D@S COURSEWORK

FoodCorp Comparative Analysis

Section I: The KPIs

KPI Description:
Monthly Revenue Over Time

KPI Formula:
Sum(Value), per month, per store

Steps to Realize the KPI:

1. Queried the necessary receipt data to get unique customer ID's

```
SELECT
  DATE_TRUNC('month', r.purchased_at) AS month,
  r.store_code,
  SUM(rl.value) AS revenue
FROM datas50.receipts r
JOIN datas50.receipt_lines rl ON r.receipt_id = rl.receipt_id
GROUP BY DATE_TRUNC('month', r.purchased_at), r.store_code
ORDER BY month
```

2. Visualized using Python script

Additional Notes:
NONE

KPI Description:
Monthly Customer Count Over Time

KPI Formula:
Sum(Unique Customers by using unique receipt_id's), per month, per store

Steps to Realize the KPI:

1. Queried the necessary receipt data to get value

```
SELECT
  DATE_TRUNC('month', r.purchased_at) AS month,
  r.store_code,
  COUNT(DISTINCT r.customer_id) AS customer_count
FROM datas50.receipts r
WHERE r.customer_id IS NOT NULL
GROUP BY DATE_TRUNC('month', r.purchased_at), r.store_code
ORDER BY month
```

2. Visualized using Python script

Additional Notes:
NONE

KPI Description:
Retention Rate

KPI Formula:
Sum(Unique Repeat Customers within limited time period), per store

Steps to Realize the KPI:

1. Queried necessary data from receipt table to get purchased_at time stamp and unique receipt ID's

```
CREATE OR REPLACE TEMP VIEW retention_rate_data AS
WITH first_purchase AS (
  SELECT customer_id, store_code, MIN(purchased_at) AS first_purchase_date
  FROM receipts
  GROUP BY customer_id, store_code
),
repeat_customers AS (
  SELECT DISTINCT r.customer_id, r.store_code
  FROM receipts r
  JOIN first_purchase fp
  ON r.customer_id = fp.customer_id AND r.store_code = fp.store_code
  WHERE r.purchased_at > fp.first_purchase_date
)
SELECT
  fp.store_code,
  COUNT(rc.customer_id) * 100.0 / COUNT(fp.customer_id) AS retention_rate
FROM
  first_purchase fp
LEFT JOIN
  repeat_customers rc
ON
  fp.customer_id = rc.customer_id AND fp.store_code = rc.store_code
GROUP BY
  fp.store_code;
```

2. Visualized as a bar chart via Tableu as "Retention Rate"

Additional Notes:
Time period used – Entire available dataset timeframe

KPI Description:
Churn Rate

KPI Formula:
Sum(Customers that shopped only once in a given time period), per store

Steps to Realize the KPI:

1. Queried the necessary data from receipt table to get purchased_at timestamp and unique receipt ID's

```
CREATE OR REPLACE TEMP VIEW churn_rate_data AS
WITH first_last_purchase AS (
  SELECT
    customer_id,
    store_code,
    MIN(purchased_at) AS first_purchase_date,
    MAX(purchased_at) AS last_purchase_date
  FROM
    receipts
  GROUP BY
    customer_id, store_code
)
SELECT
  store_code,
  COUNT(CASE WHEN last_purchase_date < '2021-12-31' THEN customer_id END) * 100.0
/ COUNT(customer_id) AS churn_rate
FROM
  first_last_purchase
GROUP BY
  store_code;
```

2. Visualized as bar chart via Tableu named "Churn Rate"

Additional Notes:
Time period used – entire available data set timeframe

KPI Description:
Customer Value – calculated both high value customer and low value customers

KPI Formula:
Sum(high value customers), per store AND Sum(low value customers), per store

Steps to Realize the KPI:

