Optimal Cancellation and Pricing Policy

Introduction:

After observing the terrible cancellation policies of the various hotels in our trial data. We thought of various improvements that could be made. We decided that our policy should encourage customers to come, and therefore not be too restricting, but at the same time it should discourage customer cancellation. Additionally, we concluded that the further away from the check-in date a customer canceled, the higher the chance a new customer would book the reservation, and thus no loss would be made. Taking all of this into consideration, we decided our policy should punish late cancellers much more severely. After much discussion within the group we decided that a linear-increasing cost function would be sufficient and we decided on a quadratic two-part function.

$$f(x) = 1 - \left(\frac{x}{7\sqrt{2}}\right)^2 : 0 \leq x \leq 7$$

$$f(x) = \left(\frac{\sqrt{2}(x-28)}{42}\right)^2 : 7 \leq x \leq 28$$

As we explained above, the first part of the function is meant to punish late cancelers. In fact every customer that cancels within 7 days will pay a minimum of 50%. The motive behind this specific number is in *Figure 2*, where we can clearly see that a third of all cancellations are within the last 7 days. The second part of the function, on the other hand, is meant to allow customers more freedom the further they are from their check-in date. Our suggestion for a more generic one is one which includes linear functions and quadratic functions. In this case the policies should be functions made by combining linear and quadratic functions from the library.

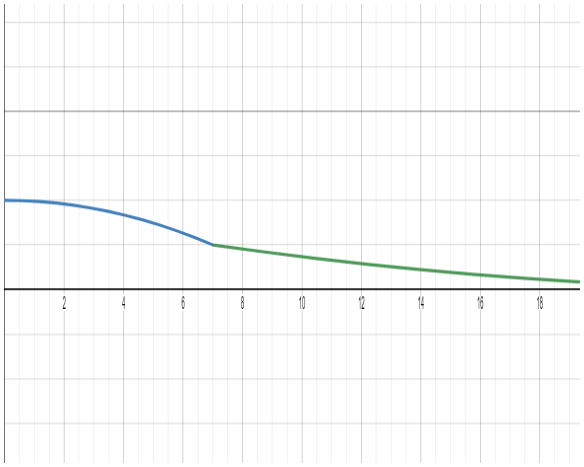

Figure 1. f(x).

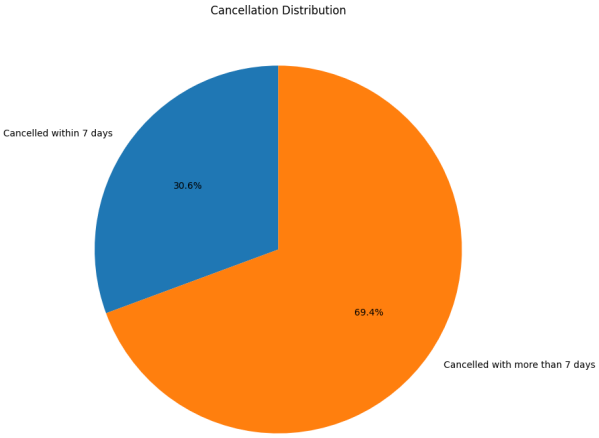

Figure 2. Cancellation Distribution in less/more than 7 days left.