CASE STUDY

Staff Performance in Restaurants

TABLE OF CONTENTS

1 INTRODUCTION 3

1.1 CASE STUDY - OBJECTIVE 3
1.2 METHODOLOGY 3
1.3 TOOLS USED 3

2 ASSUMPTIONS 4

2.1 ASSUMPTION ABOUT JOB ROLE OF STAFFS 4
2.2 ASSUMPTION BASED ON VARIABLES: TIME OF ORDER PLACEMENT/COMPLETION 4
2.3 ASSUMPTION BASED ON VARIABLES: ORDER NO., OFFLINE NO., CREATED BY 4
2.4 ASSUMPTION OF USING VARIABLE - "NET SALES" INSTEAD OF "FINAL/TOTAL PAYMENT" 4
2.5 ASSUMPTION ON VALUES WITH - "NET SALES" = 0 5
2.6 PEAK HOURS OF RESTAURANT 5
2.7 WEEKEND/WEEKDAY FOCUSED RESTAURANT? 5
2.8 NO TABLE ASSIGNMENT FOR STAFFS? 5

3 KPI 6

3.1 KPIS FOR MEASURING STAFF PERFORMANCE 6
3.2 SCORDING BOARD: NORMALIZED SCORES OF STAFF MEMBERS 8

4 BEST PERFORMING STAFF 9

4.1 CALCULATION THE OVERALL EFFICIENCY 9
4.2 IDENTIFYING THE BEST PERFORMING STAFF 9

5 INSIGHTS AND RECOMMENDATIONS 9

5.1 INSIGHTS 9
5.2 SUGGESTIONS AND ACTION ITEMS TO MANAGER 9

6 FUTURE SCOPE 10

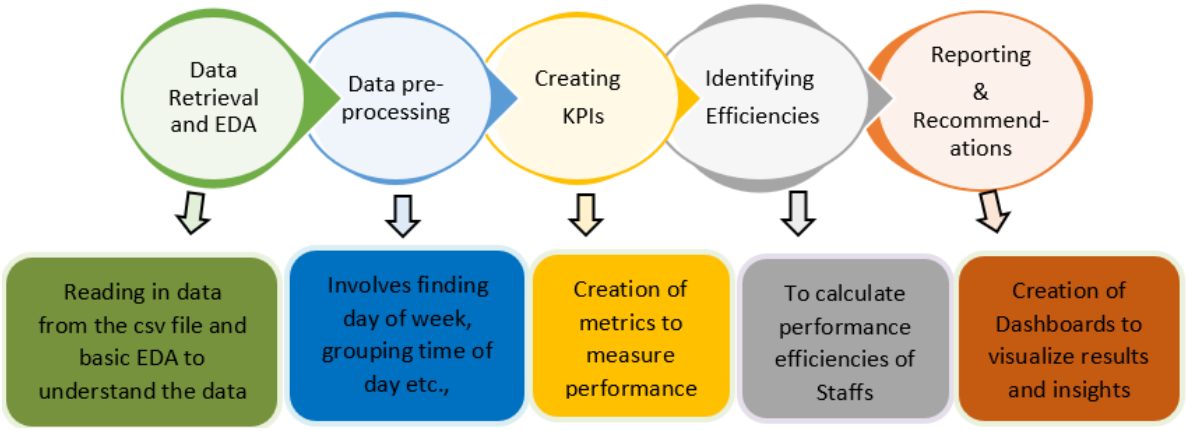
6.1 OTHER DATA SOURCES/INFORMATION FOR IMPROVEMENT OF SOLUTION 10

1 Introduction

1.1 Case Study - Objective

- To create KPIs that measure the performance of each staff member
- To measure the efficiency of each staff member based on the decided KPIs
- To identify the best performing staff
- To provide recommendations to the restaurant manager based on insights generated from data analysis

1.2 Methodology



1.3 Tools Used

- Microsoft Excel
- Python
- Tableau

2 Assumptions

2.1 Assumption about Job Role of Staffs

All staff members are assumed to be executing the same job activities of a specific role and are supposed to have similar working environment (Ex: All staffs are food servers and does not belong to other job roles such as Cooks, bartenders etc.).

