

# Instacart Grocery Basket

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# Overview

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## Objective



Instacart is an online grocery store that operates through an app. Instacart already has very good sales, but they want to uncover more information about their sales patterns. The objective of this study is to analyze customer behavior and find ways for growth.

## Context



The Instacart stakeholders are most interested in their database's variety of customers and purchasing behaviours. They assume they can't target everyone using the same methods, and they're considering a targeted marketing strategy. They want to target different customers with applicable marketing campaigns to see whether they affect the sale of their products.

# Questions to answer to the Marketing Team

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1

What are the  
busiest days  
of the week  
and hours of  
the day

2

Which are the  
hours where  
most of the  
money is  
spent

3

Are certain  
type of  
products more  
popular than  
the others

4

Analyse  
customers  
based on  
loyalty, age,  
and  
demographic  
classification

## Data



The dataset is fabricated for this exercise. It comprises information on Orders, Products and Departments. The full details of the data are available [here](#)

## Skills

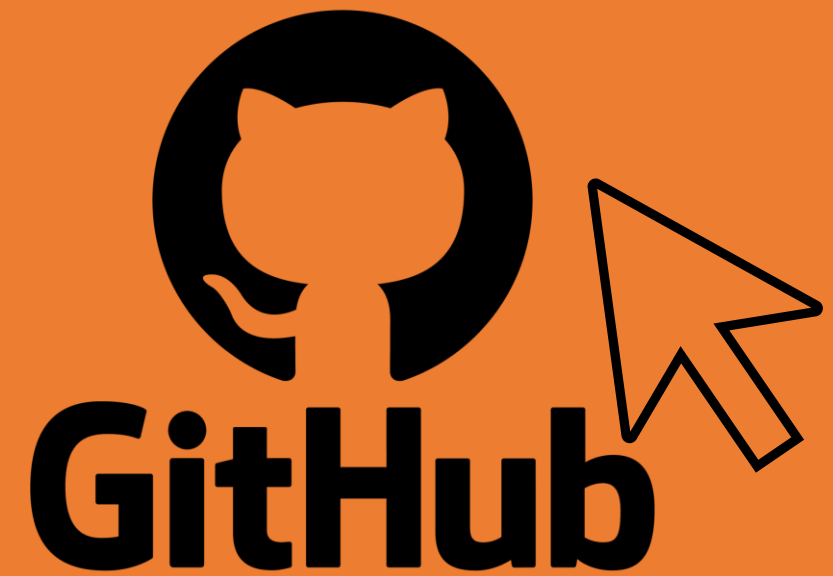
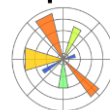


- Data wrangling
- Data merging
- Deriving variables
- Grouping data
- Aggregating data
- Visualization in Python
- Reporting in Excel
- Population flows

## Tools



Matplotlib



[Click here](#)

# Analysis

*Cleaned, merged and analysed 32 million rows of records*



## Programming

```
# Defining a function
def price_label(row):

    if row['prices'] <= 5:
        return 'Low-range product'
    elif (row['prices'] > 5) and (row['prices'] <= 15):
        return 'Mid-range product'
    elif row['prices'] > 15:
        return 'High range'
    else: return 'Not enough data'
```

Ifelse + function

```
result = []

for value in df_orders_products_merged['orders_day_of_week']:
    if value == 0:
        result.append('Busiest day')
    elif value == 4:
        result.append('Least busy')
    else:
        result.append('Regularly busy')
```

