Team 0506 - 02

Van Munchers

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Agenda

Background
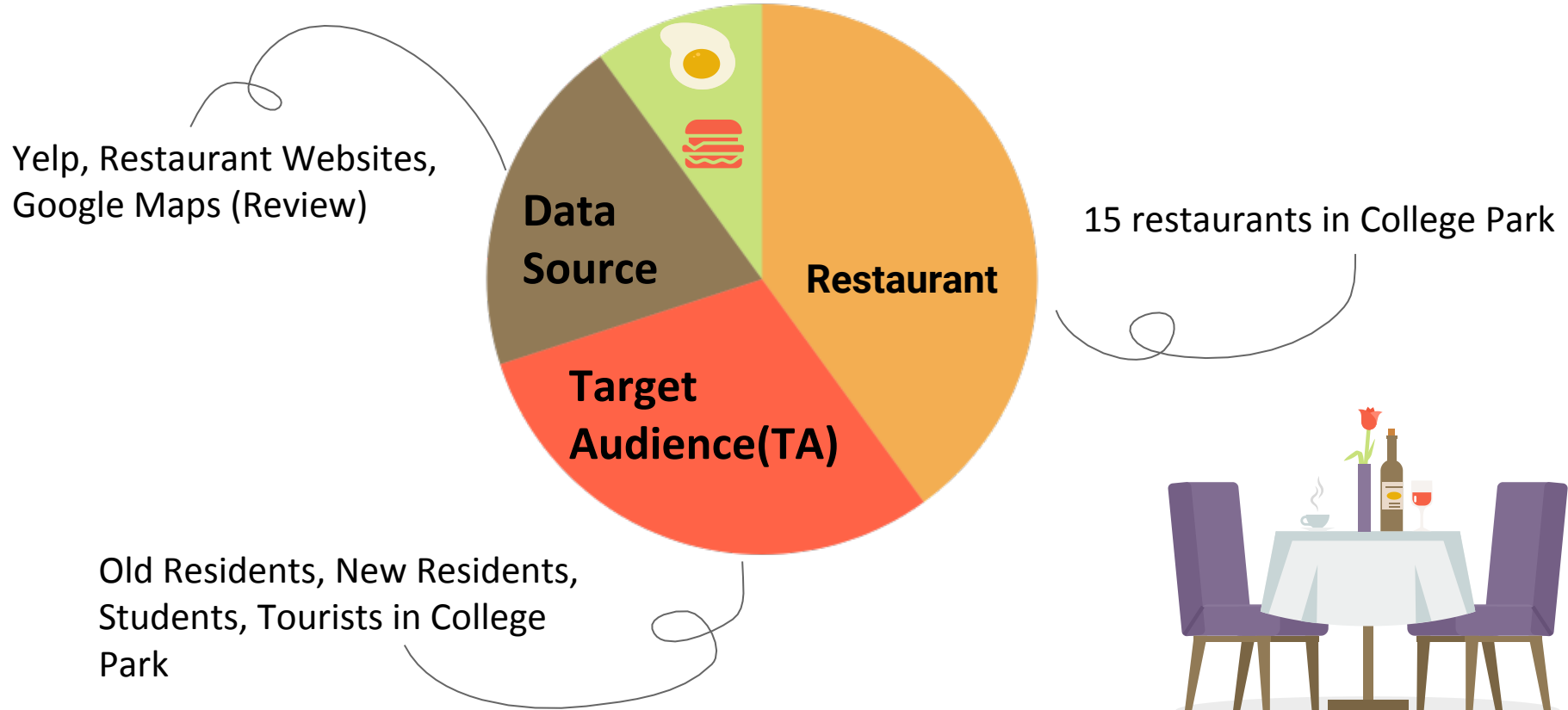
Introduction

Database Design
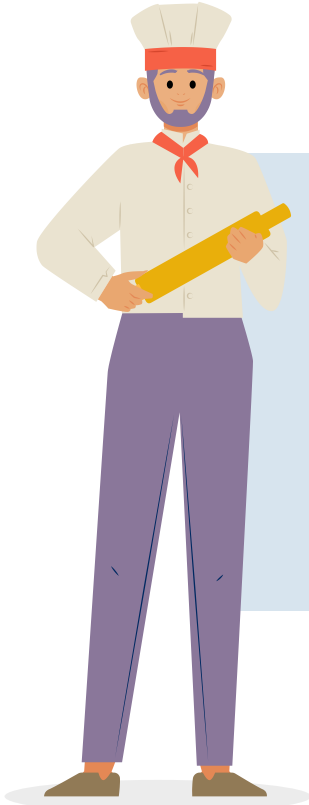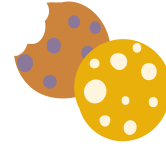
Business Transaction

Background

Yelp, Restaurant Websites, Google Maps (Review)

Data Source

Restaurant

Target Audience(TA)

15 restaurants in College Park

Old Residents, New Residents, Students, Tourists in College Park

Mission Statement

Our mission statement is to create a restaurants' database in College Park to enhance customers' experience and restaurants' services with detailed information.

