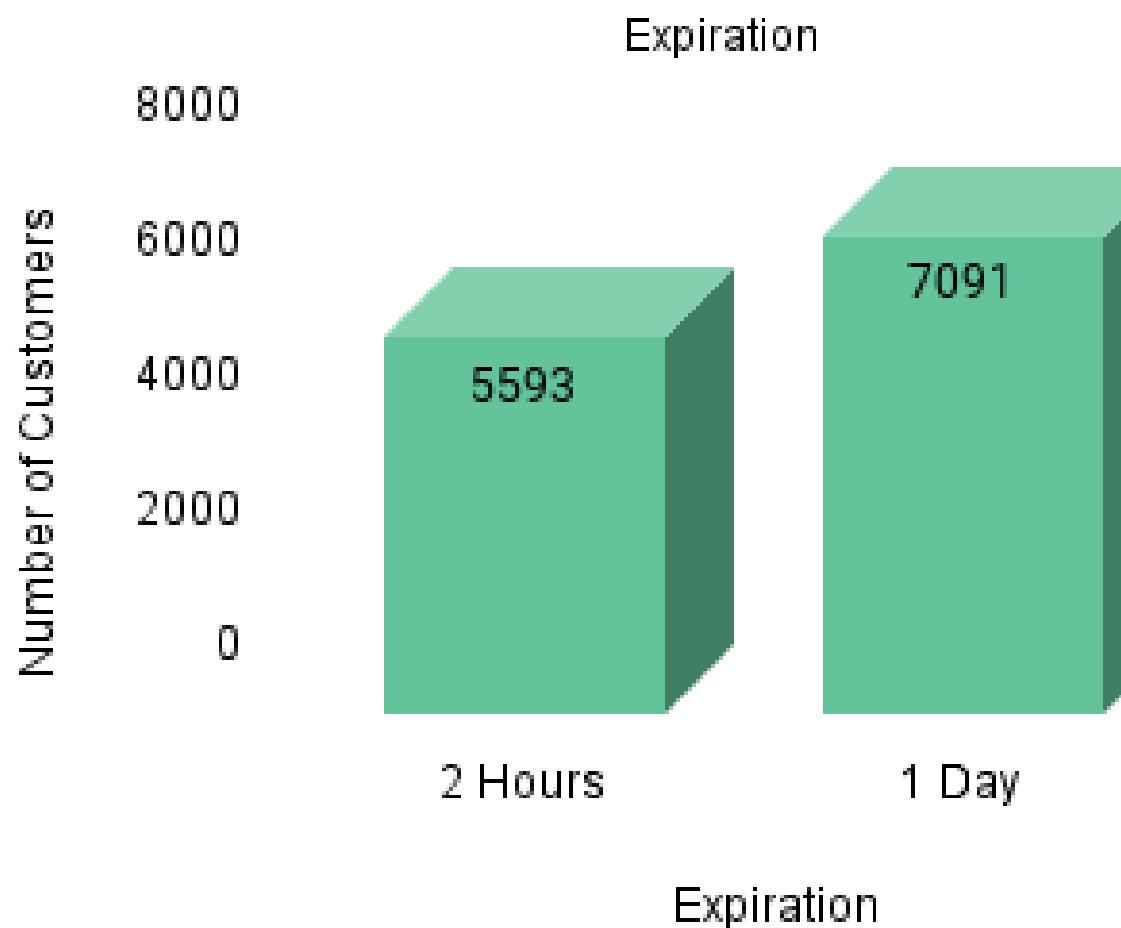
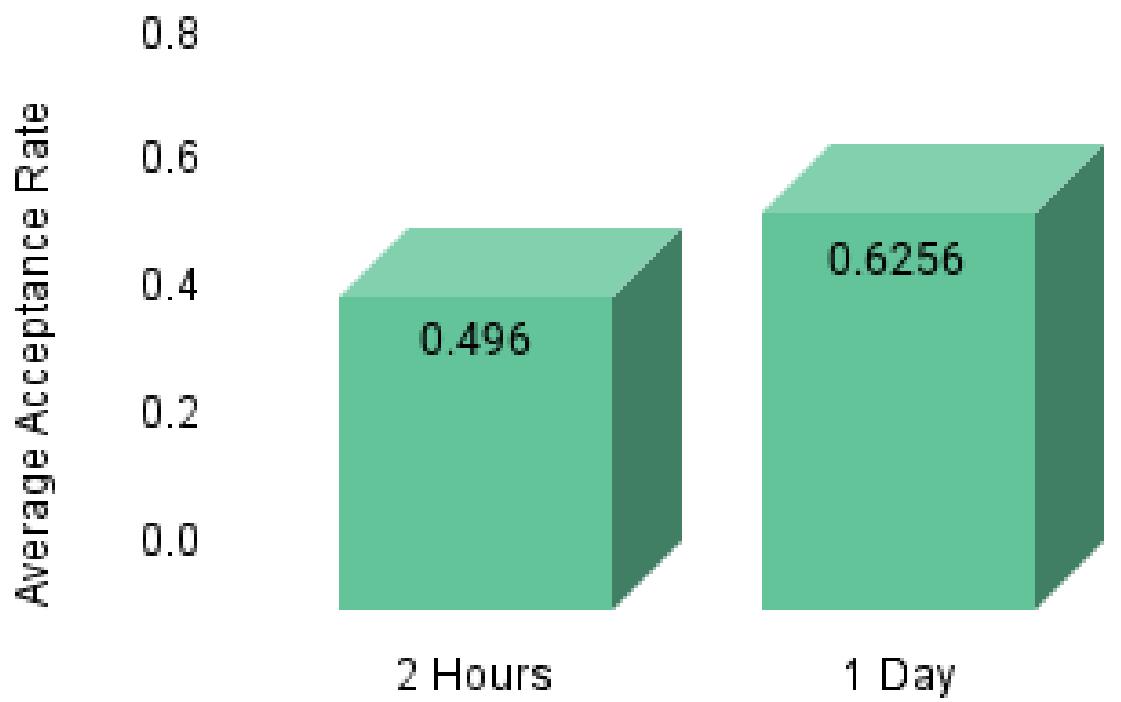
[Add promo](#)

