Business Infrastructure & Reporting

Franchise Based American Restaurant Chain

Integrated data from multiple Point of Sales (POS) software systems and built Power-BI dashboards to track restaurant performance. Recommended Pricing Tiers for the restaurants based on various performance and demographic factors for ameliorating their operations.

BI infrastructure & reporting

Situation

- Company faced challenges in tracking the overall performance as franchises across locations were using three different Point of Sale (POS) systems
- Partnered with the client to create a centralized Data Warehouse in AWS and build a BI reporting infrastructure. We also built a 'Pricing Tier' model to cluster the restaurants into different tiers.

Accordion Value Add

- Created a Data Warehouse that sources data from multiple POS systems (Restaurant Manager, R-Power and Toast) across restaurants and built a reporting infrastructure with a daily update cadence to track the overall performance
- Created monthly performance tracker to review the performance and traffic metrics by month, weekday, time of the day, revenue category & menu categories at the company level or for an individual restaurant
- Automated the flow of leads generated from Facebook into the company's CRM platform using the APIs
- Created a 'Pricing Tier' model based on restaurant's performance, guest satisfaction, demographic factors and competitor's price within five miles radius to help the client in clustering the restaurants into different pricing tiers

Impact

- Power BI dashboards created based on the consolidated data warehouse provided better visibility of day-to-day performance of the company and the individual restaurants to the senior leadership
- Integrated leads data into the company's CRM platform enabled the Sales representatives contact the franchise prospects in real time
- Pricing Tier model helped the client to devise better pricing strategy for any future menu updates across tiers

Approach / methodology for project delivery

DATA WAREHOUSING

- Studied Data Structure in 3 POS systems to create a consolidated format
- Data Warehouse is built based on the consolidated format in the AWS cloud
- Automated data update with daily cadence and linked it to Power BI for reporting

FACEBOOK- CRM LEADS

- Facebook App is created using developer account for Leads data transfer
- Leads data is loaded into the Data Warehouse using a Python script
- Leads are integrated into CRM through API every hour

PRICING TIERS MODEL

- Identified Average customer rating, demographics and competitor's price within five miles radius as the factors to decide pricing tiers
- Data is collected from ESRI (3rd party) and other publicly available sources
- Indexes are calculated for each location based on the values of each factor for all restaurants. Indexes are benchmarked from 50-150 and bucketed into the required number of pricing tiers

Performance tracker

$ Sales by month of the year			
MONTH	2017	2018	2019
January	$1,143,104	$1,137,071	$1,282,956
February	$1,128,733	$1,169,815	$1,256,314
March	$1,344,792	$1,452,311	$1,546,639
April	$1,410,580	$1,414,177	$1,444,130
May	$1,417,417	$1,473,866	-
June	$1,377,510	$1,449,851	-
July	$1,531,635	$1,586,953	-
August	$1,459,717	$1,523,257	-
September	$1,326,201	$1,304,837	-
October	$1,354,147	$1,404,786	-
November	$1,233,736	$1,343,050	-
December	$1,318,315	$1,420,999	-
Total	$16,045,887	$16,680,972	$5,530,039

# Guests by month of the year			
MONTH	2017	2018	2019
January	116,113	110,697	125,175
February	112,664	113,051	121,997
March	131,497	139,223	150,232
April	137,662	136,127	139,820
May	135,780	140,649	-
June	132,743	140,573	-
July	145,677	153,446	-
August	138,133	147,680	-
September	126,156	126,188	-
October	128,431	134,786	-
November	117,982	129,189	-
December	126,467	137,417	-
Total	1,549,305	1,609,026	537,224

# Checks by month of the year			
MONTH	2017	2018	2019
January	69,484	67,856	74,141
February	67,455	68,278	71,469
March	79,845	82,891	85,940
April	78,862	78,673	78,393
May	80,601	81,816	-
June	76,284	78,574	-
July	80,773	83,050	-
August	79,188	81,485	-
September	75,362	72,389	-
October	77,697	79,307	-
November	70,463	74,793	-
December	73,021	76,570	-
Total	909,035	925,682	309,943

# Discounts by month of the year			
MONTH	2017	2018	2019
January	$26,978	$21,556	$27,861
February	$22,729	$19,989	$26,058
March	$24,186	$22,325	$29,158
April	$24,274	$21,648	$26,401
May	$25,415	$25,939	-
June	$23,347	$23,098	-
July	$23,141	$25,432	-
August	$20,234	$24,621	-
September	$19,167	$22,561	-
October	$18,910	$23,471	-
November	$17,946	$25,128	-
December	$20,638	$26,616	-
Total	$266,964	$282,383	$109,478