1. Queried receipt_lines table to get the necessary customer and spending data

```
WITH customer_total_spending AS (
  SELECT
    r.store_code,
    r.customer_id,
```

```
    SUM(rl.value) AS total_spent
  FROM
    receipts r
  JOIN
    receipt_lines rl ON r.receipt_id = rl.receipt_id
  GROUP BY
    r.store_code, r.customer_id
)
SELECT
  store_code,
  COUNT(CASE WHEN total_spent >= 50 THEN customer_id END) AS
high_value_customers,
  COUNT(CASE WHEN total_spent < 50 THEN customer_id END) AS low_value_customers
FROM
  customer_total_spending
GROUP BY
  store_code;
```

2. Visualized two separate bar charts (one for high value and one for low value customers) via Tableu

Additional Notes:
High value customers were any defined as any customer who spent more than 50 pounds on any single visit. Low value customers were defined as customers who never spent more than 50 pounds on any single visit.

KPI Description:
Regional Market Penetration

KPI Formula:
Sum(Total number of unique shoppers) DIVIDED BY Total population of the city

Steps to Realize the KPI:

1. Queried the receipts table to get the total number of unique shoppers
2. Created a new table in the dataframe with the population information obtained from the UK Office of National Statistics for cities Nottingham, Birmingham, and London

```
CREATE or REPLACE TABLE population_data (
  region STRING,
  population INT
);

INSERT INTO population_data VALUES
('Nottingham', 329276),
('Birmingham', 1166049),
('London', 8945309);
```

3. Visualized the market penetration data, as well as total population data as active customer data, to create a story in Tableu that shows population in each city, number of active shoppers in each city, and the total market penetration of each city.

Additional Notes: NONE

Section II: Comparative Analysis

Goals:

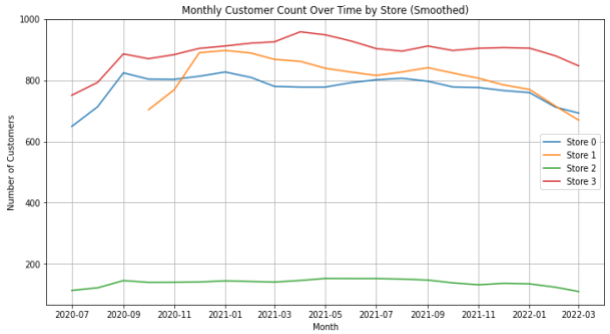
The goal of the following analysis is to determine which of FoodCorps four stores has the highest potential for growth. The store with the highest potential for growth will receive a targeted marketing campaign in effort to increase sales and customer interactivity.

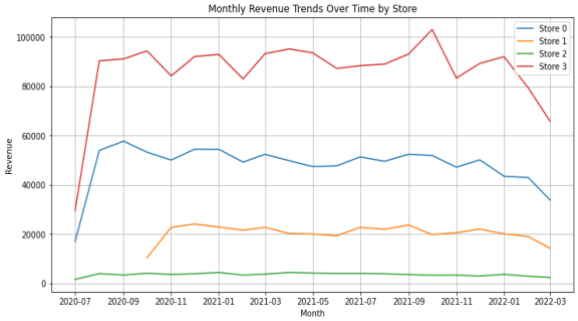
In addition to finding the optimal target for growth, the following analysis will also provide relevant customer trend and customer loyalty data that Foodcorp can use to make better informed decisions in the future.

Justification for KPIs:

In choosing KPIs, the aim was to use KPIs that would best identify potential for growth and give the best insight on customer habits. Justification for the KPIs are as follows:

Monthly Revenue and Monthly Customer Count Over Time:
These KPI's paint a clear and simple picture of how frequently customers interact with each store, and how much money is spent at each store.





Retention Rate and Churn Rate:

Retention and churn rate paint a picture of customer loyalty in each store. It tells us, which stores are stores are people coming to habitually, and which of the stores are attracting customers who shop once and do not come back.

Customer Value:
High value and low value customers per store show if we are attracting the right kind of customers. What good will it be to attract 100 new customers, if each customer will only spend a pound? We do not simply want to attract new customers; we want to attract new loyal customers who are willing to spend substantial amounts.

