



Phone Price Prediction

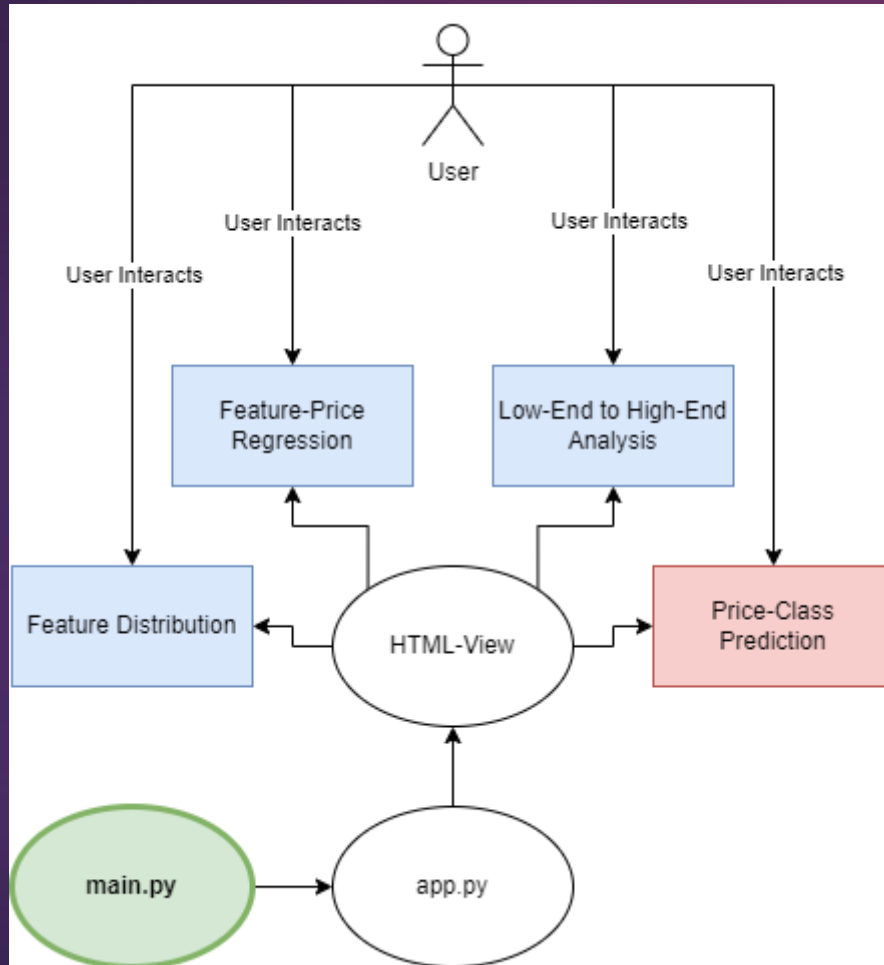
PLACHETZKY NICOLAI, KIRI NERTIL, PUKA BENJAMIN, VURAL ZELIHA, ILIAGOUUEV ALON



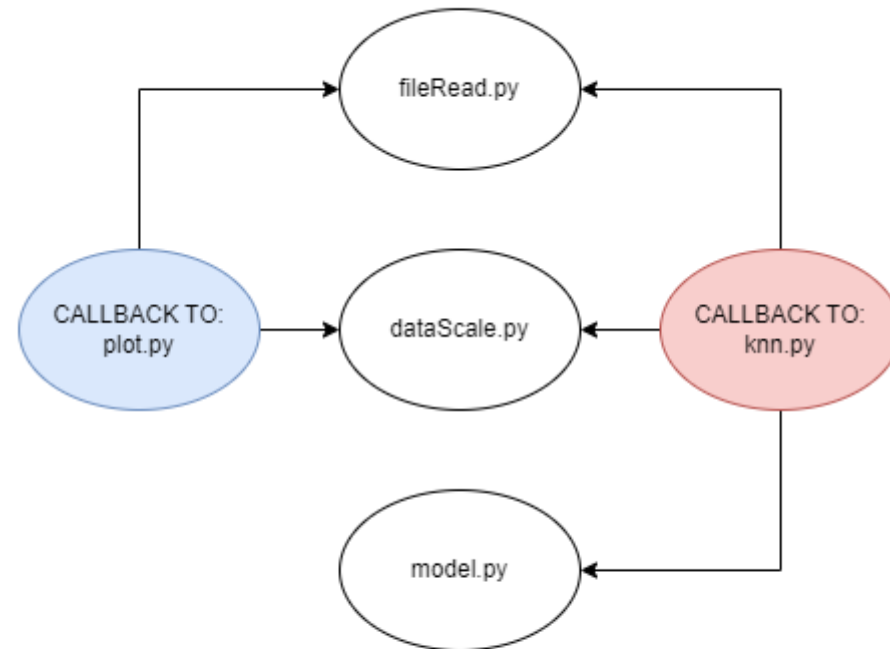
Goal

AUTOMATED WAY TO
DECIDE ON PRICE RANGES