Mission Objectives

01

To assist residents or tourists to choose the restaurants with their priorities by offering restaurant amenities details

04

To understand the popularity of the restaurants among users by analyzing bookmarking trends or reviews

02

To provide restaurants marketing recommendations by analyzing what web source the customers prefer and restaurants' reputation on the web source
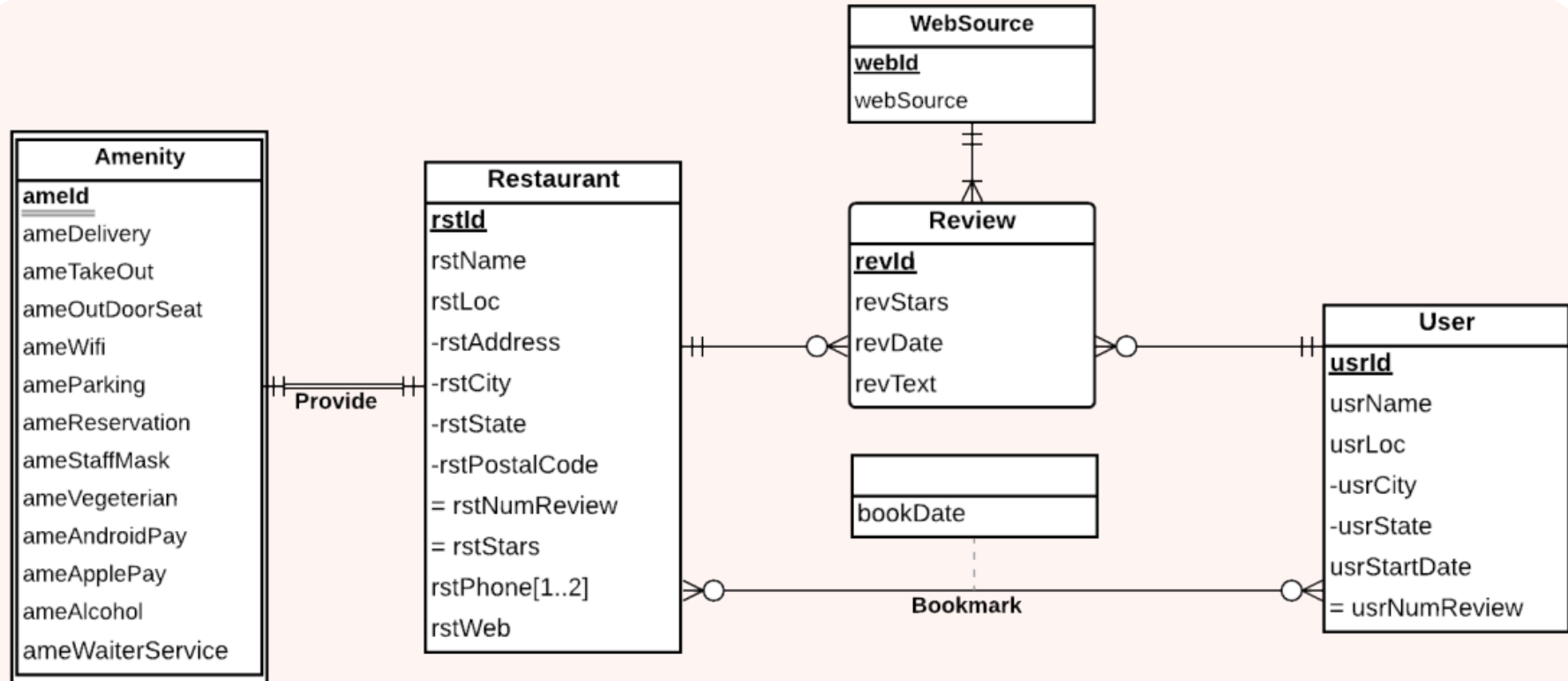
03

To find great restaurants based on ratings or number of reviews, so tourists or new residents can try the best restaurants in College Park

Conceptual Database Design: ER Diagram

Van Munchers Inc.

Amenity
- <u>ameId</u>
- ameDelivery
- ameTakeOut
- ameOutDoorSeat
- ameWifi
- ameParking
- ameReservation
- ameStaffMask
- ameVegeterian
- ameAndroidPay
- ameApplePay
- ameAlcohol
- ameWaiterService

Provide

Restaurant
- <u>rstId</u>
- rstName
- rstLoc
- -rstAddress
- -rstCity
- -rstState
- -rstPostalCode
- = rstNumReview
- = rstStars
- rstPhone[1..2]
- rstWeb

WebSource
- <u>webId</u>
- webSource

Review
- <u>revId</u>
- revStars
- revDate
- revText

bookDate

Bookmark

User
- <u>usrId</u>
- usrName
- usrLoc
- -usrCity
- -usrState
- usrStartDate
- = usrNumReview

Logical Database Design: Relational Schema

- Restaurant (**rstId**, rstName, rstAddress, rstCity, rstState, rstPostalCode, rstWeb)

- Websource (**webId**, webSource)

- User (**usrId**, usrName, usrCity, usrState, usrStartDate)

- Review (**revId**, revDate, revStars, revText, *rstId, userId, webId*)

- RestaurantPhone (*rstId*, **rstPhone**)

- Bookmark (***rstId***, ***usrId***, bookDate)

- Amenity (**ameId**, ameDelivery, ameTakeout, ameOutDoorSeat, ameWifi, ameParking, ameReservartion, ameStaffMasks, ameVegetarian, ameAndroidPay, ameApplePay, ameAlcohol, ameWaiterService, *rstId)*

Physical Database Design

Sequence of Create Tables and Drop Tables

Restaurant-> Restaurant Phone-> User-> Websource-> Review-> Bookmark->

Amenities

Data type

Ids-VARCHAR(6)

Amenities- are binary with 0's and 1's

Dates - Most date related data were of data type "date"

Stars- Review stars are of "int" data type

Most other **name address** etc are of Type: Varchar(20)

Review Text: VARCHAR(8000/65535) (Max Length Possible)

Physical Database Design

```sql
CREATE TABLE [VanMunchers.Review] (
    revId VARCHAR (6) NOT NULL,
    revDate DATE,
    revStars INT,
    revText VARCHAR (8000),
    rstId VARCHAR (6) NOT NULL,
    usrId VARCHAR (6),
    webId VARCHAR (6),
    CONSTRAINT pk_Review_revId PRIMARY KEY (revId),
    CONSTRAINT fk_Review_rstId FOREIGN KEY (rstId)
        REFERENCES [VanMunchers.Restaurant] (rstId)
        ON DELETE CASCADE ON UPDATE CASCADE,
    CONSTRAINT fk_Review_usrId FOREIGN KEY (usrId)
        REFERENCES [VanMunchers.User] (usrId)
        ON DELETE SET NULL ON UPDATE CASCADE,
    CONSTRAINT fk_Review_webId FOREIGN KEY (webId)
        REFERENCES [VanMunchers.Websource] (webId)
        ON DELETE SET NULL ON UPDATE CASCADE)
```

