Delivery ETA task

Goal

We would like to predict how long it will take for an order to be delivered from the moment of order creation.
Our target variable is Actual Time in Seconds = (actual_delivery_time - created_at) in seconds
The metric we aim to improve is MSE.

Columns

Time features

market_id: A city/region in which DeliveryApp operates, e.g., Berlin, given in the data as an id

created_at: Timestamp in UTC when the order was submitted by the consumer to DeliveryApp. (Note this timestamp is in UTC)

actual_delivery_time: Timestamp in UTC when the order was delivered to the consumer

Store features

store_id: an id representing the restaurant the order was submitted for

store_primary_category: cuisine category of the restaurant, e.g., italian, asian

order_protocol: a store can receive orders from DeliveryApp through many modes. This field represents an id denoting the protocol

Order features

total_items: total number of items in the order

subtotal: total value of the order submitted (in cents)

num_distinct_items: number of distinct items included in the order

min_item_price: price of the item with the least cost in the order (in cents)

max_item_price: price of the item with the highest cost in the order (in cents)

Market features

DeliveryApp being a marketplace, we have information on the state of marketplace when the order is placed, that can be used to estimate delivery time. The following features are values at the time of

created_at (order submission time):

total_onshift_couriers: Number of available couriers who are within 10 km of the store at the time of order creation

total_busy_couriers: Subset of above total_onshift_couriers who are currently working on an order

total_outstanding_orders: Number of orders within 10 km of this order that are currently being processed.

Predictions from other models

We have predictions from other models for various stages of delivery process that we can use:

estimated_order_place_duration: Estimated time for the restaurant to receive the order from DeliveryApp (in seconds)

estimated_store_to_consumer_driving_duration: Estimated travel time between store and consumer (in seconds)