

# E.P.I.C Season 4 - Analytics Challenge Case Study

**Residual Analytics**

When a customer who has taken a secured loan has defaulted and efforts by the company to collect the outstanding dues from the customer doesn’t yield results, the company resorts to repossession (seizure) of the hypothecated vehicle while abiding legal guidelines. The seized vehicles are transported to large parking yards in the city/town where they will be auctioned after a certain time period to recover the outstanding dues.

The residual team is responsible for auctioning the seized vehicles. The goal of the team is to sell as many vehicles as possible at higher price in the shortest time possible and thereby recover the outstanding dues.

The objective of this case study is to estimate the resale value of the seized vehicle when auctioned at a given month in future. This will help the residual team to decide on whether to approve or reject the quote received for the vehicle.

Estimated Resale value

Quotes received from individual buyers

Quote received from physical auctions

Quote received from online auctions

Approve the quote

No

Yes

Negotiate for a higher quote



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| **Variable** | **Data Type** | **Definition** |
| V1 | String | The unique identifier for the loan account |
| V2 | Datetime | The date in which the vehicle was seized |
| V3 | Categorical | The unique identifier for the area in which the loan was disbursed |
| V4 | Categorical | The unique identifier for the dealer where the vehicle was purchased |
| V5 | Categorical | Type of dealer - Main or Subdealer |
| V6 | Numeric | On road price of the vehicle (aka asset cost) |
| V7 | Numeric | Ratio of loan amount to asset cost |
| V8 | Categorical | The encoded model of the TW - Jupiter, Mopeds, Star City, Radeon, Apache etc |
| V9 | Numeric | The outstanding dues of the customer |
| V10 | Numeric | The DPD (days past due) bucket of the customer at time of seizure |
| V11 | Categorical | Condition of the Tyre (Good/Average/Poor) at time of yard entry |
| V12 | Categorical | Condition of the Body (Good/Average/Poor) at time of yard entry |
| V13 | Categorical | Condition of the Engine (Good/Average/Poor) at time of yard entry |
| V14 | Categorical | Condition of the Overall TW (Good/Average/Poor) at time of yard entry |
| V15 | Binary | Whether the vehicle is registered or not (1 indicates registered) |
| V16 | Numeric | The Year of Manufacturing of the vehicle |
| V17 | Numeric | The count of months elapsed since loan disbursement until seizure of vehicle |
| V18 | Numeric | The count of months elapsed since loan disbursement until auction of vehicle |
| V19 | Categorical | The unique identifier of the parking yard in which the vehicle is located |
| V20 | Categorical | The state in which the parking yard is located |
| V21 | Numeric | The month in which the vehicle will be sold in auction |
| V22 | Numeric | The year in which the vehicle will be sold in auction |
| V23 | Numeric | The age of the vehicle in years when sold in auction |
| V24 | Numeric | The days spent by vehicle in yard when sold in auction |
| V25 | Binary | Whether the vehicle is BS6 or not (1 indicates BS6) |
| V26 | Categorical | The RTO circle in which the TW is registered |
| V27 | Binary | Whether the vehicle is BS4 and unregistered at time of seizure (1 indicates yes) |
| V28 | Numeric | Per day parking charge of the vehicle in the yard |
| V29 | Numeric | The ratio of the months elapsed until seizure (V17) to the tenure of the loan |
| V30 | Numeric | The time period for repayment of loan in months |
| V31 | Binary | Whether the customer availed first free service for the vehicle (1 indicates yes) |
| V32 | Numeric | The very first KM reading captured at time of the very first service |
| V33 | Numeric | Count of months elapsed since loan disbursement until the very first service |
| V34 | Numeric | KM reading captured at the recent most service |
| V35 | Numeric | Total count of free service availed by the customer |
| V36 | Numeric | Count of months elapsed since recent service until seizure of vehicle |
| V37 | Binary | Whether the original RC book of the vehicle is available or not (‘Y’ indicates yes) |
| V38 | Binary | Whether the vehicle is accidental or not accidental |
| V39 | Numeric | The quote amount for which the vehicle was sold **(Target Variable)** |