Physical Database Design - Database Diagram
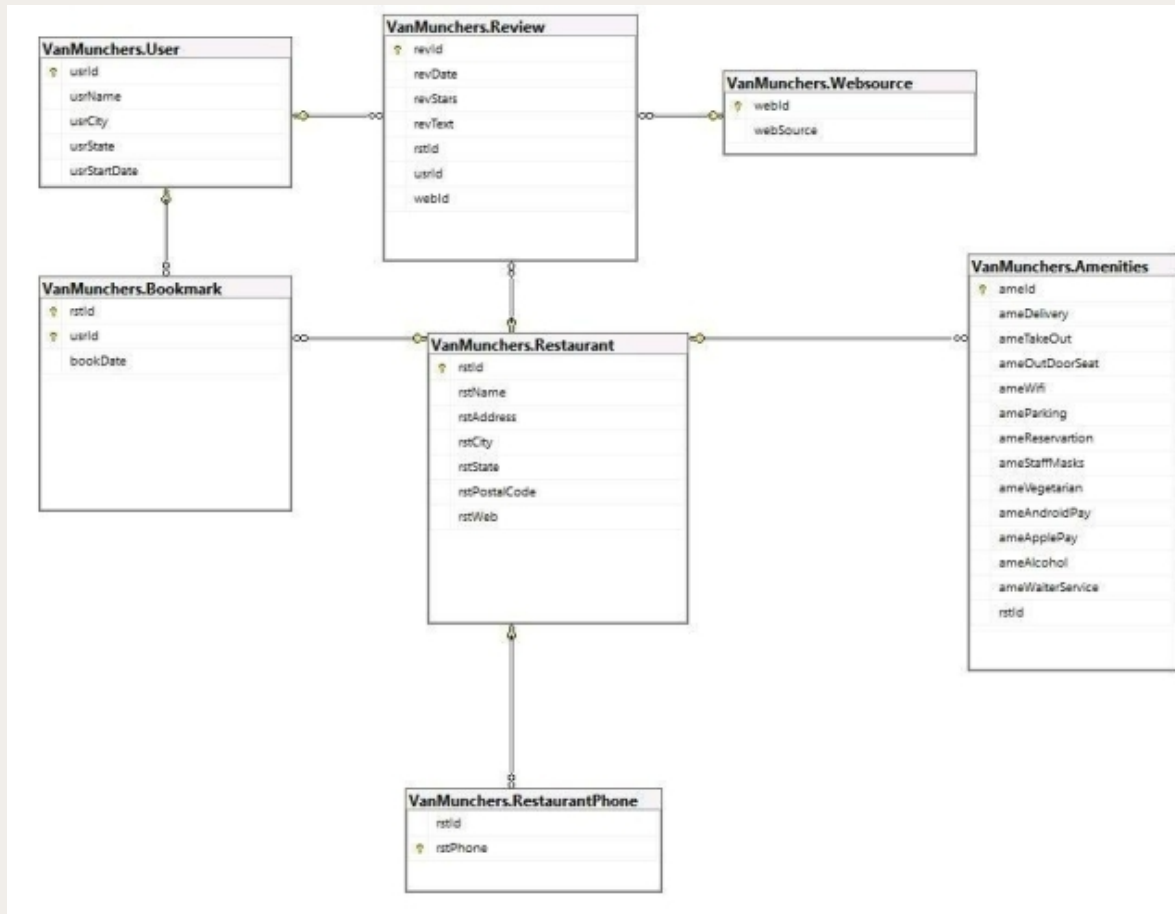
Use Case 1

To help users identify the best restaurants based on reviews from previous experience

Best Reviews and Ratings gives the best dining experience. More Reviews means More Reliability on the Restaurant review. It also means that there is a lot of traffic for that restaurant.

Use Case 1 - Method

Method: Create view to show the restaurants' details including the average stars, the number of reviews written by the users, and the number of customers bookmark the restaurant as favorite place.

```sql
GO
DROP VIEW [VanMunchers.rating];


GO
CREATE VIEW [VanMunchers.rating] AS
        SELECT r.rstId, r.rstName, CONCAT(r.rstAddress, ', ', r.rstCity, ', ', r.rstState, ' ', r.rstPostalCode) AS 'rstLoc',r.rstWeb,
        res.rstNumReview, res.rstStars, d.NumBook
        FROM [VanMunchers.Restaurant] r
        LEFT JOIN (SELECT re.rstId, ROUND((CAST(SUM(re.revStars) AS float)/ CAST(COUNT(*) AS float)), 1) AS 'rstStars',
COUNT
                        (re.revId) as 'rstNumReview' FROM [VanMunchers.Review] re GROUP BY re.rstId) res ON res.rstId =
r.rstId
        LEFT JOIN (SELECT b.rstId, COUNT(b.usrId) AS 'NumBook' FROM [VanMunchers.Bookmark] b GROUP BY b.rstId) d ON
r.rstId =
                        d.rstId
        GROUP BY r.rstId, r.rstName, CONCAT(r.rstAddress, ', ', r.rstCity, ', ', r.rstState, ' ', r.rstPostalCode), r.rstWeb,
        res.rstNumReview, rstStars, d.NumBook
```

Use Case 1 - Method

What are the top 5 restaurants that have the greatest number of reviews?

