Universal Analyst Report

Comprehensive Analysis of Coffe_sales Dataset

Report Date: 2025-08-16 01:14:07
Dataset Name: Coffe_sales
Analysis Type: Full EDA & Modeling
Report Version: 1.0

Universal Analyst Model Report

Date of Analysis: 2025-08-16 01:14:06

Dataset: Coffe_sales

Step 1: Dataset Overview

- info: Metadata from preprocessing step

Step 2: Exploratory Data Analysis (EDA)

Exploratory Data Analysis Report

Dataset Overview

- Number of rows: 3636
- Number of columns: 12

Summary Statistics

Numerical Features

	count	mean	median	std	min	max	skew	kurtosis
hour_of_day	3636	14.1669	14	4.22775	6	22	0.131124	-1.12408
money	3636	31.7469	32.82	4.91993	18.12	40	-0.523038	-0.661143
Weekdaysort	3636	3.84791	4	1.97598	1	7	0.0809382	-1.22873
Monthsort	3636	6.39466	6	3.48069	1	12	0.0437939	-1.37446

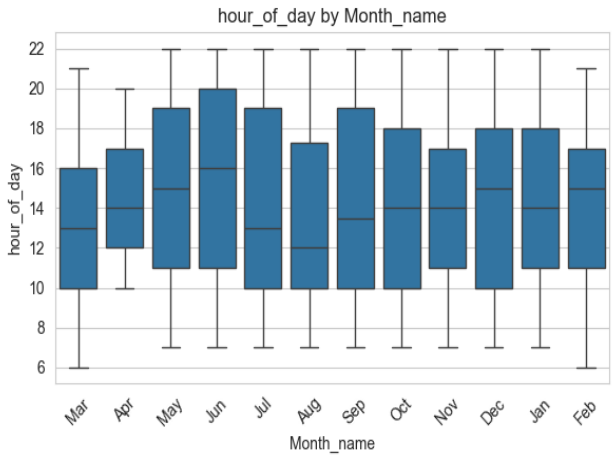
Categorical Features

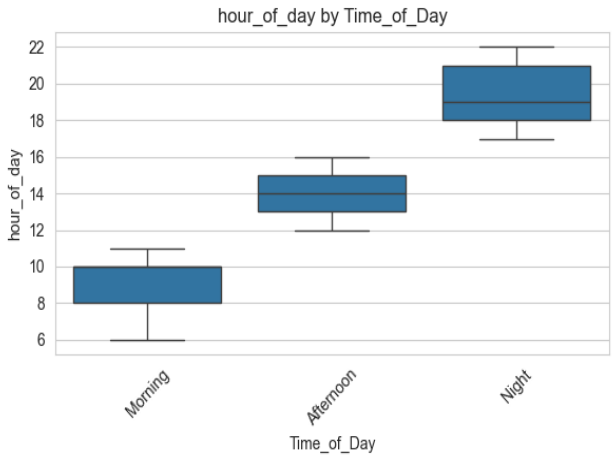
	unique_count	mode_freq	missing
cash_type	2	3547	0
card	1316	129	89
coffee_name	8	824	0
Time_of_Day	3	1231	0
Weekday	7	585	0
Month_name	12	525	0

