**Statistical Inquiry into the Commercial Viability of Hotel Overbooking**

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**Abstract** Commercial hotel booking data suggest cancelations are binomially distributed with a reservation’s probability of canceling is 0.36. The task is to optimize bookings, given the uncertainty of a reservation’s arrival and the cost of providing additional accommodations. Based on this probability model, a function was derived using hotel capacity, time until reservation, and cost of providing alternative accommodations. Using these variables, the function outputs the maximum number of reservations to schedule on a given day. Splitting data into training and testing sets, shows this over booking strategy is TBD more profitable than accepting every booking, and TBD more profitable than abstaining from overbooking.

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# Nomenclature (*In order of its appearance*)

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# Introduction [This section must start on a new page. The following sections are essential to generate a technical report.]

# Data

# Analysis

# Methods (or Procedure)

# Results and Discussion

# Conclusions

# References [This section must start on a new page. Please stay with uniform format (e.g., MLA format) for the references list below.]

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# Appendix A [Each appendix section must start on a new page.]

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