Method:

```sql
SELECT Top(5) ra.rstName,
ra.rstNumReview
FROM [VanMunchers.rating] ra
ORDER BY ra.rstNumReview DESC;
```
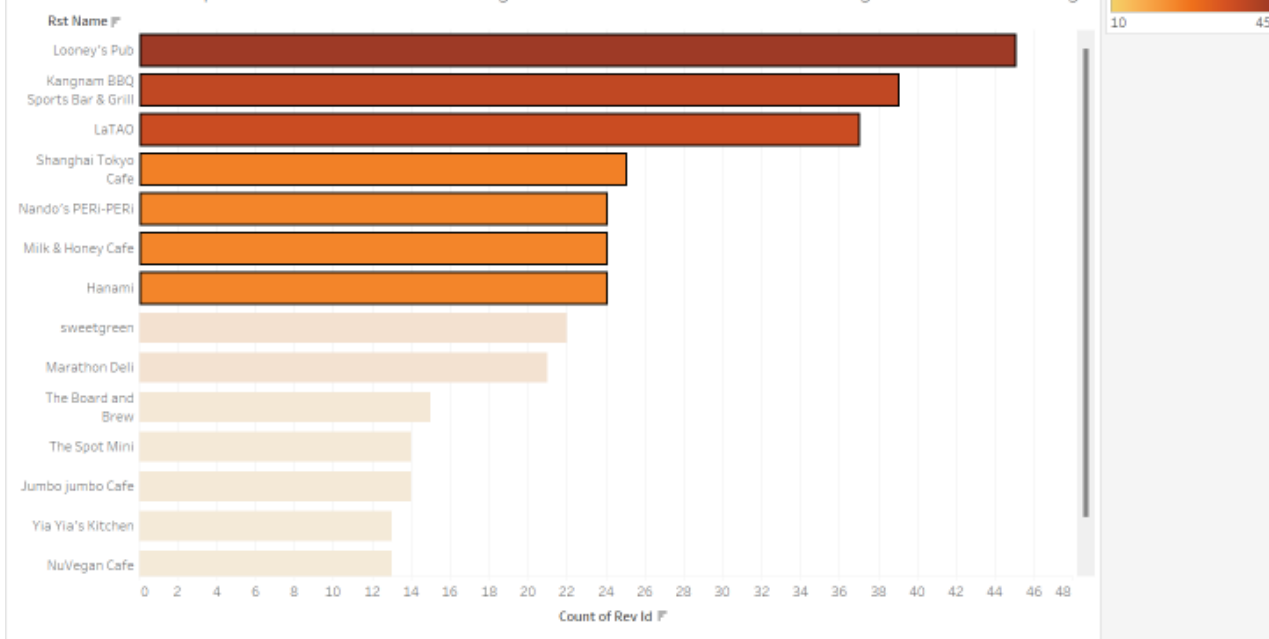
Results | Messages

	rstName	rstNumReview
1	Looney's Pub	45
2	Kangnam BBQ Sports Bar & Grill	39
3	LaTAO	37
4	Shanghai Tokyo Cafe	25
5	Nando's PERi-PERi	24

Use Case 1 - Result

1. What are the top 5 restaurants that has the great number of reviews and Average Restaurant Rating?

CNT(Rev Id)
10 — 45

Rst Name

Restaurant	Count of Rev Id
Looney's Pub	(bar to ~45)
Kangnam BBQ Sports Bar & Grill	(bar to ~39)
LaTAO	(bar to ~37)
Shanghai Tokyo Cafe	(bar to ~25)
Nando's PERi-PERi	(bar to ~24)
Milk & Honey Cafe	(bar to ~24)
Hanami	(bar to ~24)
sweetgreen	(bar to ~22)
Marathon Deli	(bar to ~21)
The Board and Brew	(bar to ~15)
The Spot Mini	(bar to ~14)
Jumbo jumbo Cafe	(bar to ~14)
Yia Yia's Kitchen	(bar to ~13)
NuVegan Cafe	(bar to ~13)

Count of Rev Id

Inferences

Top 5 restaurants are Looney's Pub, Kangnam BBQ Sports bar, Latao, Shanghai tokyo cafe and Nando's PERi-PERi, Milk & Honey Cafe, and Hanami which have more reviews.

This means that the review from these restaurants can be trusted.

* The number of reviews of Nando's PERi-PERi, Milk & Honey Cafe, and Hanami are the same.