Ifelse + for loop



```
df_orders_products_merged.loc[df_orders_products_merged['prices'] > 15, 'price_range_loc'] = 'High-range product'

df_orders_products_merged.loc[(df_orders_products_merged['prices'] <= 15) & (df_orders_products_merged['prices'] > 5), 'price_range_loc'] = 'Mid-range'

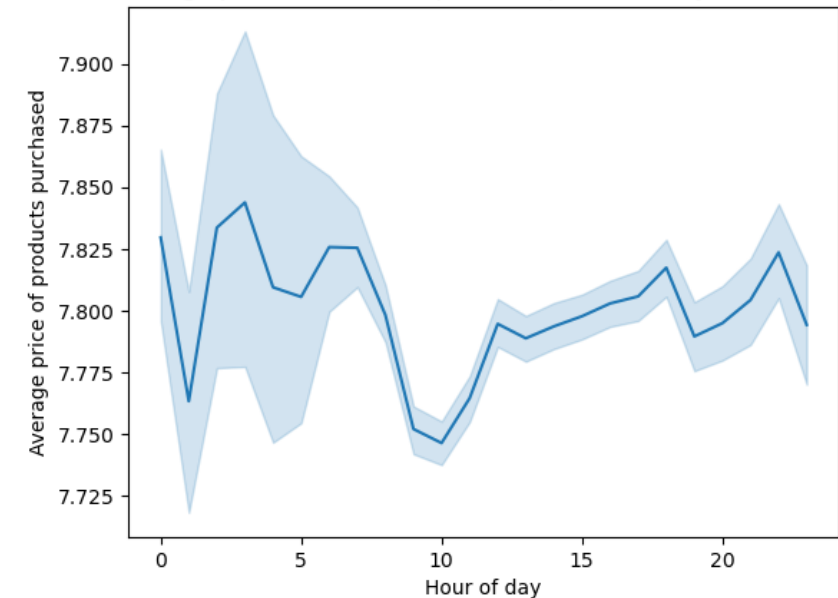
df_orders_products_merged.loc[df_orders_products_merged['prices'] <= 5, 'price_range_loc'] = 'Low-range product'

df_orders_products_merged['price_range_loc'].value_counts(dropna = False)
```

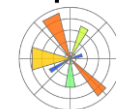
Ifelse + loc()

## Visualizations

Average price of Instacard products purchased by hour of day



Matplotlib

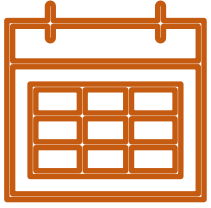


This project was both my favourite and most challenging one. I enjoyed working with such an extensive dataset, and even though it was demanding, I developed the skill of manipulating data through programming in Python. On the other hand, developing client reports took me some time to understand how to simplify and organise complex results so my audience could better grasp what I wanted to express. But with the help of my great tutor and mentor, I was able to cross the barrier.

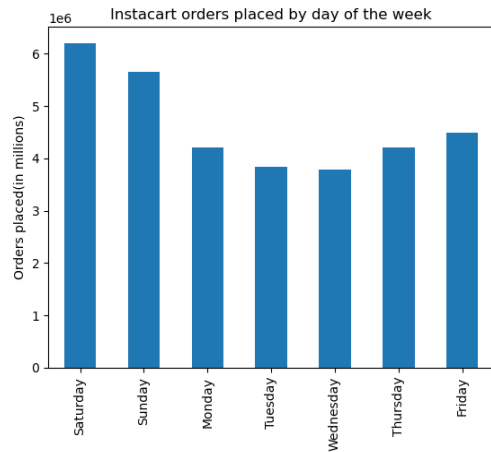
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# Challenges

