

E-commerce Shipping Prediction

Problem Background

59.7%

Shipping deliveries are Late



Objectives

- ✓ Increase On Time Rate
- ✓ Increase Customers Satisfaction
- ✓ Saved Potential Revenue Loss

Insights

SUPER DISCOUNT!
up to
\$10
assured
100% Late

Late Percentage by Shipping Mode

	58.8%
	60.1%
	59.7%

Late Percentage by Warehouse

	A	58.7%
	B	60.2%
	C	59.7%
	D	59.8%
	F	59.9%

Late Percentage by Weight

	0-2 Kg	67.8%
	2-4 Kg	99.9%
	4-6 Kg	43.2%

Issues



Machine Learning Model

- 1 EDA
- 2 Data Cleansing
- 3 Pre-Processing
- 4 Selection
- 5 Encoding
- 6 Normalization
- 7 Modeling
- 8 Evaluation

	Random Forest	Logistic Regression	AdaBoost	XGBoost
Accuracy	0.67	0.64	0.66	0.64
Precision	0.84	0.69	0.78	0.72
Recall	0.57	0.73	0.60	0.68
F1-Score	0.68	0.71	0.68	0.70
AUC	0.70	0.62	0.68	0.66
AP	0.74	0.67	0.70	0.68
AP Train	0.74	0.67	0.72	0.93
AP Test	0.74	0.67	0.72	0.68

Final Model : Logistic Regression
Based on Recall & Average Precision score

Primar : Recall
Secondary : Average Precision

Recommendations

Short Terms



Add Estimated Arrived Time

Long Terms



Credit Points



More Features



Audit

- ✓ Add estimated arrival time to assure the package arrived on time
- ✓ Give credit points as a compensations to retain customer loyalty
- ✓ Add more features to give more specific insights
- ✓ Perform operational audit based on the insights

Beneficial Impact

- ✓ On Time Rate increase 108%
- ✓ Saved \$ 942.964,62 Potential Revenue loss
- ✓ Avg. Customer Rating increase 11.7% to 3.34



underscore