[Details](#)

Coupons with shorter
expiration periods

Coupons with longer
expiration periods

Expiration

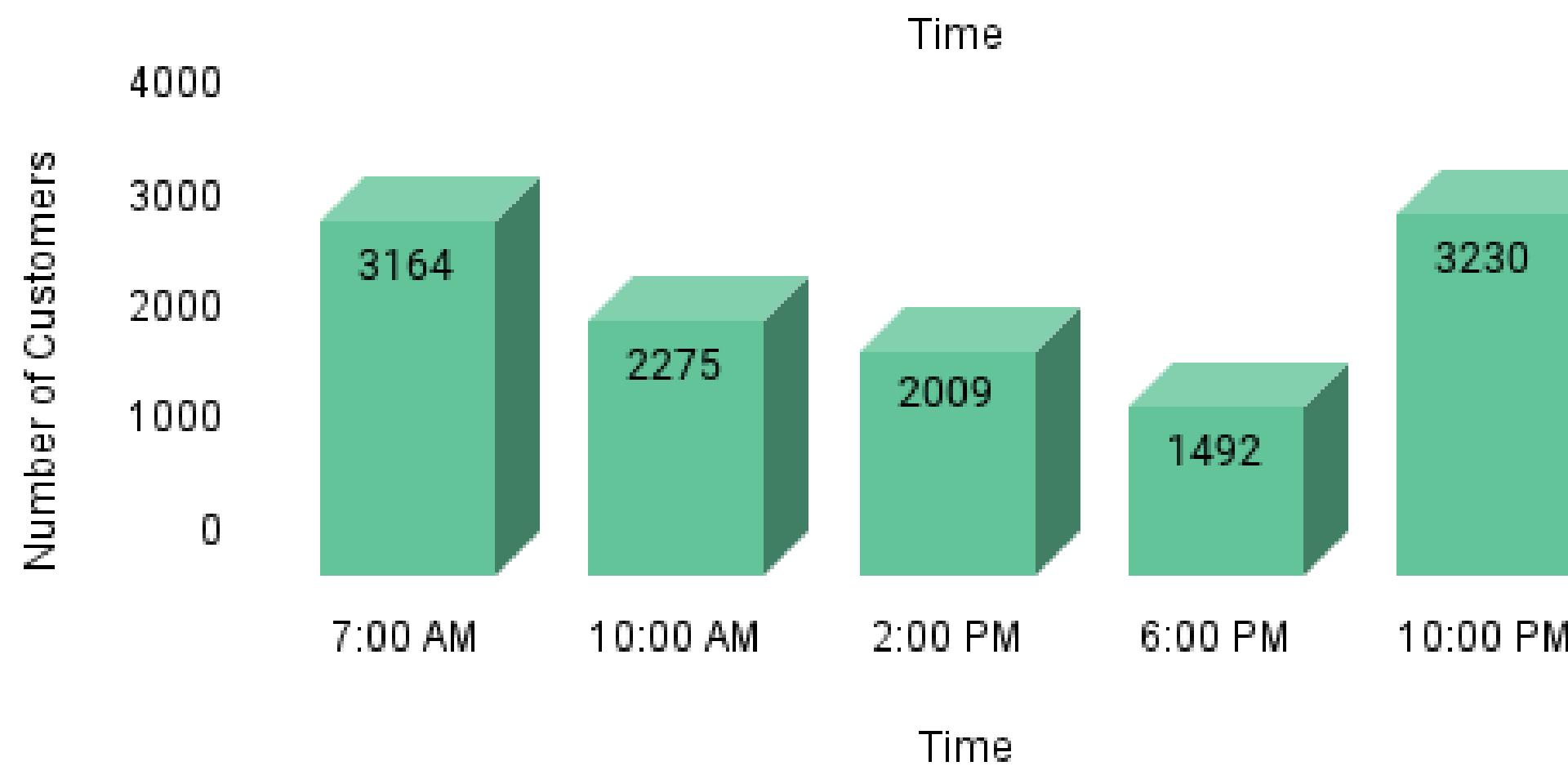