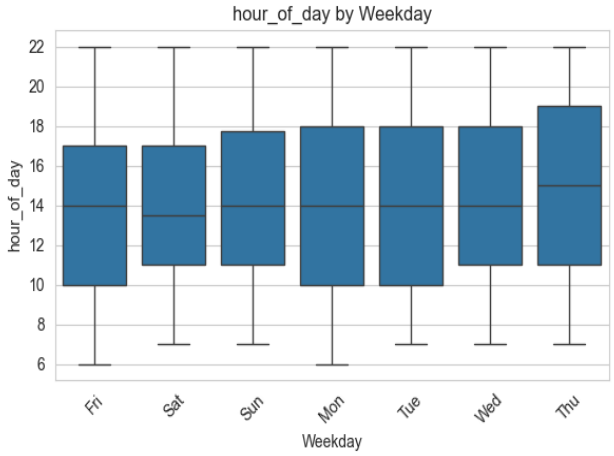
Key Insights

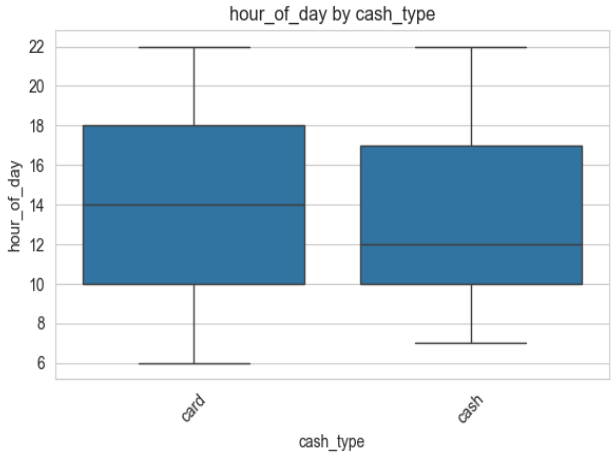
- Categorical feature 'cash_type' is highly imbalanced (dominant class > 90%).
- Features with high variance: money
- Datetime feature 'date' is monotonic increasing.
- Datetime feature 'datetime' is monotonic increasing.

