


Hotel Analysis

Predicting hotel booking cancellations

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-

Business

•01• Understanding

*“Increased revenue loss due to
last minute hotel booking
cancellations”*





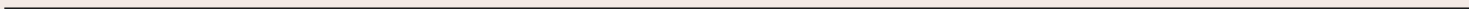
Data

•02• Understanding

Hotel Booking Cancellation Prediction Dataset



36,283 unique lines of information and 17 feature columns



Data

•03• Preparation

A scenic view of a coastal town, likely in the Canary Islands, featuring white buildings with red-tiled roofs, numerous palm trees, and a harbor with several boats. The town is built on a hillside overlooking a large body of water, with steep cliffs visible in the background. The text "Data" and "•03• Preparation" is overlaid on the image in a white serif font.

·01·

Data
Exploration
and Cleaning

·02·

Feature
Engineering

·03·

Feature
Selection

·04·

Data
Transformation



•04• Modelling

·1·

·Baseline Logistic
Regression·

·2·

·Modified Logistic
Regression·

statistically significant
features

·3·

·Modified Logistic
Regression·

Used SMOTE and Class
Weights

·4·

·Baseline Decision
Tree·

·5·

·Hyperparameter
Tuning on Decision
Tree·

Parameters: max_depth,
min_samples_split,
min_samples_leaf,
class_weight, criterion

·6·

·Understanding
feature importance·

•05• Evaluation



Final Model: Tuned Decision Tree

max_depth = 13
min_samples_split = 2
min_samples_leaf = 2
class_weight = None
criterion = gini

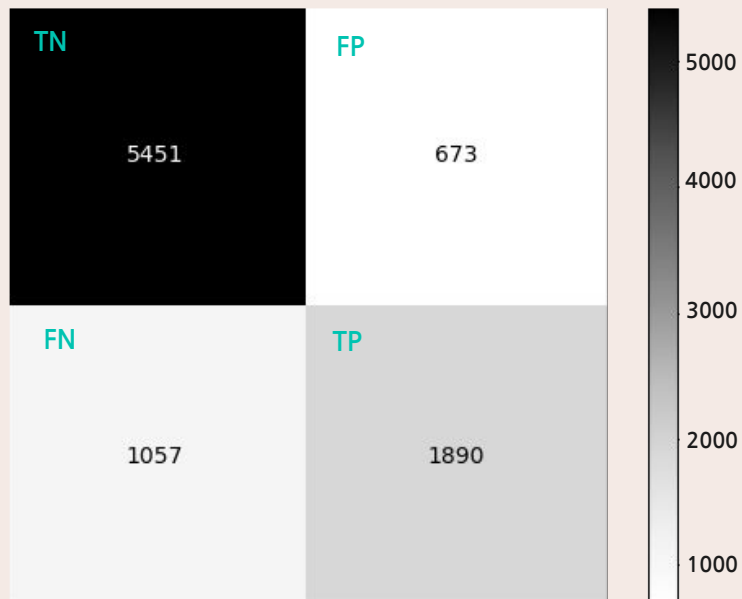


Evaluation Metrics

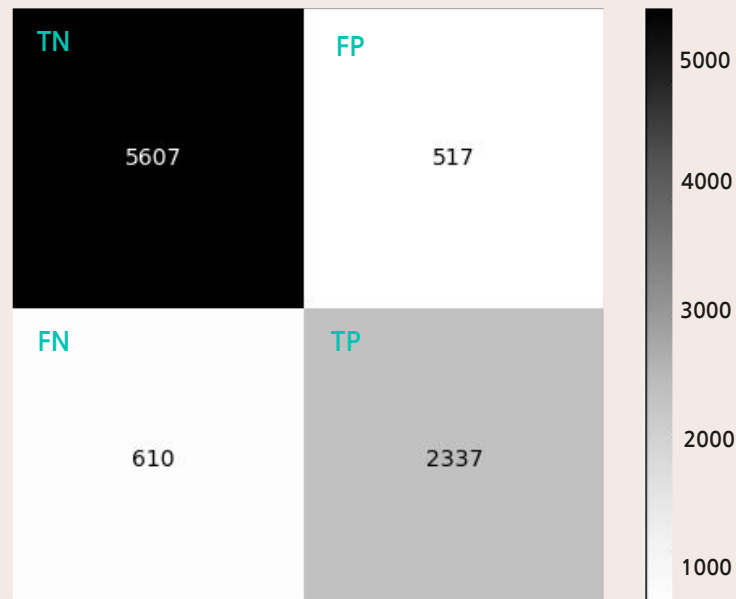
	Baseline Model _(v)	Final Model	Delta
Accuracy	81%	88%	+7%
Precision	74%	82%	+8%
Recall	64%	80%	+16%
F1 score	69%	81%	+12%
AUC	87%	92%	+5%

