Forecasting the revenue generated by ATM / CARD / CASH for EZTABLE to identify the potential / actual revenue from different payment systems.

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Business problem

- The actual revenue is not all the purchasing data.
- The customer consuming habits change. We thought it is the opportunity of our client.
Forecasting goal

- Forecasting the monthly revenue from different payment systems in three month ahead.
- Forecasting two type of data, all and paid.
- Let our client (EZTABLE) make strategy more accurately to meet the customer needs in near future.
Data description

- **Source:** EZTABLE’S Purchase data

- **Quality:**
  - Missing Value
  - Outlier
  - Status
    - 1. New
    - 2. Canceled
    - 3. Paid
Data preparation

- **Partition:**
  - Training: 29 Months
  - Validation: 3 Months

- **Aggregation:** Monthly

- **Components:** Level / Trend / Yearly seasonality / Noise

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Graphs showing monthly payments for Card and WithoutCard categories from 2012 to 2014.
Methods

- Derived Variable: $T$, $T$ square, seasonal indexes, dummy (monthly), log

- Testing methods: Seasonal Naïve, Holt-Winter, Linear regression, Neural Network

- Outputs: The forecasting revenue in next three months
Evaluation

Compare Residual with different method

Linear Regression
Create seasonal index, dummies, $T, T^2$

Put all variables into the multiple linear regression

Do it on both all and paid data

Forecasting chart by comparing paid and all

- Actual Value (All)
- Predicted Value (All)
- Lower (All)
- Upper (All)
- Poly. (Actual Value (All))

- Actual Value (Paid)
- Predicted Value (Paid)
- Lower (Paid)
- Upper (Paid)
- Poly. (Actual Value (Paid))

<table>
<thead>
<tr>
<th>RMSE</th>
<th>All</th>
<th>Paid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training</td>
<td>2078464.644</td>
<td>1354213.306</td>
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<tr>
<td>Validation</td>
<td>5910868.301</td>
<td>3692201.241</td>
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</tbody>
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Recommendations

EZTABLE can use this model to generate the forecasting of both actual and potential.

We suggest EZTABLE can uses these forecasts to make different strategies of promotion.

We find that the different between actual and potential revenue is huge. There are maybe some way to make system more convenient to pay. It can help them make much more revenue.
Thank you for your listening