Use Case 2 - Method

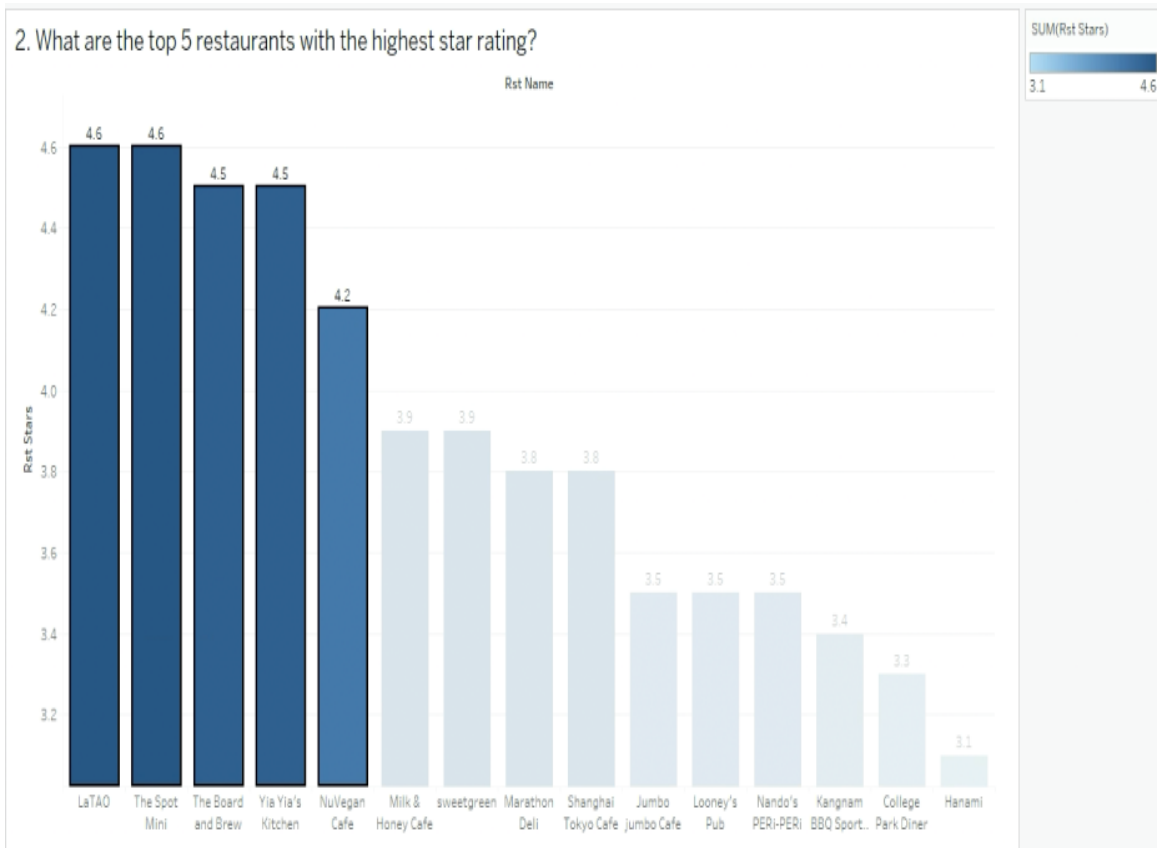What are the top 5 restaurants with the highest rating stars?

Method:

```
SELECT Top(5) ra.rstName, ra.rstNumReview
FROM [VanMunchers.rating] ra
ORDER BY ra.rstNumReview DESC;
```

	rstName	Restaurant Stars
1	LaTAO	4.6
2	The Spot Mini	4.6
3	The Board and Brew	4.5
4	Yia Yia's Kitchen	4.5
5	NuVegan Cafe	4.2

Use Case 2 - Result

2. What are the top 5 restaurants with the highest star rating?

Inferences

The restaurants with the highest average star rating are Latao, The spot mini, the board and brew, Nu Vegan Cafe, and Yia Yia Kitchen. These five have the highest average ratings.

Use Case 3

To help restaurants work on their marketing to increase their popularity and reach via different web sources

Google

One of the most popular web source for reviews and ratings of the restaurants
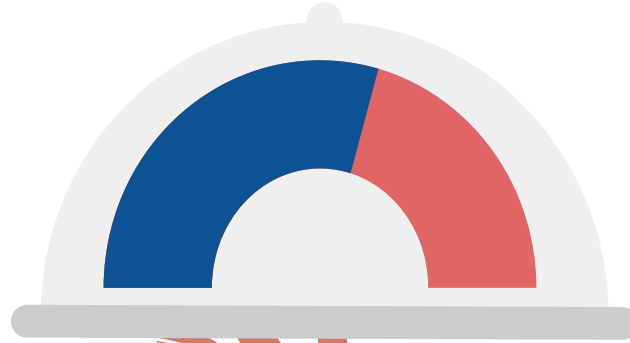
Yelp

Popular websource for reviews and rating of local restaurants

Use Case 3 - Method

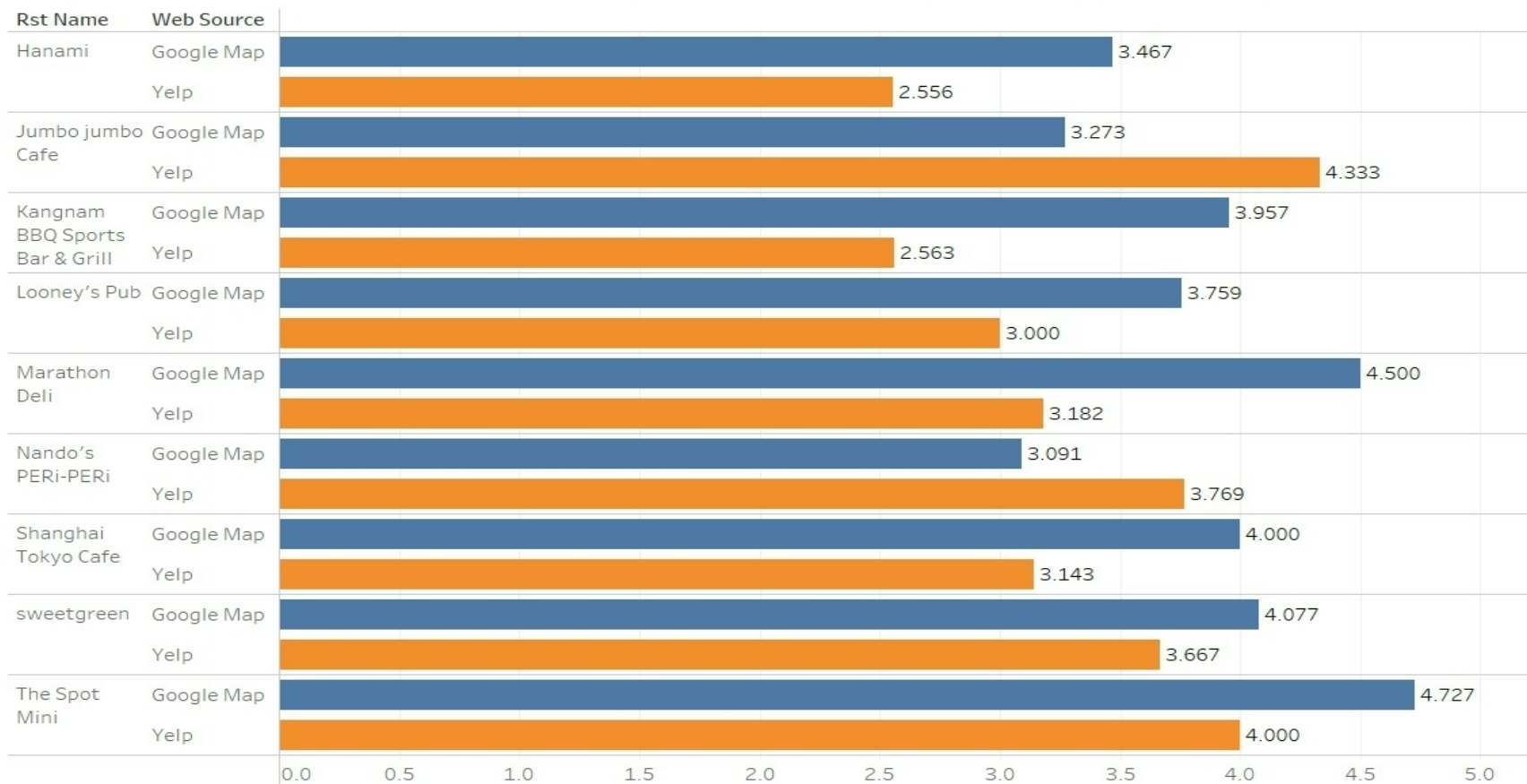**Whether the rating of the restaurants is different from 2 web sources?**

```
Go
CREATE VIEW [VanMunchers.RestWebsource] AS
SELECT w.*,rs.rstName, ROUND((CAST(SUM(r.revStars) AS float)/
CAST(COUNT(*) AS float)), 1) AS 'avgStars', COUNT(r.revId) AS
'Number of Review'
FROM [VanMunchers.Review] r,[VanMunchers.Websource] w,
[VanMunchers.Restaurant] rs
WHERE r.webId=w.webId AND r.rstId=rs.rstId
GROUP BY w.webId, webSource, rs.rstName
WITH CHECK OPTION;


SELECT rw.webSource,rw.rstName, rw.avgStars
FROM [VanMunchers.RestWebsource] rw;
```