Confusion Matrix

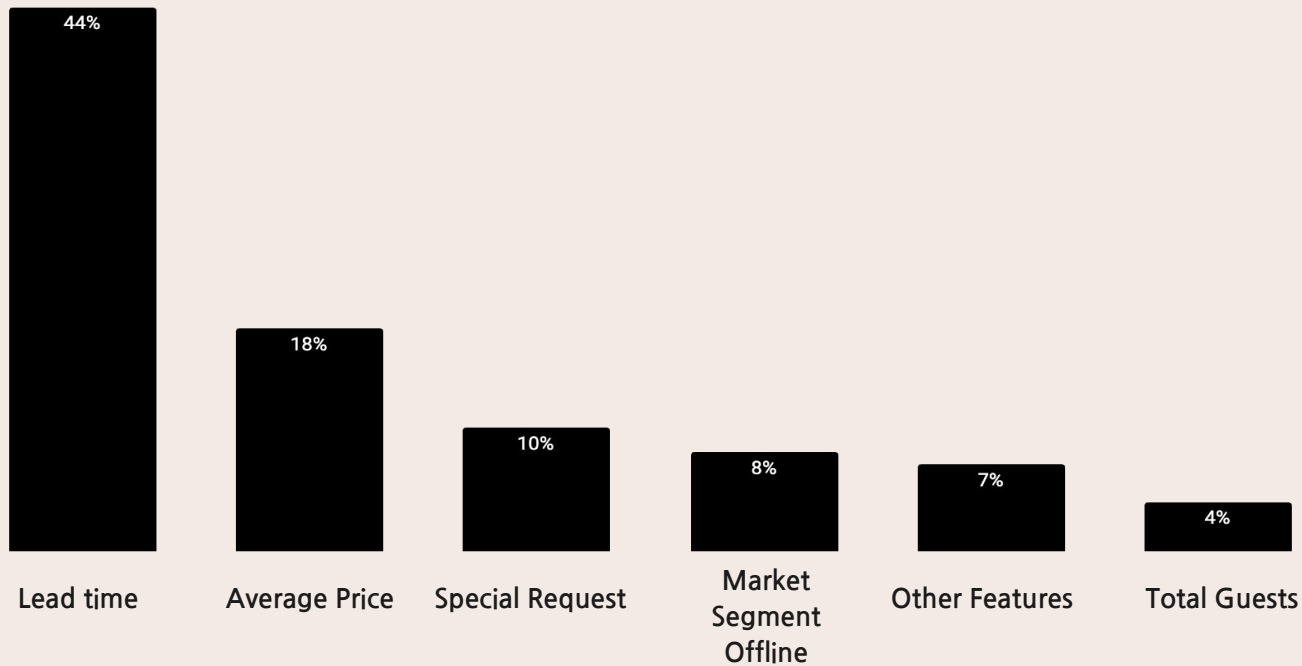
Baseline Model



Final Model



Feature Importance





•06•Recommendations



•01•

Overselling strategy

•02•

Features impacting cancellations

•03•

“Check with Guest” Program



•07• Next Steps



Implement
Recommendations



Features impacting
cancellations



Hotel
Datasets



Re-evaluate and tune the
model



Thank you!

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