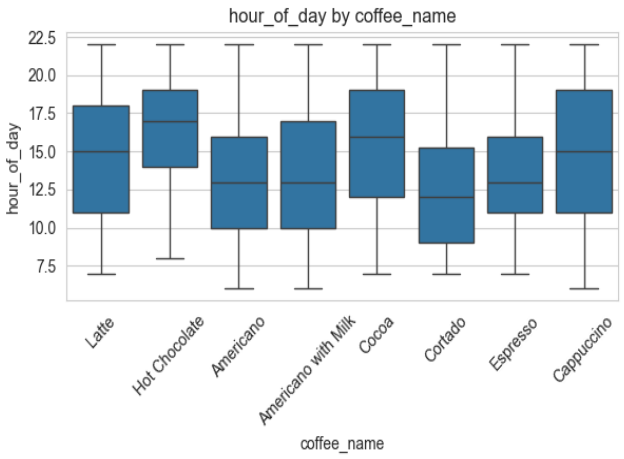
Visualizations

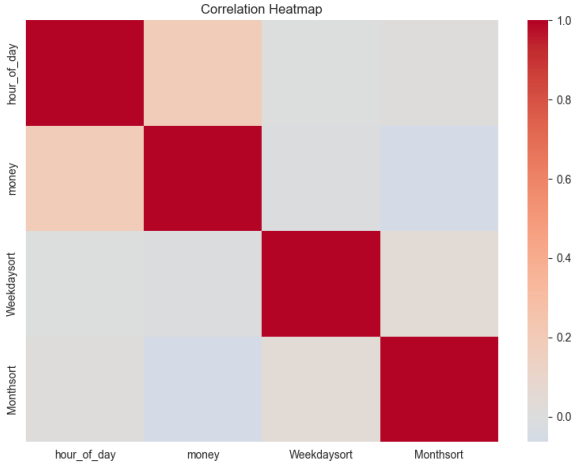


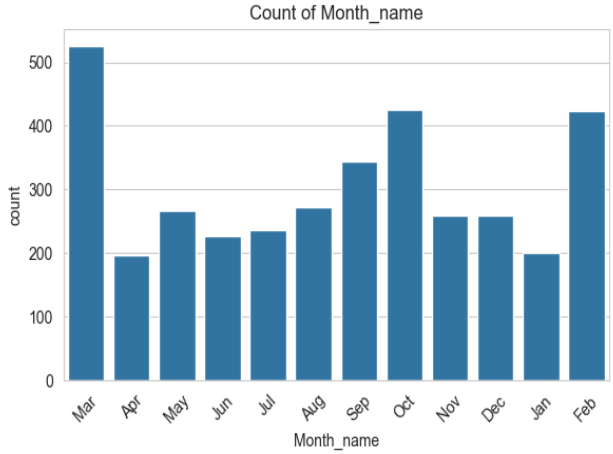


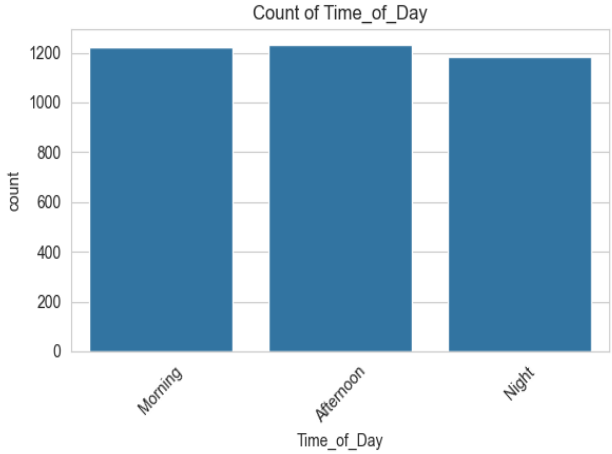


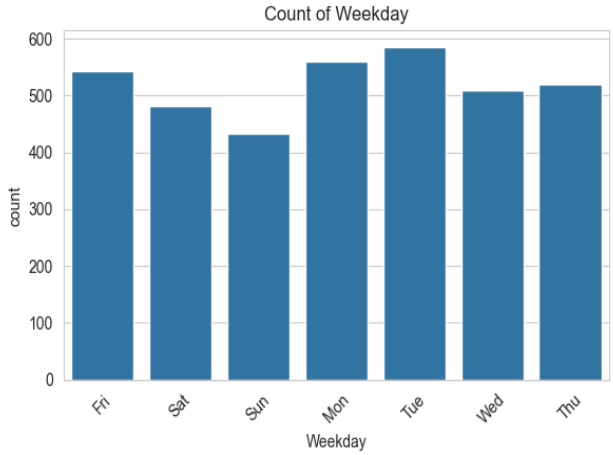


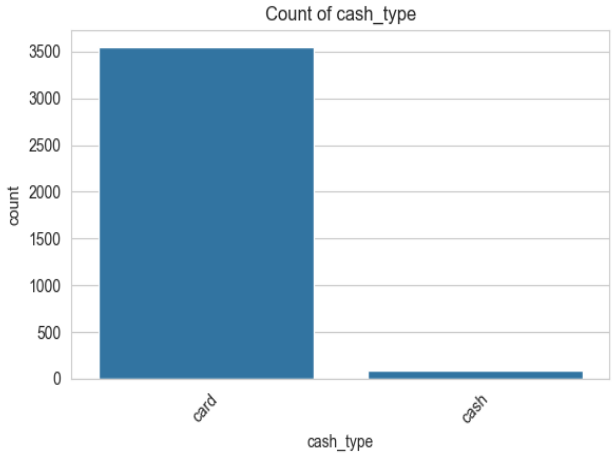

hour_of_day by coffee_name
hour_of_day
22.5
20.0
17.5
15.0
12.5
10.0
7.5
Latte
Hot Chocolate
Americano
Americano with Milk
Cocoa
Cortado
Espresso
Cappuccino
coffee_name