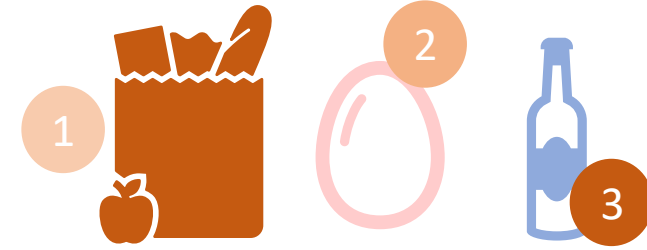
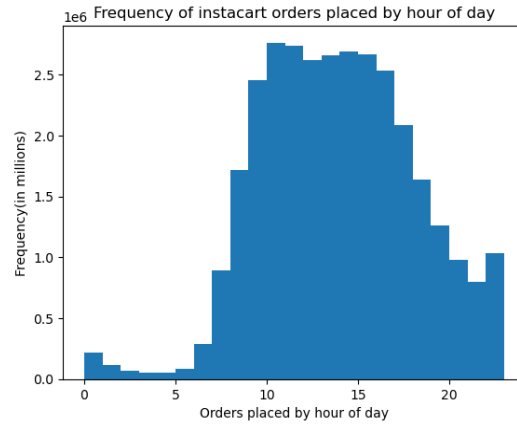
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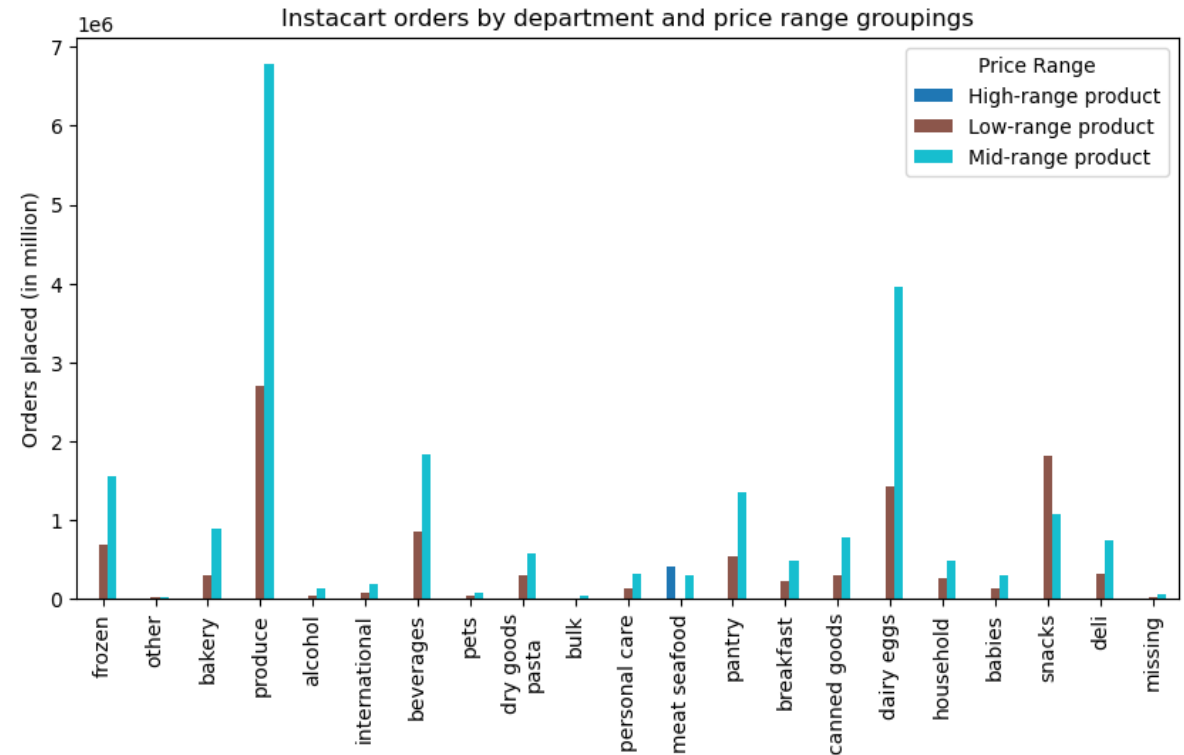
Busiest days:  
**Weekend**