2.2 Assumption based on Variables: Time of order placement/Completion

As mentioned in meta data, these two predictors indicate the time of order creation and completion.

a. However, the time difference between the two variables is sometimes less than 0.5 secs and the median value is 1.4 mins which is skeptical.
   However, it might be because the customer ordered some readily available (pre-packaged) food or readymade food which is already cooked and preserved (Ex: Cake, Ice Cream etc.) and hence the order got completed quickly. Also, the orders with less than 0.5 secs completion time was only less than 10% of data from the entire dataset, hence there is no special consideration given for this specific case in this analysis

b. Also, in some other cases, the time taken for order completion is greater than 1.5 hrs. If in general scenarios it might not take more than 1.5 hrs. for a meal, it is important to further investigate these cases.
   However, there is no data to see if these long wait times are because of order being late or if the orders were purposefully delayed by customer themselves (Business discussions, friends meetup etc.,). Also, this ratio is 27/3999 and <0.006% only. Hence, there is no special consideration given for this specific case in this analysis.

2.3 Assumption based on Variables: Order No., Offline No., Created By

The predictors Order No. and Offline No. have the same order No. when it is a normal order, and the offline No. varies if it is an online order. However, there is a special case, where the Order No. and Offline Nos are different even when it is not an online order. However, this ratio is 5/3999 and <0.001% only. Hence, there is no special consideration given for this specific case also in this analysis.

2.4 Assumption of using variable - "Net Sales" instead of "Final/Total Payment"

The variable "Final Payment" and "Total Payment" contain the same value as Net Sales + Tax. Since the tax amount would not contribute to the restaurant's revenue, "Net Sales" has been considered for my analysis.

2.5 Assumption on values with - "Net Sales" = 0

For some orders, the net sales were 0. The ratio of such cases was 53/3999 and constitutes to 1.3%. Since there is no information as to why the net sales were 0, inspite of order being completed this data is removed from analysis.

2.6 Peak hours of restaurant

The time of the day during which the orders were placed are categorized into groups as follows, based on which the peak hours of the restaurant is identified:

Time of Order Placement	Meal Type
8:00 AM - 11:30 AM	Breakfast
11:31 PM - 3:00 PM	Lunch
3:01 PM - 6:00 PM	Post lunch
6:01 PM - 9:30 PM	Dinner
>9:31 PM	Post Dinner

Based on the analysis of available data, the Dinner time from 6:01 PM - 9:30 PM generated the highest revenue and hence it is assumed to be the peak hours of the restaurant.

2.7 Weekend/Weekday focused restaurant?

Some restaurants located near offices focus on the weekday lunch sales. Some others focus on the weekend sales. The restaurant taken for our analysis has its high revenue generation during Fridays, Saturdays and Sundays. Hence it is assumed that the restaurant is weekend focused restaurant.

2.8 No table assignment for staffs?

Some restaurants assign tables to staff, indicating that all customers who use that table should be taken care by the assigned staff only. However, here since we do not have this information it is assumed that tables are not assigned to staffs, which means depending on the availability of staffs they must be attending to any customer.

3 KPI

3.1 KPIs for Measuring Staff Performance

S.No.	Metric	Why this metric is needed?	Ranking of each metric Weightage	Reasoning (for rank allocation)	Criteria/Formula
1	Consistency in No. of hours worked / day	Working hours of staff should be consistent. If a person works for 10 hrs on Day-1 and 3 hrs on Day-2, the management could not predict if they would have enough staff every day. Having a minimum number of hours would help with momentum in their work.	Rank 5	Being inconsistent may cause trouble to management in terms of manpower allocation. Hence it has been ranked 5.	Staffs must work for at least a min. of 4 hrs every day. If they had worked for 4 hrs, they would be assigned 1 or 0. Then the total scored is obtained by summing these values.
2	Avg No. of orders/hr	Staffs should have to be brisk and quick in taking orders. More the orders, better it is.	Rank 1	Being active and taking more orders is one of the top characteristics or qualities of a staff, as it could help with increasing revenue.	Total orders taken / Total hours worked
3	Avg revenue/hr	Here, the average revenue/hr rather than average revenue/order is considered, because the customers may place an order for low priced food irrespective of the staff's performance. However, even if	Rank 7	Even if the mannerism of staffs is admired by customers, they still tend to buy foods of their liking which could be of lower price and this should not make us devalue our employees. Hence	Total Revenue Generated / Total hours worked