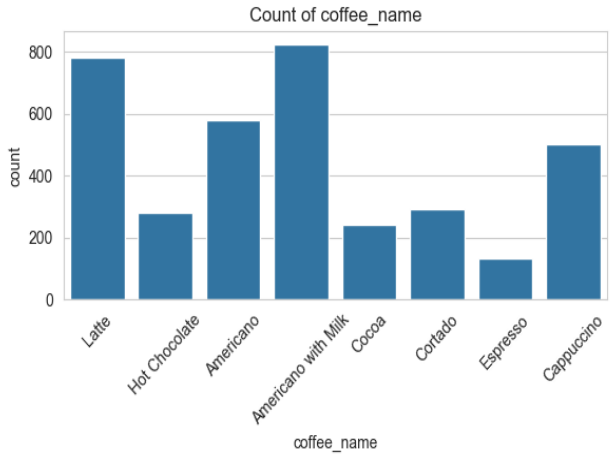

Correlation Heatmap
hour_of_day
money
Weekdaysort
Monthsort
1.0
0.8
0.6
0.4
0.2
0.0

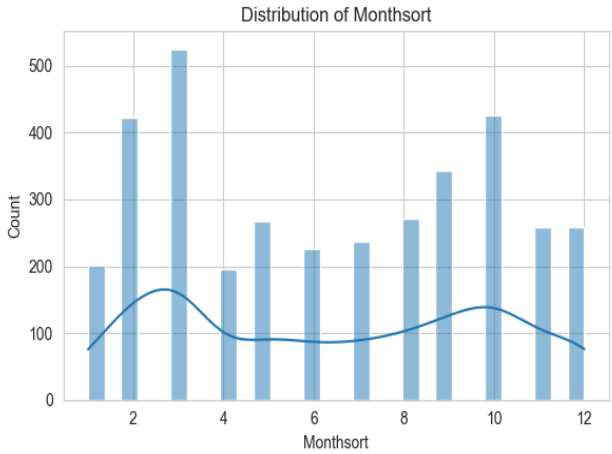

Count of Month_name
count
500
400
300
200
100
0
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Month_name

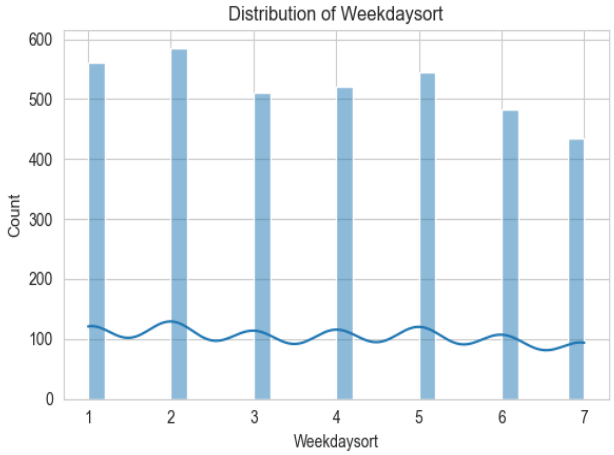

Count of Time_of_Day
count
1200
1000
800
600
400
200
0
Morning
Afternoon
Night
Time_of_Day

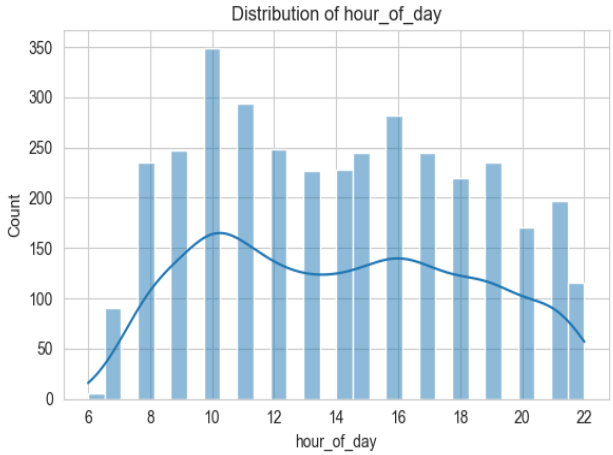

Count of Weekday
count
600
500
400
300
200
100
0
Fri
Sat
Sun
Mon
Tue
Wed
Thu
Weekday