Busiest time:  
**9:00 to 17:00**



**Mid-range** items (\$5-15) in the departments: Produce, dairy eggs, beverages, and frozen foods are the most popular.



# Customer habits

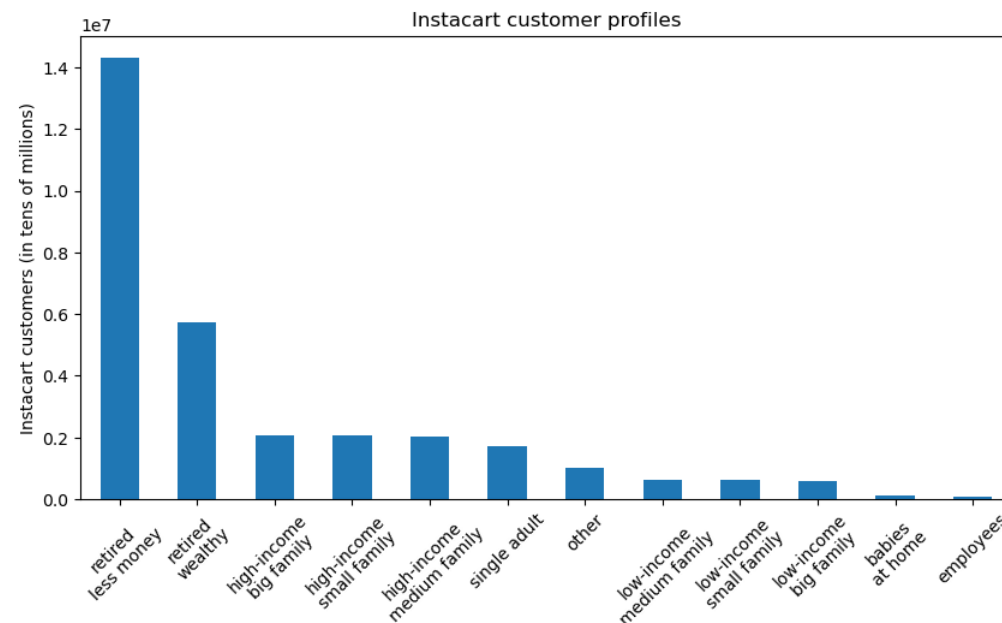
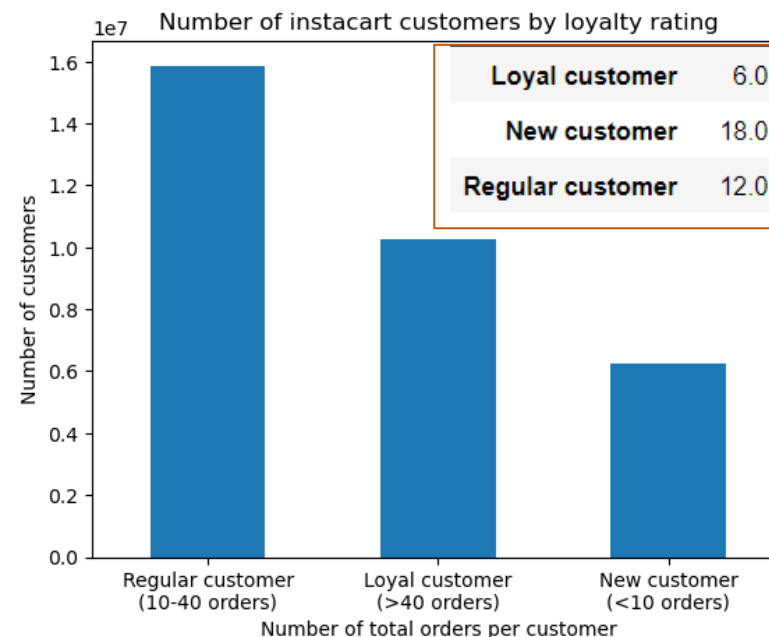


Loyal customers buy every six days and **Regular customers** every 12.

# Customer habits

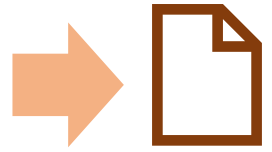


The most popular customers are retired people.





# Recommendations



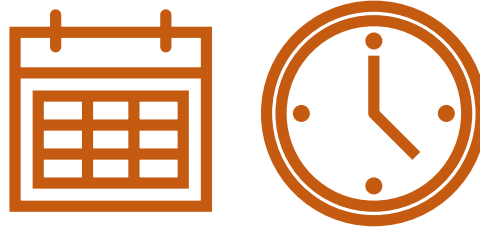
Report [here](#)



01

## Target market

- Instacart could advertise more heavily on weekends to increase sales.
- Special offers strategy could be used during the week.



02

## Times

- Invest more in marketing strategies that are focused on the busiest hours of the day (9 am to 5 pm)



03

## Specialise

- Instacart should continue investing in products of high revenue, as in the case of the Mid and Low-range.