KPIs are estimated monthly across 2016-2018 to observe seasonality trends

KPIs are estimated on an hourly basis to identify traffic trends in a day

$ Sales/Day by time of the day			
Time of Day	2017 (YTD)	2018 (YTD)	2019 (YTD)
6:00-7:00	$879	$982	$1,146
7:00-8:00	$2,719	$2,855	$3,146
8:00-9:00	$6,148	$6,269	$6,683
9:00-10:00	$8,607	$8,652	$9,226
10:00-11:00	$8,477	$8,661	$9,219
11:00-12:00	$6,868	$7,143	$7,735
12:00-13:00	$5,508	$5,765	$6,101
13:00-14:00	$2,496	$2,608	$2,673
Total	$41,702	$42,935	$45,927

# Guests/Day by time of the day			
Time of Day	2017 (YTD)	2018 (YTD)	2019 (YTD)
6:00-7:00	93	100	114
7:00-8:00	285	289	321
8:00-9:00	625	622	669
9:00-10:00	845	834	896
10:00-11:00	814	818	883
11:00-12:00	667	673	731
12:00-13:00	550	553	591
13:00-14:00	255	255	260
Total	4,134	4,144	4,466

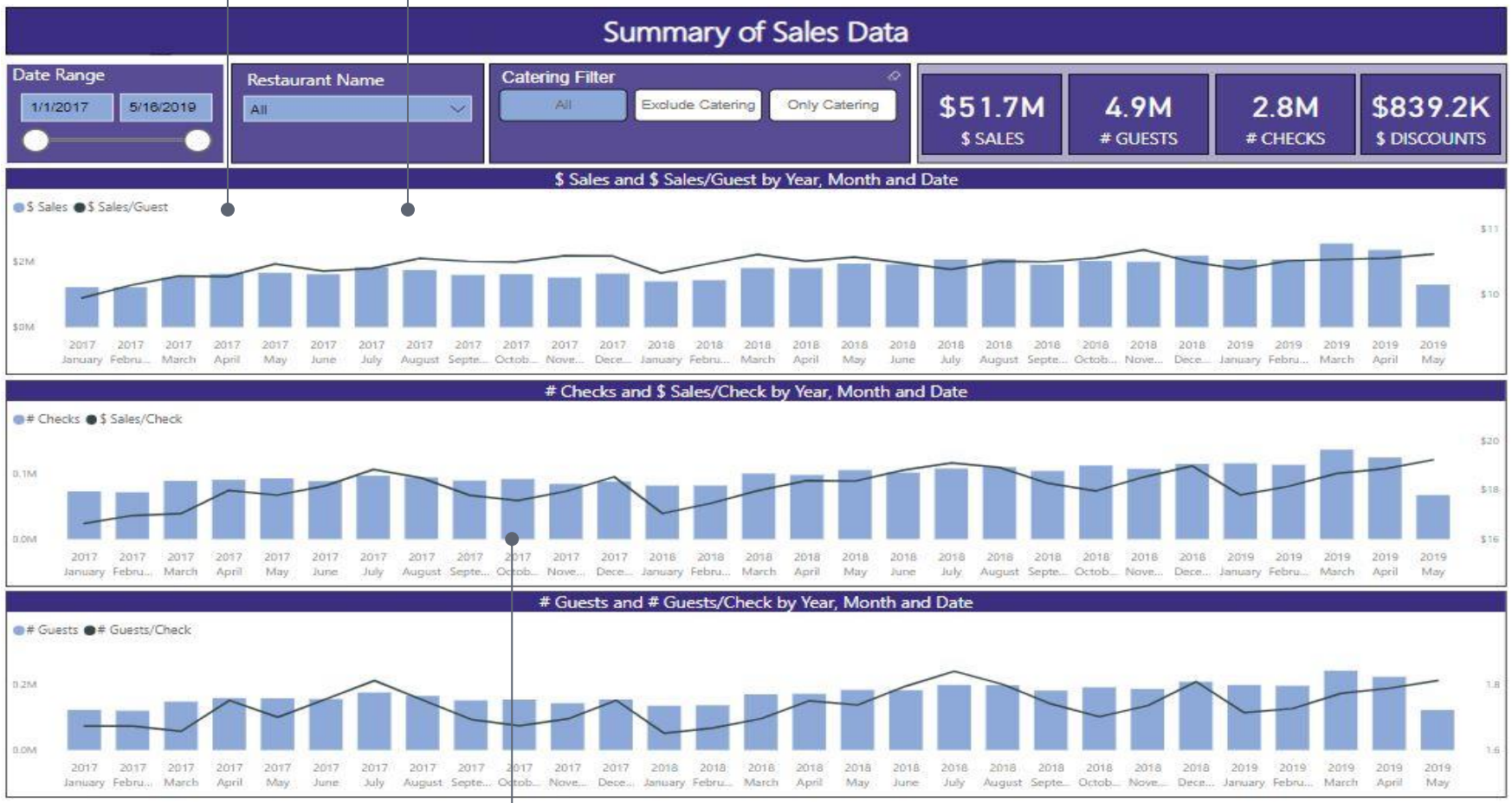
# Checks/Day by time of the day			
Time of Day	2017 (YTD)	2018 (YTD)	2019 (YTD)
6:00-7:00	71	76	87
7:00-8:00	195	201	219
8:00-9:00	372	375	395
9:00-10:00	477	472	490
10:00-11:00	457	455	473
11:00-12:00	378	386	401
12:00-13:00	333	334	343
13:00-14:00	168	168	166
Total	2,451	2,467	2,573