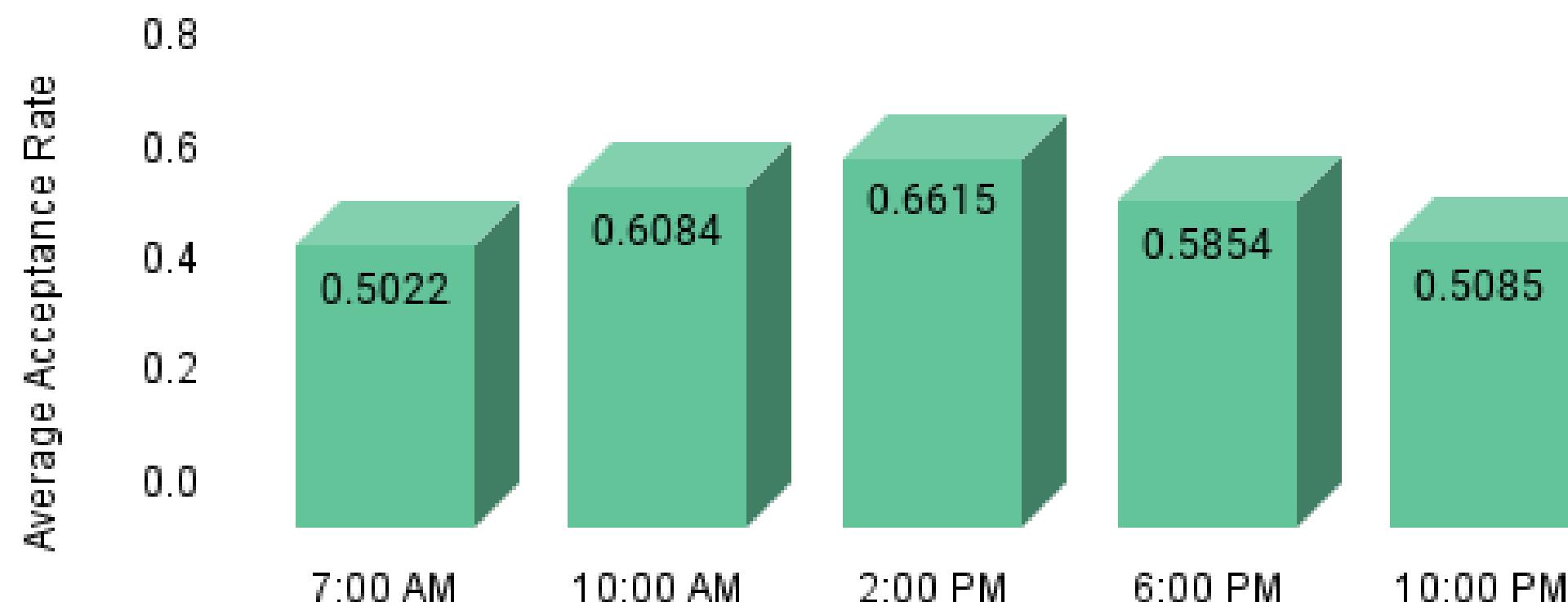


Time

At what time
during the
day are the
coupons more
likely to be
accepted?