	webSource	rstName	avgStars
1	Yelp	College Park Diner	3.4
2	Google Map	College Park Diner	3
3	Yelp	Hanami	2.6
4	Google Map	Hanami	3.5
5	Yelp	Jumbo jumbo Cafe	4.3
6	Google Map	Jumbo jumbo Cafe	3.3
7	Yelp	Kangnam BBQ Sports Bar & Grill	2.6
8	Google Map	Kangnam BBQ Sports Bar & Grill	4
9	Yelp	LaTAO	4.4
10	Google Map	LaTAO	4.7
11	Yelp	Looney's Pub	3
12	Google Map	Looney's Pub	3.8
13	Yelp	Marathon Deli	3.2
14	Google Map	Marathon Deli	4.5
15	Yelp	Milk & Honey Cafe	3.8
16	Google Map	Milk & Honey Cafe	4
17	Yelp	Nando's PERi-PERi	3.8
18	Google Map	Nando's PERi-PERi	3.1
19	Yelp	NuVegan Cafe	4.2
20	Yelp	Shanghai Tokyo Cafe	3.1
21	Google Map	Shanghai Tokyo Cafe	4
22	Yelp	sweetgreen	3.7
23	Google Map	sweetgreen	4.1
24	Yelp	The Board and Brew	4.5
25	Google Map	The Board and Brew	4.5
26	Yelp	The Spot Mini	4
27	Google Map	The Spot Mini	4.7
28	Yelp	Yia Yia's Kitchen	4.5
29	Google Map	Yia Yia's Kitchen	4.4

Use Case 3 - Result

Whether the rating of the restaurant is different from 2 web resources?

Rst Name	Web Source	Rating
Hanami	Google Map	3.467
	Yelp	2.556
Jumbo jumbo Cafe	Google Map	3.273
	Yelp	4.333
Kangnam BBQ Sports Bar & Grill	Google Map	3.957
	Yelp	2.563
Looney's Pub	Google Map	3.759
	Yelp	3.000
Marathon Deli	Google Map	4.500
	Yelp	3.182
Nando's PERi-PERi	Google Map	3.091
	Yelp	3.769
Shanghai Tokyo Cafe	Google Map	4.000
	Yelp	3.143
sweetgreen	Google Map	4.077
	Yelp	3.667
The Spot Mini	Google Map	4.727
	Yelp	4.000

Comparison between ratings from different web sources

- Some restaurants have significant differences in average rating

- For example: For restaurants like Marathon Deli, Google reviews show its rating as 4.5 stars whereas Yelp shows just 3.1 stars

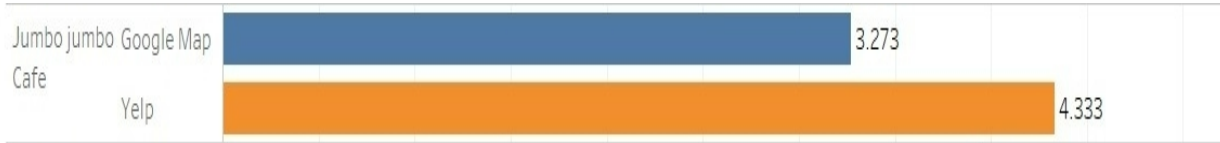- This can be misleading for it's potential customers

Comparison between ratings from different web sources

- Few restaurants seem to be more popular on Yelp than Google

- However, the problem of difference in average ratings doesn't change

Use Case 3 - Inference

- Google web source seems to be more popular with the users for reviews

- The average rating of most of the restaurants is more on Google as compared to Yelp

- The difference in the ratings of the restaurants on different web sources can affect the credibility of the restaurant

