Benchmark Assignment - Data Analysis Case Study

The Cicero Italian Restaurant was founded by Anthony Tanaglia in 1947 in Cicero, Illinois, a suburb of Chicago. He built the business with his family from a small pizza and pasta restaurant to 10 locations in the Chicago area. Michael Tanaglia, Anthony’s grandson, moved to Arizona to escape the cold Chicago winters and opened a restaurant in the Chandler area. The Arizona restaurant gained momentum thanks to the Chicago-style pizza and quality Italian dishes. Anthony decided to expand operations in Arizona, adding a second location in Glendale. The Glendale location was managed by Michael’s son Tony.

After a year of operations, Michael had some concerns with the Glendale location. Michael does not want his family’s business to fail, and he wants his grandfather’s legacy to last. Michael also understands how important an operational evaluation can be to identifying the strengths and weaknesses of a business. Michael confides his concerns to you and asks if you will do him a favor and use your quantitative analytic expertise to help him evaluate the Glendale location’s operations in three key areas: customer satisfaction, customer forecasting, and staff scheduling. As his friend, you agree – though his offer to treat you to the large pizza of your choice did not hurt.

*First Evaluation*

The first evaluation required an understanding of the factors that contribute to customer satisfaction and spending. Refer to the data Michael provided in the Excel spreadsheet “Benchmark Assignment - Data Analysis Case Study Data.” Identify which variables are significant to predicting overall satisfaction. Develop and interpret the prediction equation and the coefficient of determination. Based upon the data in this evaluation, what areas should Michael and Tony Tanaglia focus on to improve customer satisfaction?

*Second Evaluation*

The second evaluation requires a forecast of customers based upon demand. Michael reviewed data for the previous 11 months in an attempt to better forecast restaurant customer volume.

|  |  |
| --- | --- |
| Month | # of Customers |
| January | 650 |
| February | 725 |
| March | 850 |
| April | 825 |
| May | 865 |
| June | 915 |
| July | 900 |
| August | 930 |
| September | 950 |
| October | 899 |
| November | 935 |
| December | ? |

Which method should the business owner use to yield the lowest amount of error and what would be the forecast for December? Refer to the Excel spreadsheet “Benchmark Assignment - Data Analysis Case Study Template.”

*Third Evaluation*

The third evaluation concerns staff scheduling. Some of the customers have complained that service is slow. The restaurant is open from 11:00 a.m. to midnight every day of the week. Tony divided the workday into five shifts. The table below shows the minimum number of workers needed during the five shifts of time into which the workday is divided.

|  |  |  |
| --- | --- | --- |
| Shift | Time | # of Staff Required |
| 1 | 10:00 a.m. – 1:00 p.m. | 3 |
| 2 | 1:00 p.m. – 4:00 p.m. | 4 |
| 3 | 4:00 p.m. – 7:00 p.m. | 6 |
| 4 | 7:00 p.m. – 10:00 p.m. | 7 |
| 5 | 10:00 p.m. – 1:00 a.m. | 4 |

The owners must find the right number of staff to report at each start time to ensure that there is sufficient coverage. The organization is trying to keep costs low and balance the number of staff with the size of the restaurant, so the total number of workers is constrained to 15.

Based on these factors, recommend the staff for each shift to accommodate the minimum requirements for customer service. Refer to the Excel spreadsheet “Benchmark Assignment - Data Analysis Case Study Linear Programming Template.”