Time

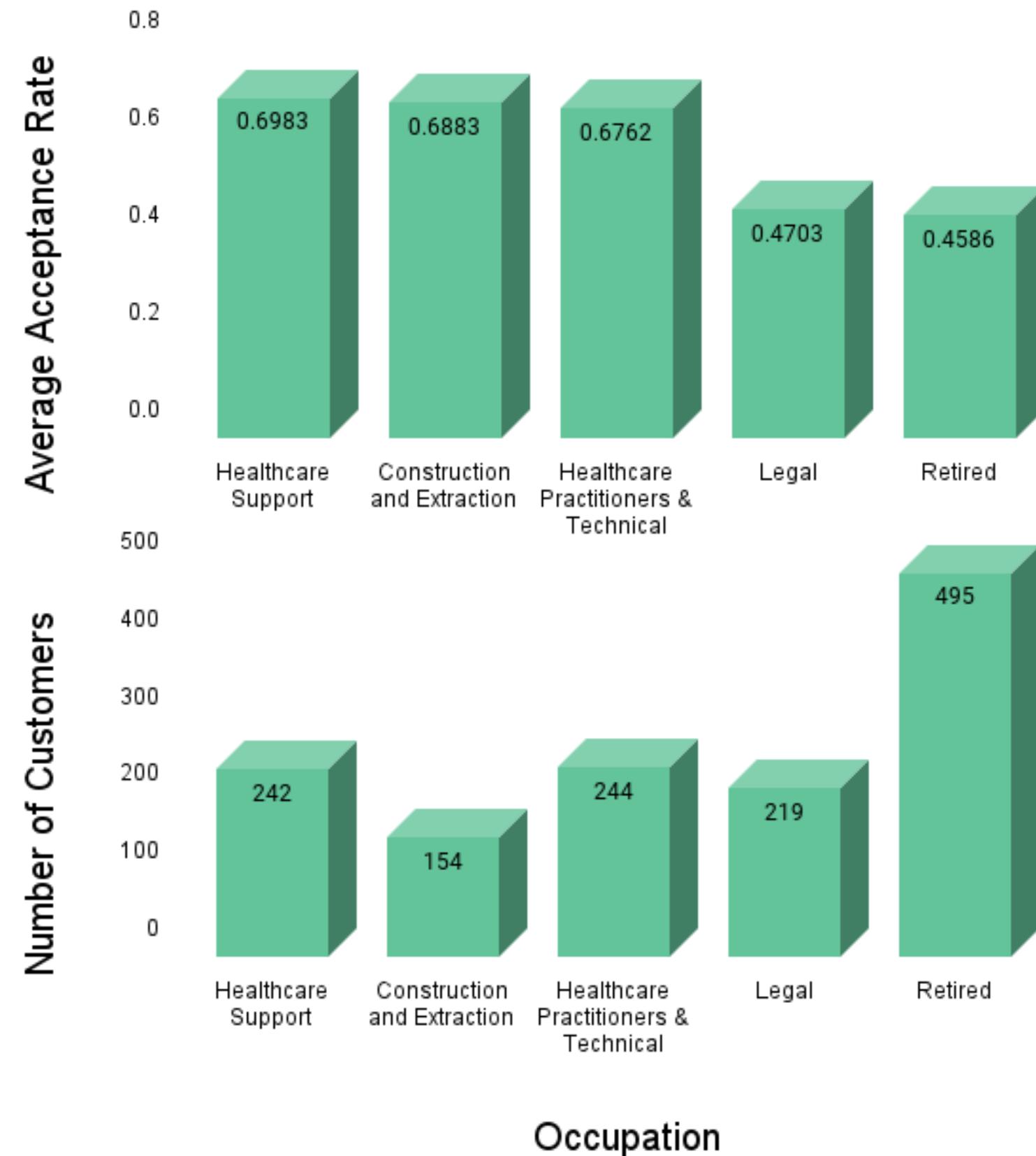


Occupation

What are the
occupations of
customers who
are more
inclined to
accept coupons?



Occupation



Regulatory Compliances and Considerations



Food Safety
Regulations



Data Protection
and Privacy Laws



Consumer
Protection Laws

Ensure compliance with the aforementioned regulatory requirements.

**Thank you for your
time!!**

Questions?