# Table turns/Day by time of the day			
Time of Day	2017 (YTD)	2018 (YTD)	2019 (YTD)
6:00-7:00	0.04	0.05	0.05
7:00-8:00	0.13	0.13	0.15
8:00-9:00	0.28	0.28	0.30
9:00-10:00	0.38	0.38	0.41
10:00-11:00	0.37	0.37	0.40
11:00-12:00	0.30	0.30	0.33
12:00-13:00	0.25	0.25	0.27
13:00-14:00	0.12	0.12	0.12
Total	1.87	1.87	2.02

Number of Table Turns/day is calculated to understand the capacity utilization of the of the restaurant.

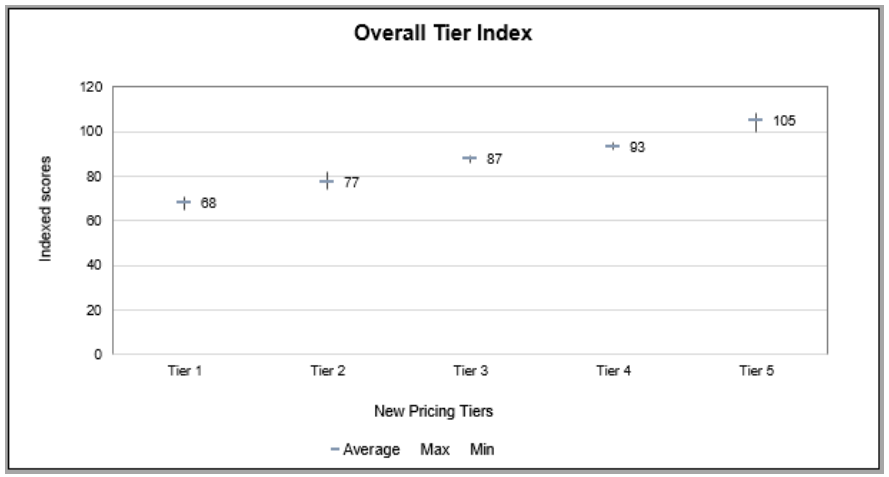
Power-BI dashboards

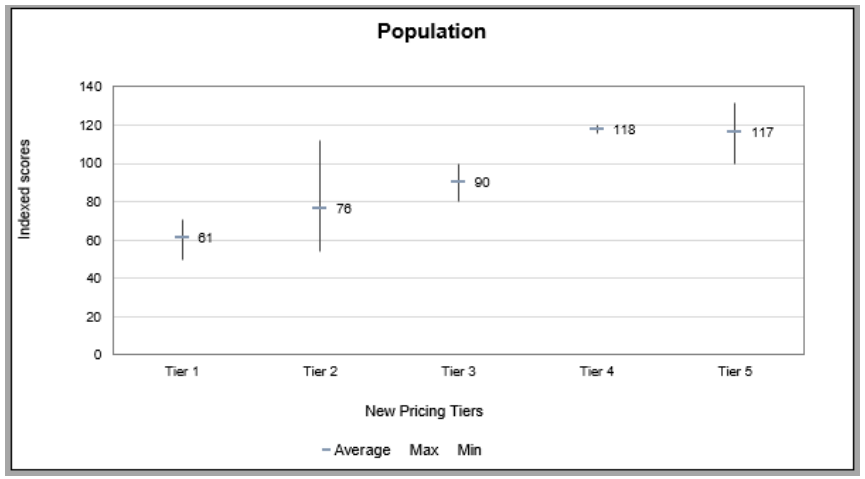
Additional filters which will help to drill down data at a location level and inclusion/exclusion of Catering segment