	Total High Value Customers	*Total Low Value Customers*
Nottingham	*551*	*2,300*
Birmingham	*99*	*3,951*
London Oxford	*908*	*2,862*
London Brick	*21*	*792*

Regional Market Penetration:
Regional market penetration shows what percentage of each cities population is shopping at Foodcorp. Ideally, we want to target undersaturated markets, because these markets have more potential for growth from new customers who are not already shopping at FoodCorp.

	Population	*Active Customers*	*Penetration Percentage*
Nottingham	*200,000*	*2,500*	*.72%*
Birmingham	*600,000*	*3,800*	*.34%*
London	*8,700,000*	*3,600*	*.04%*

Store Performance:

The following will be a brief analysis of the performance of each store, in reference to the general findings of the business analysis and the results of the implemented KPIs.

Nottingham:
Nottingham is performing quiet well. Despite having the second lowest total customers over the entire dataset period, it is outperforming other stores in many other categories. Despite being one of the smaller stores in the smallest city, it has the second highest revenue, second highest number of high value customers, and the highest retention rate. It

also touts the highest market penetration my more than double of the next highest store. This indicates that Nottingham has the best pool of returning, high value customers.

London Oxford St:
FoodCorps location on Oxford Street is also performing very well. London is the largest city in this dataset, so this is of no surprise. It has the highest overall number of customers and the highest total revenue over the samples period. Additionally, they have the highest rate of high value customers and a relatively high retention rate.

Birmingham:
FoodCorps Birmingham Location is an interesting case. Though it has the second most customers, it has the second lowest revenue as well as the highest number of low value customers. Birmingham also ranks poorly in retention rate and has a high relative churn rate.

London Brick Ln:
London's Brick Street location is different than the other locations for a few reasons. In the store analysis, we found that it offers about half as many products as the other stores, which indicates that it is a smaller location. Even though it is a smaller location, it is in the middle of London, which has the highest population and the most foot traffic out of any of the cities. The London locations have an incredibly low market penetration rate, which indicates good potential for new customers. Despite these seeming advantages, it is the poorest performing store, by far, in many categories. It has the lowest number of customers and the lowest revenue by a wide margin. It has the lowest retention rate and highest churn rate, indicating that the customers that do come in do not tend to come back. We can disregard its performance in high value and low value customers, because it will rank lowest on both of these since its total number of customers is so low.

Recommendations:
There are two clear candidates for the marketing campaign: FoodCorp's Birmingham location and their London Brick Lane location. Both of these locations are underperforming and could benefit greatly from a marketing jolt, but for the following reasons the London Brick Lane is the best candidate for the marketing campaign.

1. The Brick Lane location is in a prime location. London has the highest population and the lowest market penetration rate. It seems to be in a prime location, but people do not seem to know about it. The London Oxford Street location is outperforming on all metrics, but the Brick Lane location is struggling.
2. The London Oxford location has the largest number of high value customers, which suggests that if Brick Lane got more traffic, it too could begin to traffic high value customers.
3. Brick Lane has the highest churn rate, which suggests that it has the most customers who are coming once and never coming back. With new marketing strategies, it could begin to entice a new group of loyal customers.

4. The FoodCorp marketing campaign for the Brick Lane location will likely have positive spillover affects to the well performing Oxford Street location.
5. London is the largest city, and the marketing campaign there will have the most eyes on it. This will benefit the young company greatly as it will help to spread its brand name and awareness among the largest number of potential customers.

The following are the reasons the other stores should not receive the promotion.

Nottingham:

- Nottingham already has a strong, loyal customer base and has the highest market penetration. It is growing naturally and will likely continue to do so without the targeted marketing.

London Oxford Street

- Oxford Street already has a strong customer base of high value customers that tend to return. In addition, they will likely benefit from the marketing campaign targeting the Brick Lane location do to their close proximity.

Birmingham

- Birmingham was a close second choice, but it already has a large customer base. What this store lacks is a loyalty among its customer base. Instead of a marketing campaign to attract new customers, this store would most benefit from a program for existing customers. This program should aim to incentivize customers to come back, and should reward them for higher spending habits, since this store currently has the highest number of low value customers and the second highest churn rate.

Works Cited

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