S.No.	Metric	Why this metric is needed?	Ranking of each metric Weightage	Reasoning (for rank allocation)	Criteria/Formula
		the orders are small the staffs would have to quickly complete them and move on to the next one to generate more revenue		this metric is given the least rank.	
4	Ratio of orders handled per staff to Total orders per day	Staffs must be willing and ready to take up new orders when possible. They should be lethargic and let others take up new orders without showing interest.	Rank 6	Volunteering oneself to take orders when opportunity presents without being lethargic or waiting for another person is an important characteristic. However, the score from this metric also partially depends on the other metric: Total no. of hours worked which is measured separately. Hence it is ranked only 6.	Orders taken / Total Orders
5	Weekend Contribution (Total hours worked by staffs on weekend)	The restaurant has its high revenue generating ability in the weekends. Hence staff must avoid absenteeism on Fridays, Saturdays and Sundays	Rank 3	Given that weekend is the busiest days of week, it is important to track attendance during those days. However, it is given a slightly lower rank than peak hour contribution because in this case, it seemed that almost all staffs were willing to work during	No. of hours worked during weekends

S.No.	Metric	Why this metric is needed?	Ranking of each metric Weightage	Reasoning (for rank allocation)	Criteria/Formula
				weekend with less difference between them based on the number of hours they worked, but the case was quite different with Peak hour contribution.	
6	Peak Hour contribution	Based on the amount of revenue generated during the various times of day, it is seen that the peaks hours are from 6 pm to 9:30 pm. Optimal staff presence and contribution is required during these hours to further increase revenue during the peak hours	Rank 2	Not all staffs can show good professionalism and take up good number of orders and keep up with pressure. Hence this metric is ranked 2.	No. of orders taken during the peak hours (6pm to 9.30 pm)
7	Total hours worked	Staffs who take less holidays and who work optimal number of hours are always an asset	Rank 4	Good contributors who put in hard work should be awarded. Hence it is ranked 4.	Total No. of hours worked / Month

3.2 Scoring Board: Normalized Scores of Staff Members

The scores from each metric are brought to a common scale.

Normalizing the scores:

a. The metric "Ratio of orders handled to Total orders" is already scored out of 100, as it is calculated by:

= (Ratio of orders handled/ Total Orders)* 100

b. For metric "Consistency in No. of hours worked/day", 1 point is given for days on which they have worked for a min. of 4 hrs and 0 points in other cases. Then it is normalized by dividing total points obtained by total no. of days (In our case since the data was present for 30 days):

= (Total points obtained/30)* 100

c. For all other metrics, since the goal/ideal value is not known, relative scoring is done. Meaning the highest score is assumed to be at 100% based on which the other scores are valued:

= (Value Obtained/Top score)*100

4 Best Performing Staff

4.1 Calculation the Overall efficiency

In addition to the scores obtained from each of the metric, the weightage/rank of the metric is multiplied to obtain the final Score.

4.2 Identifying the Best Performing Staff

Based on the final score/Efficiency %, the top performing staff is identified. Based on the metrics and weightage allocation to metrics, **Staff FOH 8 is the TOP PERFORMING STAFF.**

Note: Please refer to the pdf attached. Dashboards in that document have been created using Tableau.

5 Insights and Recommendations

5.1 Insights

- Based on the revenue generated, the peak hours of the restaurant are between 6:00 pm and 9:30 pm
- It is a weekend-focused restaurant with its highest sales on Fridays
- The lowest performing staff has an efficiency of around 7% which illustrate the high possibility of improvement
- Staffs FOH 1 and 3 have the highest score in the first 2 metrics which has the highest weightage
- Similarly staffs FOH 6,7 have their scores above average in 4/7 of the metrics

5.2 Suggestions and Action Items to Manager

1. Though Staff FOH 8 is the top performer of the month based on the weightage allocated to metrics, other staffs like FOH 1 and 3 and Staffs FoH 6, 7 have showed excellence too. Hence instead of requesting the star performer to coach on all metrics, the topper performer of every metric can be given an opportunity to impart their qualities to others

2. Based on the dataset "Staff time on floor", the staffs did not seem to have proper time schedule and hence the number of hours they worked on each day was random. This can be regularized and optimized
3. Based on the metric "Peak Hour Contribution", Staff FOH 1 and 3 have taken most orders. This indicates that they could handle peak time pressure and keep up with customers. Hence it would be beneficial to allocate these staffs to work during pressure times.
4. The revenue generated was highest during dinner time and next it was during lunch. This means that by providing some promotions and coupons for lunch meals, the revenue can still be enhanced.

6 Future Scope

6.1 Other data sources/information for improvement of Solution

Other details like the following would help in improving the solution:

a. More data to support assumption 1 indicating the job roles for each of the staff IDs
b. More information or metadata on what Time of order placement and completion specifically means
c. The start and end working time (Not just the number of hours but time) of all staffs
d. The tip amount every staff get from customers etc.