FOR NEW PHONES

Program Architecture



After interaction



Mobile Price Prediction - Analysis Dashboard

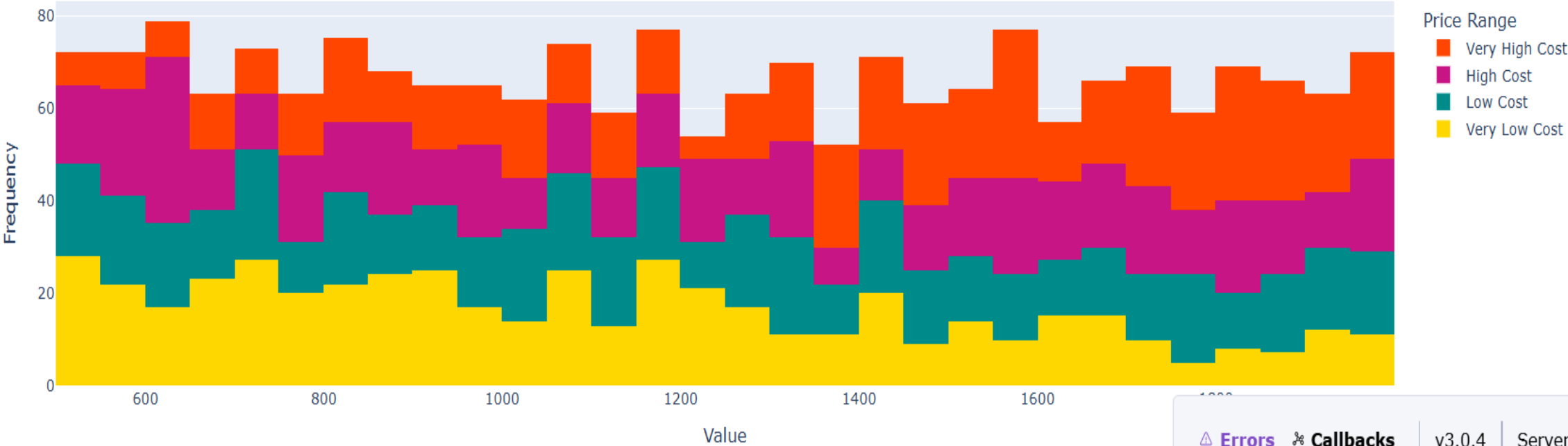
Plots

Price Class Prediction

Feature Distribution



Battery Power



[Errors](#)

[Callbacks](#)