- To bridge the gap between the ratings, restaurants should work on increasing their reach and popularity among the users of other web sources

Use Case 4

To help customers choose the restaurants with their priorities by offering amenities details
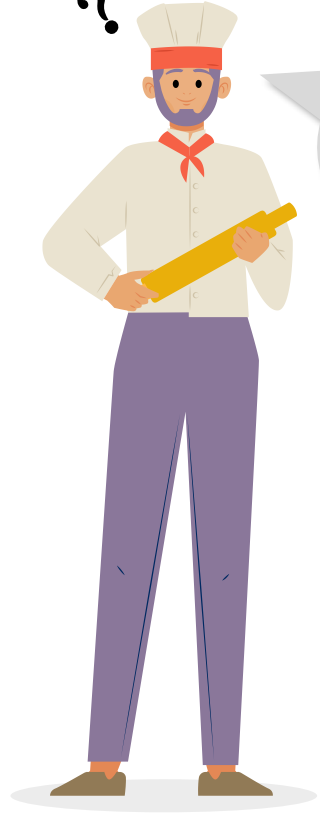
Do you prefer restaurants with more services?

Most Commented Restaurant Amenities		
Delivery	Outdoor Seating	Waiter Service
Wifi	Parking	Take Out
Apple Pay	Reservation	Vegetarian
Android Pay	Staff Masks	Alcohol

Use Case 4 - Method

Method: Create view to show the restaurant amenities

```
CREATE VIEW [VanMunchers.RestAmenities] AS
SELECT rs.rstId,rs.rstName,a.ameAlcohol, a.ameAndroidPay,a.ameApplePay, a.ameDelivery,
a.ameOutDoorSeat,a.ameParking,a.ameReservartion,a.ameStaffMasks,a.ameTakeOut,a.ameVegetarian,
a.ameWaiterService,a.ameWifi,(a.ameAlcohol+a.ameAndroidPay+a.ameApplePay+a.ameDelivery+a.
ameOutDoorSeat+a.ameParking+a.ameReservartion+a.ameStaffMasks+a.ameTakeOut+a.ameVegetarian+
a.ameWaiterService+a.ameWifi) as 'totalAmenities'
FROM [VanMunchers.Restaurant] rs,[VanMunchers.Amenities] a
WHERE rs.rstId=a.rstId
WITH CHECK OPTION;
```
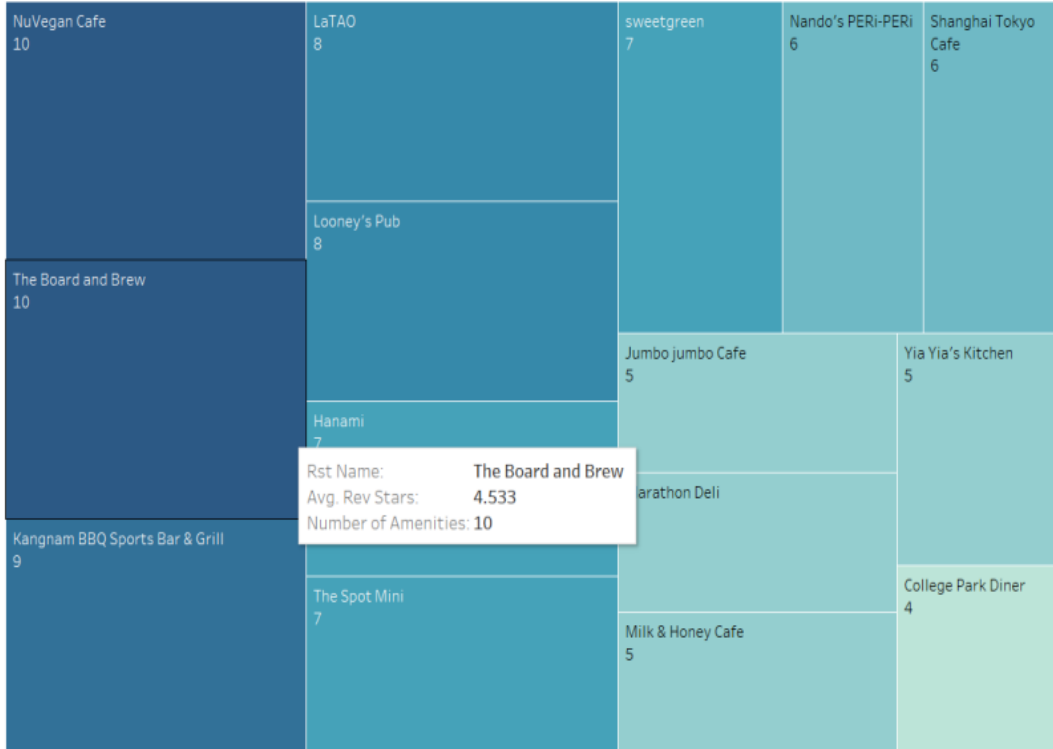
Use Case 4 - Method

What are the restaurant names, its number of amenities and its average stars?

SELECT r.rstName AS 'Restaurant',

r.rstStars AS 'Average Stars',

a.totalAmenities AS 'Number of Amenities'

FROM [VanMunchers.rating] r,

[VanMunchers.RestAmenities] a

WHERE r.rstId = a.rstId

GROUP BY r.rstName, r.rstStars, a.totalAmenities

ORDER BY a.totalAmenities DESC

	Restaruant	Average Stars	Number of Amenities
1	NuVegan Cafe	4.2	10
2	The Board and Brew	4.5	10
3	Kangnam BBQ Sports Bar & Grill	3.4	9
4	LaTAO	4.6	8
5	Looney's Pub	3.5	8
6	Hanami	3.1	7
7	sweetgreen	3.9	7
8	The Spot Mini	4.6	7
9	Nando's PERi-PERi	3.5	6
10	Shanghai Tokyo Cafe	3.8	6
11	Jumbo jumbo Cafe	3.5	5
12	Marathon Deli	3.8	5
13	Milk & Honey Cafe	3.9	5
14	Yia Yia's Kitchen	4.5	5
15	College Park Diner	3.3	4

Use Case 4 - Result

4. What are the restaurant names with the greatest number of amenites and its average star?

SUM(Number of Ameni...