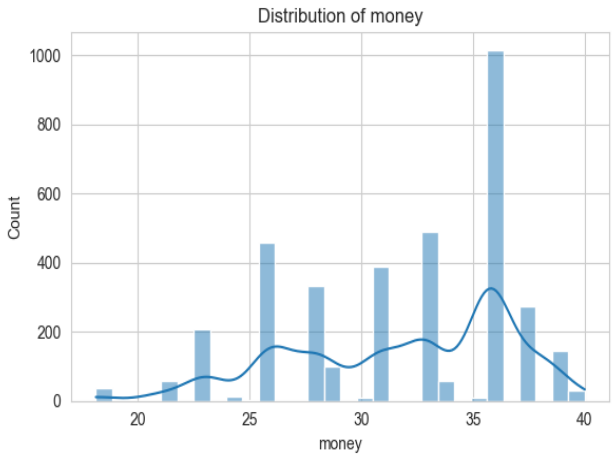

Count of cash_type
count
3500
3000
2500
2000
1500
1000
500
0
card
cash
cash_type

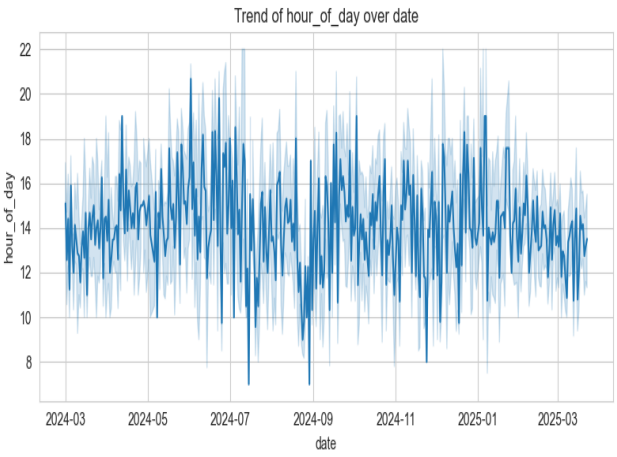

Count of coffee_name
count
800
600
400
200
0
Latte
Hot Chocolate
Americano
Americano with Milk
Cocoa
Cortado
Espresso
Cappuccino
coffee_name


Distribution of Monthsort
Count
500
400
300
200
100
0
2
4
6
8
10
12
Monthsort









Step 3: Insight Extraction

Data Insight Report

Dataset Summary

- Number of rows: 3636
- Number of columns: 12
- Target column: Monthsort
- Problem type: classification

Top Influential Features

- money: Mutual Information Score = 0.8507
- Month_name_Mar: Mutual Information Score = 0.4163
- Month_name_Oct: Mutual Information Score = 0.3656
- Month_name_Feb: Mutual Information Score = 0.3514
- Month_name_Sep: Mutual Information Score = 0.3329
- Month_name_Aug: Mutual Information Score = 0.2765
- Month_name_May: Mutual Information Score = 0.2648
- Month_name_Nov: Mutual Information Score = 0.2549
- Month_name_Dec: Mutual Information Score = 0.2500
- Month_name_Jul: Mutual Information Score = 0.2361

Summary Statistics of Top Features

- money: Mean = 31.7469, Median = 32.8200, Std = 4.9199

Outlier Counts per Numeric Feature

- hour_of_day: 0 outliers detected
- money: 0 outliers detected
- Weekdaysort: 0 outliers detected
- Monthsort: 0 outliers detected

Next Steps

- Consider building predictive models using the identified influential features.

