

# Customer Prediction

---

# RESULTS

## 🧠 Objective:

- Build an interpretable machine learning model to predict whether a customer will make a booking.

## 🔍 Key Insights:

- Model correctly predicts bookings/non-bookings **85.1%** of the time overall. However, this is inflated by class imbalance (likely more non-bookings).
- When the model predicts a customer **will book**, it's correct about **50.5%** of the time.
- Model only identifies **13.7%** of actual bookings — it's missing many customers who do book. I suggest adding more customer-centric features to improve the model.
- Most important predictive feature is “purchase\_lead” which is the time between the purchase and departure.

## Model Performance:

test\_accuracy: 0.851  
test\_precision: 0.505  
test\_recall: 0.137  
test\_f1: 0.216  
test\_roc\_auc: 0.785

