SHIPPING PORT PROJECT

PREDICTING DELAY

COST MANAGEMENT

Muhammad Aldítya Prasetyawan

Shipping Ports
Indonesia’s Economy Backbond

Shipping ports are the backbone of Indonesia's economy, particularly in the transportation and maritime sectors. Given the country's vast size, effective transportation management is essential. Traditionally, shipping ports have successfully managed the inflow and outflow of goods, ensuring smooth operations. However, with the rapid advancement of technology, including artificial intelligence (AI), the industry is adapting to stay ahead. Embracing AI can help optimize operations, such as minimizing budget allocation for ship preparation, allowing for resources to be redirected to other strategic areas. This proactive approach ensures that shipping ports remain at the forefront of the transportation industry.

Problem Background

Allocation & Budgeting

Shipping ports handle the arrival and departure of dozens to hundreds of ships daily at a single port. To maintain smooth operations, these ports require significant financial resources, including funds for employee salaries, equipment, and other operational needs. However, the frequent cancellations of ship arrivals can lead to financial losses, as resources that were allocated for these ships could have been redirected to other areas. Efficient budget management is therefore crucial to ensure that ports can continue to operate effectively while minimizing financial waste.

About Project

Assumption Without Machine Learning

Assuming Tanjung Priok Port handles 80 ships daily, with only 80% of the scheduled ships arriving, the budget allocated for each ship docking is IDR 10 million. Consequently, 30% of the allocated budget is not fully utilized, leading to inefficiencies in financial resource management.

Operational Expenses

Rp 800.000K

Unallocated Budget

RP 400.000K

Variabel / Features Considered

DATASET

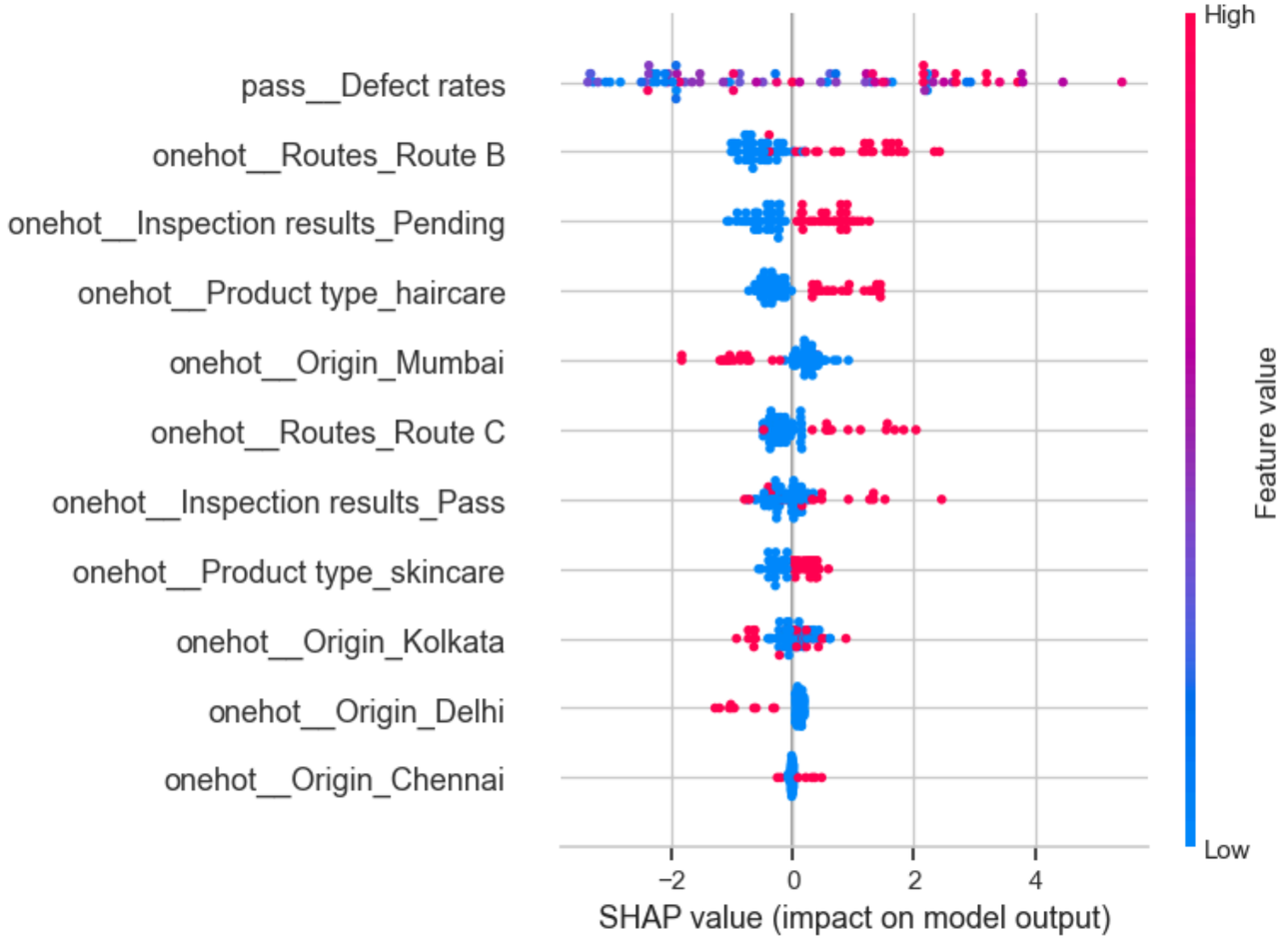
With Machine Learning (ML), the variables or factors considered for prediction are as follows:

Shipping Carriers	**Shipping Costs**	**Origin**	**Defect Rates**
Types of carries used	Cost of the Shipping	Origin of the Ship	The rate of ship to be broken
Product Type	**Inspection Results**	**Routes**	**Order Quantities**
Type of product being carried	Result inspection before the departure of the ship	The route that the ship sailed through	The amount of workforce that the ship has

Note : The data received from the internet, therefore the accuracy and quality of the data may not be credible

MACHINE LEARNING

Analysis Variabel (ML)



In this analysis, the primary factor influencing ship delays is the probability of mechanical failure, followed by the route taken by the ship and the results of inspections.

ANALYSIS RESULT

If a ship has a high defect rate, the likelihood of a delay is significantly increased.

MACHINE LEARNING IMPACT TO BUDGET

Prediction result

Machine Learning

Out of the 80 ships headed to Tanjung Priok Port, 39 are expected to experience delays, while 41 are expected to dock on time.

BUDGET CALCULATION

With Machine Learning, the port only needs to allocate a budget of IDR 410 million, allowing IDR 390 million to be redirected to other areas.

BUDGET SAVED

RP 390.000K