v3.0.4

Server



Mobile Price Prediction - Analysis Dashboard

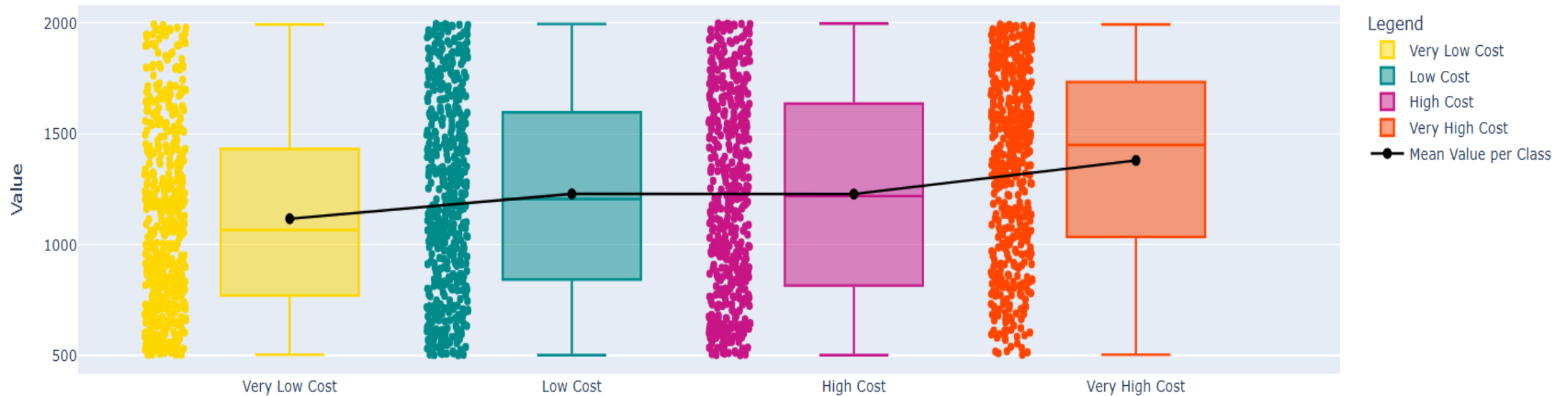
Plots

Price Class Prediction

Feature-Price Regression



Battery Power



Errors

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Mobile Price Prediction - Analysis Dashboard

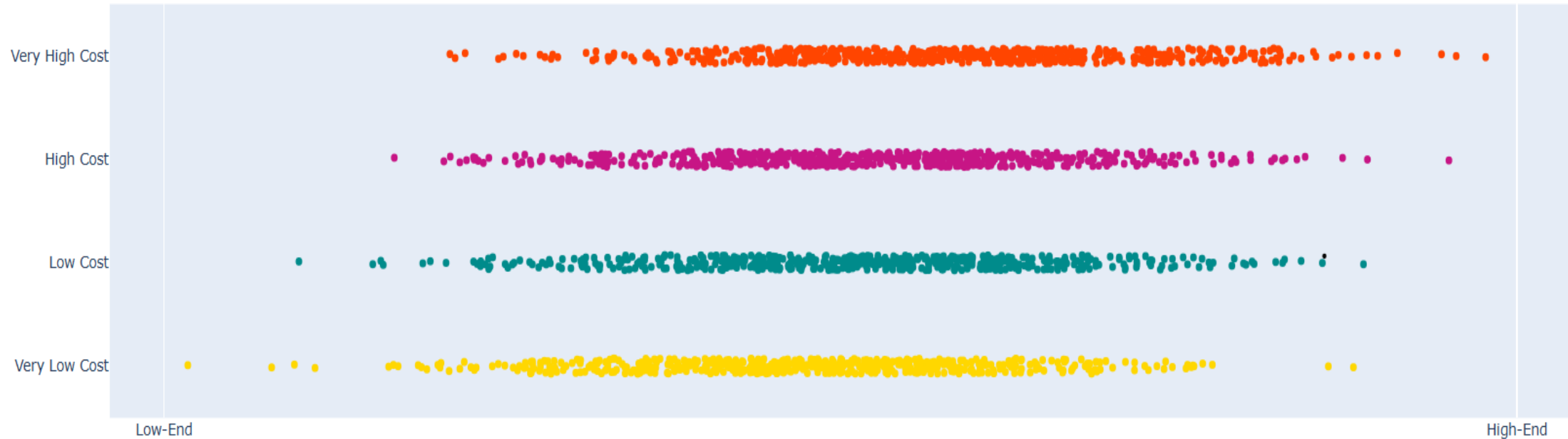
Plots

Price Class Prediction

Low-End to High-End Analyze



Device Position from Low-End to High-End by Average Feature Value



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Mobile Price Prediction - Analysis Dashboard

Plots

Price Class Prediction

K-Nearest Neighbors Prediction

5

Predict

Predictions with k=5

Total predictions: 1000

Summary by Price Category

Price Category	Count	Percentage
Very Low Cost	298	29.8%
Low Cost	287	28.7%
High Cost	257	25.7%
Very High Cost	158	15.8%