4   10

| NuVegan Cafe 10 | LaTAO 8 | sweetgreen 7 | Nando's PERi-PERi 6 | Shanghai Tokyo Cafe 6 |

Looney's Pub 8

The Board and Brew 10

Hanami 7

Jumbo jumbo Cafe 5

Yia Yia's Kitchen 5

Rst Name:	The Board and Brew
Avg. Rev Stars:	4.533
Number of Amenities:	10

arathon Deli

Kangnam BBQ Sports Bar & Grill 9

The Spot Mini 7

Milk & Honey Cafe 5

College Park Diner 4

Inferences
The number of amenities that a restaurant offers are highest at 10 for Nuvegan Cafe and The Board and brew cafe.

A higher number of amenities means a higher chance of people visiting the place.

Use Case 4 - Inference

- The restaurants with more amenities might be more popular.

- Therefore, NuVegan Cafe and The Board and Brew are recommended choices in College Park for customers.

Use Case 5

To provide restaurants marketing recommendations by analyzing what web source the customers prefer and restaurants' reputation on the web source
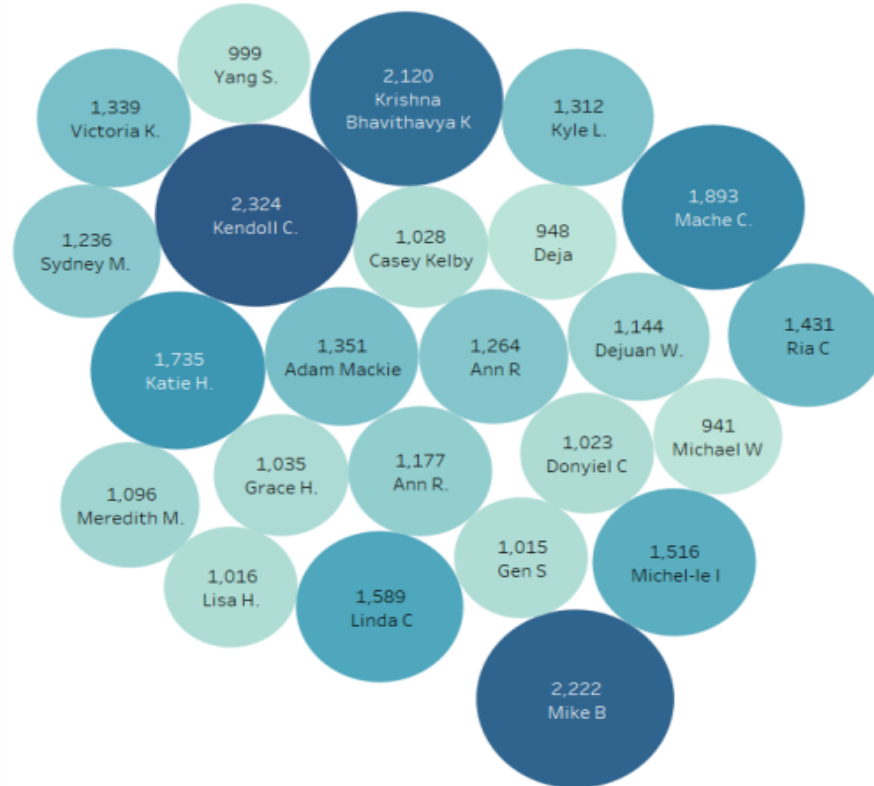
Use Case 5 - Method

Who are the users that are more active in sharing their views?

```sql
SELECT u.usrName, SUM(a.textchars) AS 'Review Characters'
FROM (
        SELECT *,(LEN([VanMunchers.Review].revText)) as textchars
        FROM [VanMunchers.Review]) a,
[VanMunchers.User] u
WHERE a.usrId = u.usrId
GROUP BY a.usrId, u.usrName
ORDER BY SUM(a.textchars) DESC
```

	usrName	Review Characters
1	Kendoll C.	2324
2	Mike B	2222
3	Krishna Bhavithavya K	2120
4	Mache C.	1893
5	Katie H.	1735
6	Linda C	1589
7	Michel-le I	1516
8	Ria C	1431
9	Adam Mackie	1351
10	Victoria K.	1339
11	Kyle L.	1312
12	Ann R	1264
13	Sydney M.	1236
14	Ann R.	1177
15	Dejuan W.	1144
16	Meredith M.	1096
17	Grace H.	1035
18	Casey Kelby	1028
19	Donyiel C	1023
20	Lisa H.	1016
21	Gen S	1015
22	Yang S.	999
23	Michael W	941
24	Michael Wills	914

Use Case 5 -Result

5. Who are the users that are more active in sharing their views?

999
Yang S.

1,339
Victoria K.

2,120
Krishna
Bhavithavya K

1,312
Kyle L.

2,324
Kendoll C.

1,028
Casey Kelby

948
Deja

1,893
Mache C.

1,236
Sydney M.

1,735
Katie H.

1,351
Adam Mackie

1,264
Ann R

1,144
Dejuan W.

1,431
Ria C

1,096
Meredith M.

1,035
Grace H.

1,177
Ann R.

1,023
Donyiel C

941
Michael W

1,016
Lisa H.

1,589
Linda C

1,015
Gen S

1,516
Michel-le I

2,222
Mike B

Inferences

The most active users are Kendoll C. and Krishna BK. Because they are the most active users, they are more likely to review restaurants promotions that can be targeted towards them to increase the validity of the review system.

Thank you!