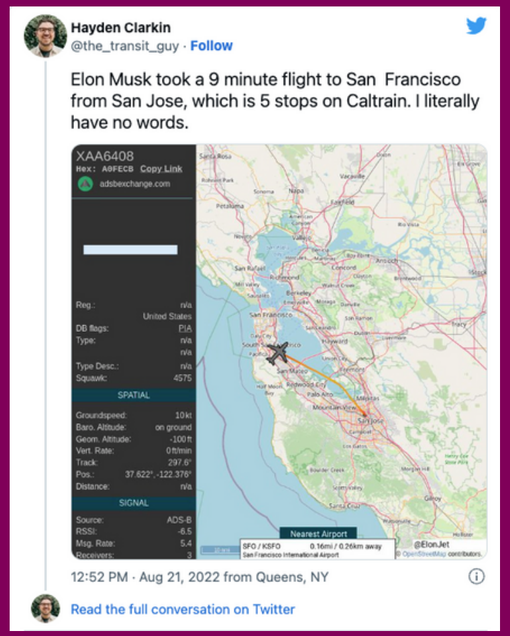
Make Your Next Flight a Green Flight:

Planning Better Trips to Reduce CO2 Emissions

Presented by: Xenel Nazar

PROBLEM OVERVIEW

- People are more environmentally conscious about how they travel
- What can everyday people do to limit their impact on the environment when booking a flight?
- Provide the most environmentally friendly details for a given route



DATA OVERVIEW

Google Flights

~ 1M Rows
Airport Codes
Airline Operators
Aircraft Used
Fare Info (USD)
CO2 Emissions

+ Airport Coordinates
+ Standardize Timezone
+ Calculate Distances
+ Generate Routes

SCAN TO INTERACT

HANOI, VIETNAM

BAGGAGE TAG

SA

BAGGAGE TAG

TO:

DUBA

D

FLIGHT NO.

STRAP CHECK

65

MODELING

Target: **Efficiency**

Distance Flown (km) per lb of CO2 Emissions

- High Efficiency / Utilization - 1
- Low Efficiency / Utilization - 0

MODEL	ACCURACY
LOGISTIC MODEL	0.88
LOGISTIC-PCA MODEL	0.88
SVM MODEL	0.87
DECISION TREE	0.86
RANDOM FOREST	0.97
XGBOOST	0.96

OPTIMIZED MODEL	ACCURACY
DECISION TREE	0.93
RANDOM FOREST	0.89
XGBOOST	0.97

TAKEAWAYS

- Short Intra-Country Trips
- Trips with 3 or more Stops
- Multi-Stop National Carriers
- Short-Range Aircraft

KEY MODEL FEATURES	
Price	Certain Airlines
Duration	Certain Aircraft
# of Stops	

BRITISH AIRWAYS

TURKISH AIRLINES

AIRBUS A320

787 DREAMLINER

- Long Cross-Country Trips
- Non-Stop Flights
- LCC or Select National Carriers
- Modern Long-Range Aircraft

Benefits / Outcomes

- Individuals:
  - Book Trips Efficiently
- Stakeholders (Airline Operators)
  - Optimize Aircraft Fleet
  - Optimize Route Planning

THANK YOU FOR LISTENING!

Happy Green Travels!