Detailed Predictions

[Errors](#)

[Callbacks](#)

v3.0.4

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Detailed Predictions

Test Point	Predicted Price	Average Distance
Test Point 1	High Cost	1.20
Test Point 2	Low Cost	0.98
Test Point 3	Very Low Cost	1.13
Test Point 4	Very High Cost	1.29
Test Point 5	High Cost	1.00
Test Point 6	Very High Cost	1.07
Test Point 7	Very High Cost	1.13
Test Point 8	Low Cost	1.20
Test Point 9	Low Cost	1.04
Test Point 10	Low Cost	

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Model

Prepare Data

Apply Algorithm

Evaluate

Results

Read Data

Scale Data

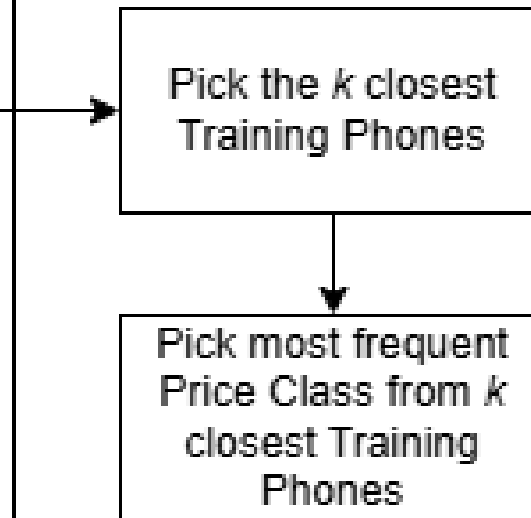
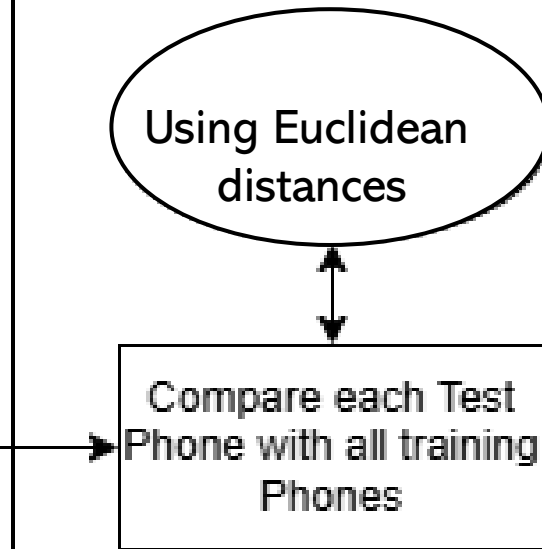
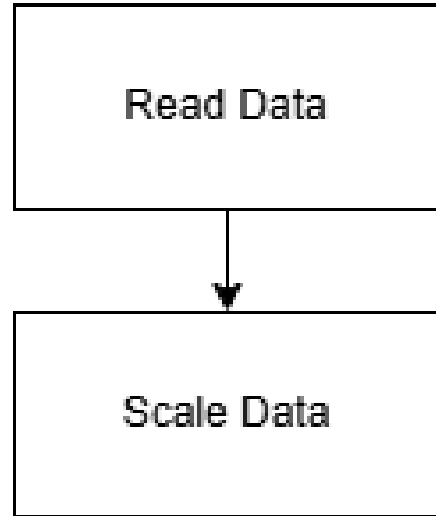
Using Euclidean
distances

Compare each Test
Phone with all training
Phones

Pick the k closest
Training Phones

Pick most frequent
Price Class from k
closest Training
Phones

Assign Price Class to
Test Phone



Technical Perspective

- ❖ Challenges
 - ❖ Slow on large datasets
 - ❖ No learning phase
- ❖ Why it does not matter
 - ❖ Datasets are always small
 - ❖ Can not learn on fluctuating market data



Domain Expert Perspective



Mistakes & Risks

Misclassification

Constant monitoring of trends



Solutions

Double checking

Simulate Predictions early

Societal Perspective



Dangers

Biases in data
Over-reliance
Consumer trust



Positive

Help smaller companies
Fast classification