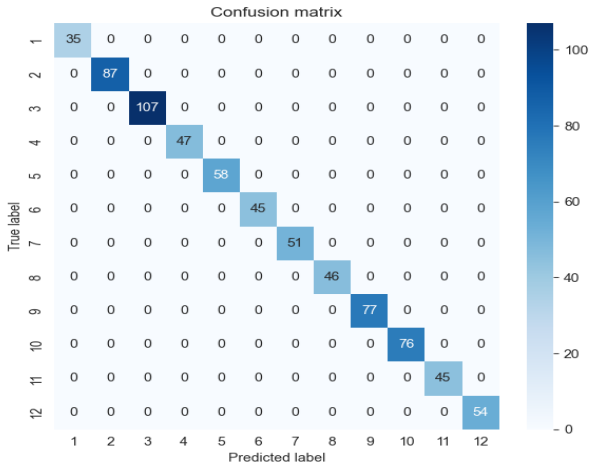
Step 4: Modeling and Prediction

Model Evaluation Report

Problem type: classification

LogisticRegression

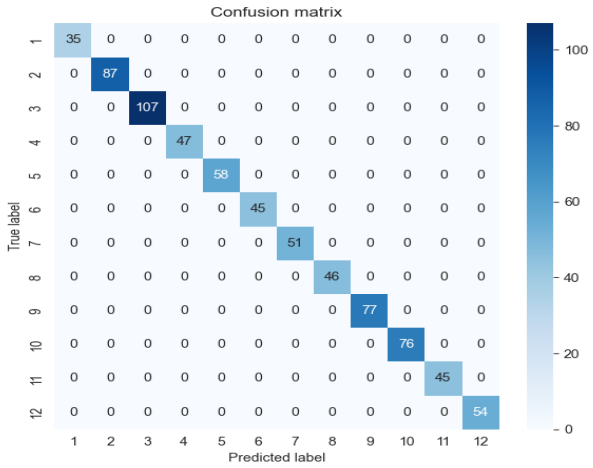
- accuracy: 1.0000
- precision: 1.0000
- recall: 1.0000



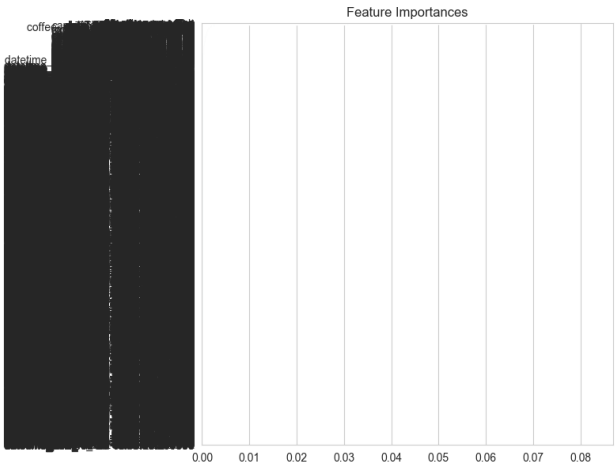
- f1_score: 1.0000

RandomForestClassifier

- accuracy: 1.0000
- precision: 1.0000
- recall: 1.0000

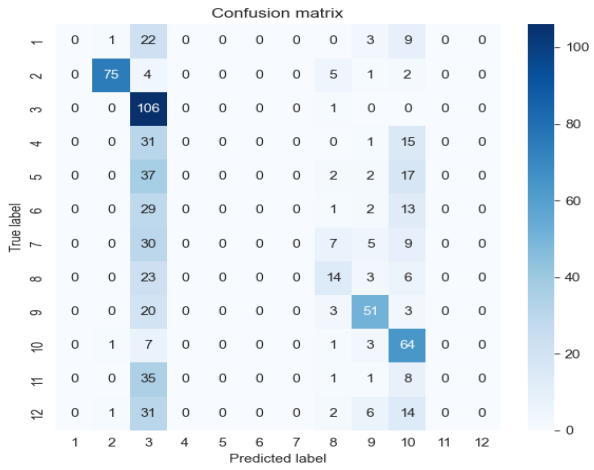


- f1_score: 1.0000



SVC

- accuracy: 0.4258
- precision: 0.2913
- recall: 0.4258



- f1_score: 0.3208

Conclusion

This report summarizes the data ingestion, preprocessing, exploratory analysis, insights, and modeling results. Further analysis and model tuning may be required based on business needs.