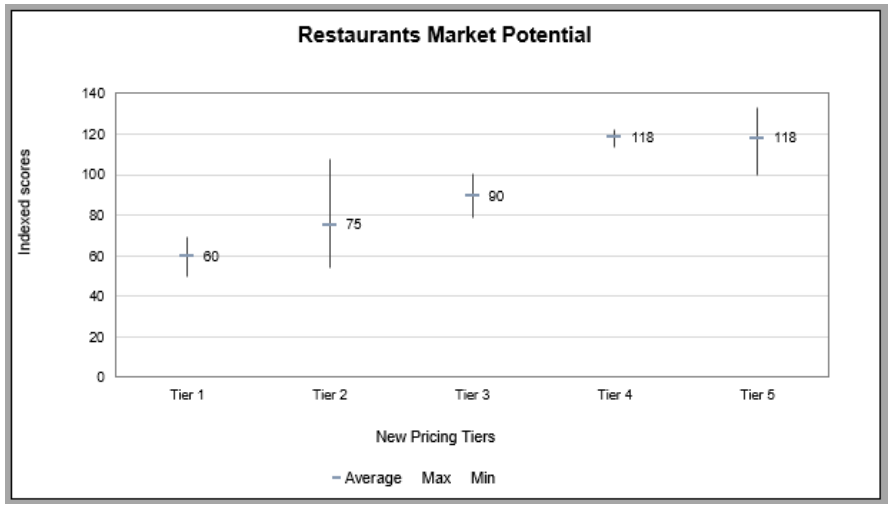


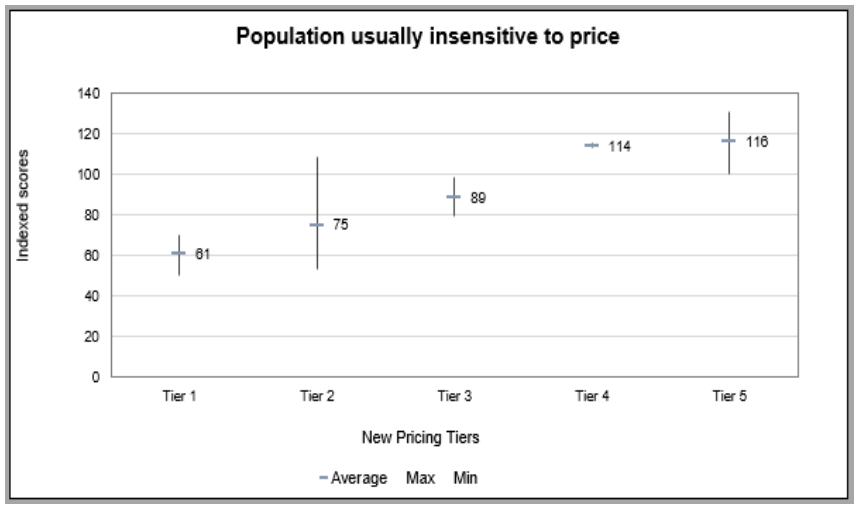
Understand trends of KPIs over time with flexibility to select date ranges.

Pricing tiers









Overall index is calculated for each location based on demographic and other variables to determine the Pricing Tier that helps in determining a better pricing strategy for future menu updates.

Learnings

- **Pricing Tiers (Normalization of variables)** : We have normalized the values for each of the factors by creating indexed. This is to be able to compare (and add) values across factors with different scales
- **Facebook – CRM integration :** Understood how to pull data from Facebook campaigns and integrate into CRM platforms using Rest API
- **Data Warehouse** – We got an opportunity to build a database from scratch. Understood the nuances of creating a database from multiple sources. We could have avoided few re-works with a better understanding of different datasets present and anticipating the potential issues like variable type mis-match, waiter information, unique identifier in the dataset proactively