Data Analytics and Modeling - Professor Juran

## The Queen of Diamonds Restaurant ${ }^{1}$

At the end of November, Gary Tallent, the general Manager of the Queen of Diamonds Restaurant (QOD), was analyzing sales figures for the last eleven months and felt a sense of urgency. "Here we are, already in our busy season, and I am not sure the á la carte operation will even meet last year's sales, not to mention the budget we just received from those yuppies at corporate. I wish I knew a way to deal with the reservations problem; December should be our best month."

## Background

The Queen of Diamonds is a nationally recognized restaurant located in Midtown Manhattan. The 140-seat eatery, founded as a speakeasy in the early 1920s, is renowned for its service, gourmet cuisine, and most important, its exceptional clientele, which ranges from Hollywood stars to captains of industry to political leaders. QOD is one of the top-ten highest grossing restaurants in the United States and also has one of the highest check averages, averaging $\$ 95$ Mondays through Thursdays and $\$ 70$ Fridays and Saturdays (the restaurant is closed Sundays). According to Tallent, "The high rollers are here during the week. On weekends we get the stiffs from Connecticut and Long Island, in a hurry to get to the theatre. Those people are cheaper and a lot more likely to make a reservation and not show up. It's really two different restaurants: one from Monday through Thursday, and another on Friday and Saturday."
Opened in 1925, QOD quickly developed an impeccable but ostentatious reputation. QOD serviced an eclectic but regular clientele ranging from author Ernest Hemmingway to gangster Bugsy Siegel. QOD became known a restaurant that gave preferential treatment to the famous and important, perceived by the public as a private club for all practical purposes. Noted one of the former owners, "For some days of the week certain tables were passed down from father to son; you couldn't get a seat there unless you were born into it."

QOD thrived throughout the following decades, serving every President since FDR as well as other world-famous personalities. QOD earned a unique and distinctive cache, which became its signature, surpassing even its reputation for four-star service and cuisine.

[^0]QOD was sold for $\$ 8$ million to a high-profile financier about 20 years ago. It was then that the business became inconsistent. Shortly after the restaurant was sold, QOD closed for a much-needed renovation (costing upwards of $\$ 1$ million). In an attempt to become more modern, a new chef was hired who drastically altered the menu. Many of QOD's aging customers began disappearing. QOD then entered the recent recession in a somewhat weakened state. The public, hesitant to pay extravagant prices, stopped dining. The aging regulars, once dedicated, also dined less frequently.
QOD was sold again recently, this time to a multi-national hospitality-based conglomerate, which paid $\$ 15$ million. The new company focused on marketing and menu, and business began to improve. QOD met its delegated budget in each of the next two years (due mainly to price increases on popular dishes). Two years ago though, competition began to increase and QOD faced new challenges. Potential customers began to ignore their reservations, frequently not even arriving or canceling. Tables were left empty and revenue suffered. This trend continued into this year.

## The Reservations System

QOD's customers can make a reservation for one of three seatings any evening: 5:306:30, 8-8:30 and 10-11. In reality, however, the restaurant rarely fills up except for the 8:00 seating. When a prospective client calls for a reservation, a reservationist makes a handwritten entry onto sheets organized by seating. The restaurant has a nominal capacity of 143 diners, but some reservationists book a few extra diners per seating in order to compensate for no-shows. There are some emergency seats available in case extra diners arrive, but the Dining Room Manager dislikes using them, because the restaurant looks and feels too crowded with more than 143 diners.

The Dining Room Manager, Roy Bittan, said "We need 143 per seating to make the best use of our facilities. And we need a simple system for the reservationists; most of them are part-time NYU students. They can deal with a given number of reservations to take, but they can't run some complicated system."

Data from last December can be found in Exhibit 1 (an Excel sheet). "Original" refers to the total amount of reservations for the 8:00 seating. "Cancellations" is the number of customers who call and cancel their reservations. "No-Shows" is the number of customers with reservations who do not call or dine at that seating. "Walk-Ins" is the number of unexpected diners that arrive for the 8:00 seating.

Roy Bittan has been QOD's Dining Room Manager for over 30 years. "Back when the business was family-owned, we never had to worry about budgets. We could just let the business take care of itself." "Now," he continued, "The Boss at corporate has us all worried about our jobs if we can't meet the financial plan set for us. We dread every no-show. On the other hand, the only thing worse than a no-show is if we overbook and get customers with a reservation who we can't seat. That is death. I wish we could just get a predictable 143 diners per seating.
"As far as reservations are concerned, the key is the 8:00 seating. I'm not really worried about reservations for the other two, because we there aren't enough customers to fill up the dining room anyway. But it kills me to be turning away reservations for 8:00 and then see empty seats."
Daniel Federici, QOD's Chef, was frustrated. "We prepare our food based on the reservations level that evening. If we have 140 reservations, I make 140 meals. Then, if some people don't show, we waste unsold food. Morale also suffers; we get geared up for big evenings that fizzle-out in the end. No one is happy when business suffers. And even though they call and let us know they aren't coming, the cancellations hurt us too. They call us at 6:00 and say they're not coming, but I already bought the food and started preparing it. Every empty seat is a check we won't collect, and empty seats make the customers wonder if we're going downhill."

Imagine that Tallent has hired you to analyze the reservation system and make recommendations. "You would think there would be a way to handle our reservations for the 8:00 seating so we don't have empty seats. So far this year, each month has had basically the same cancellation and no-show rate as the previous year. We try overbooking, and demand is available, but we can't seem to get the correct number of reservations to take per seating. On the other hand, we can't overbook so much that we have customers without seats. Can you help?"

## Questions

1. How many reservations should QOD take in order to maximize each 8:00 seating per evening in December? Why?
2. Objectively, why is your system better than the current one? What benefits (financial and otherwise) do your ideas offer?

[^0]:    ${ }^{1}$ This case was prepared by Professor David Juran and Brian Mayer (MBA '99).

