



SDAIA
الهيئة السعودية للبيانات
والذكاء الاصطناعي
Saudi Data & AI Authority

Coffee Bean Classification

Presented by

Nasser Alqahtani
Mohammed Alzabyedi

Submit to: Dr. Mejdal Alqahtani

Outline

We are here!



01 **Introduction**
Abstract a project

02 **Data**
Explore the data

03 **Algorithms**
Explain the algorithms

04 **Tools**
Show a tools

05 **EDA**
Visualization the data.

06 **Models**
Display the models

INTRODUCTION

171

cafe per million people in
KSA, 2018

1032

cafe per million people in
KSA, 2030



DATA



2560
crops



44
feature

Specialty coffee

commercial coffee

Algorithms

Preparing the
data.

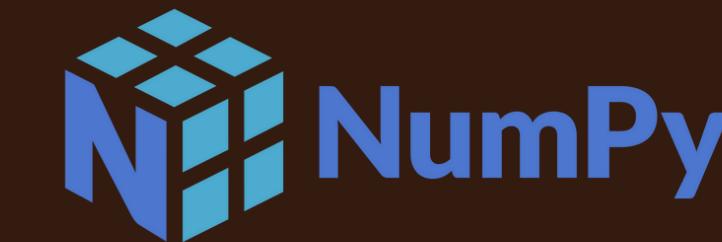
Feature
Selection

Methods
LogisticRegression, KNN, Decision Tree,
Random Forest, Voting, and Bagging.



Tools

- Python and Jupyter Notebook.
- Numpy and Pandas for data manipulation.
- Matplotlib and Seaborn for plotting visualization.
- Sklearn for ML algorithms.
- Imblearn to solve imbalance problem.



EDA

Cupping
coffee

Aroma

Flavor

Aftertaste

Acidity

Body

Balance

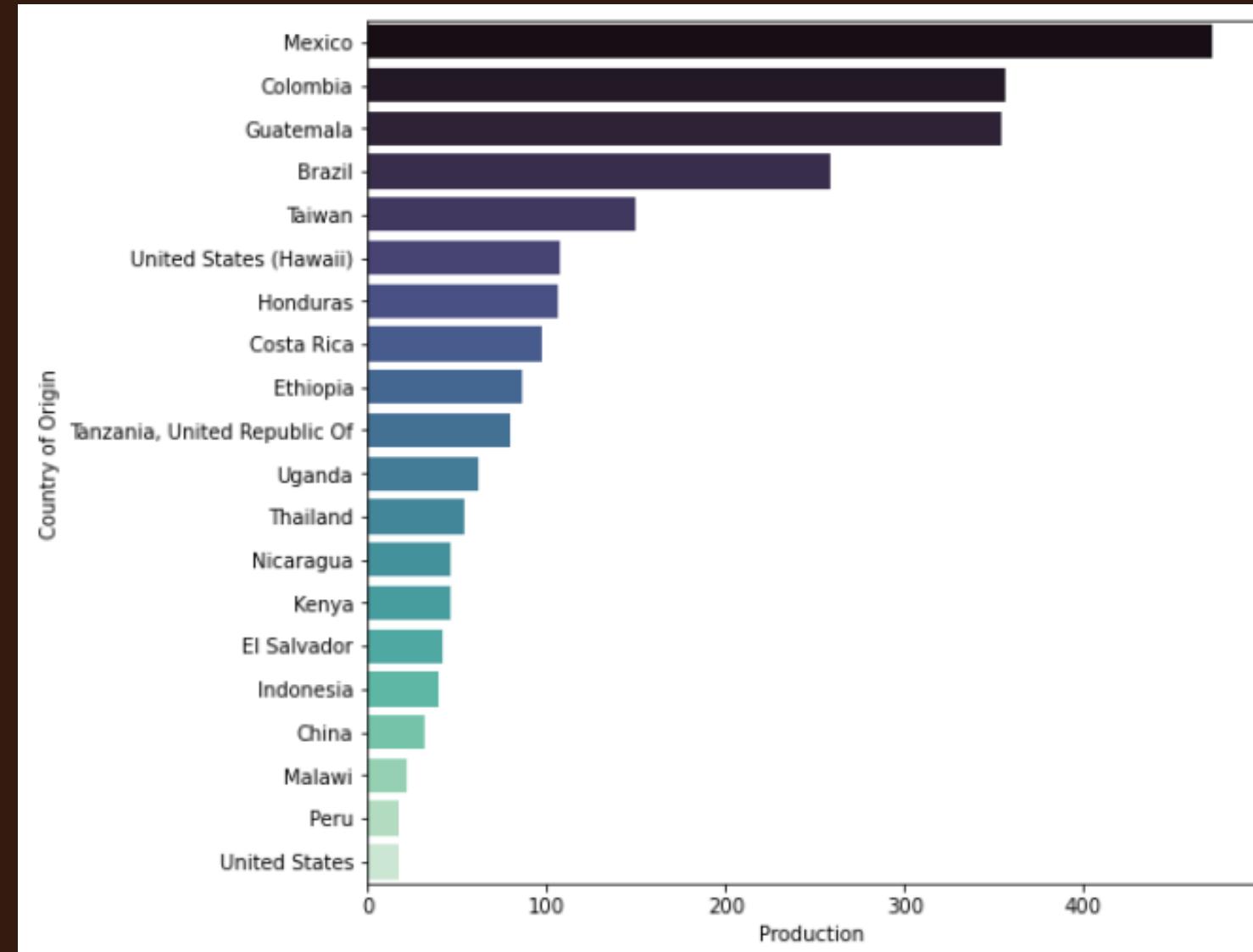
Uniformity

Sweetness

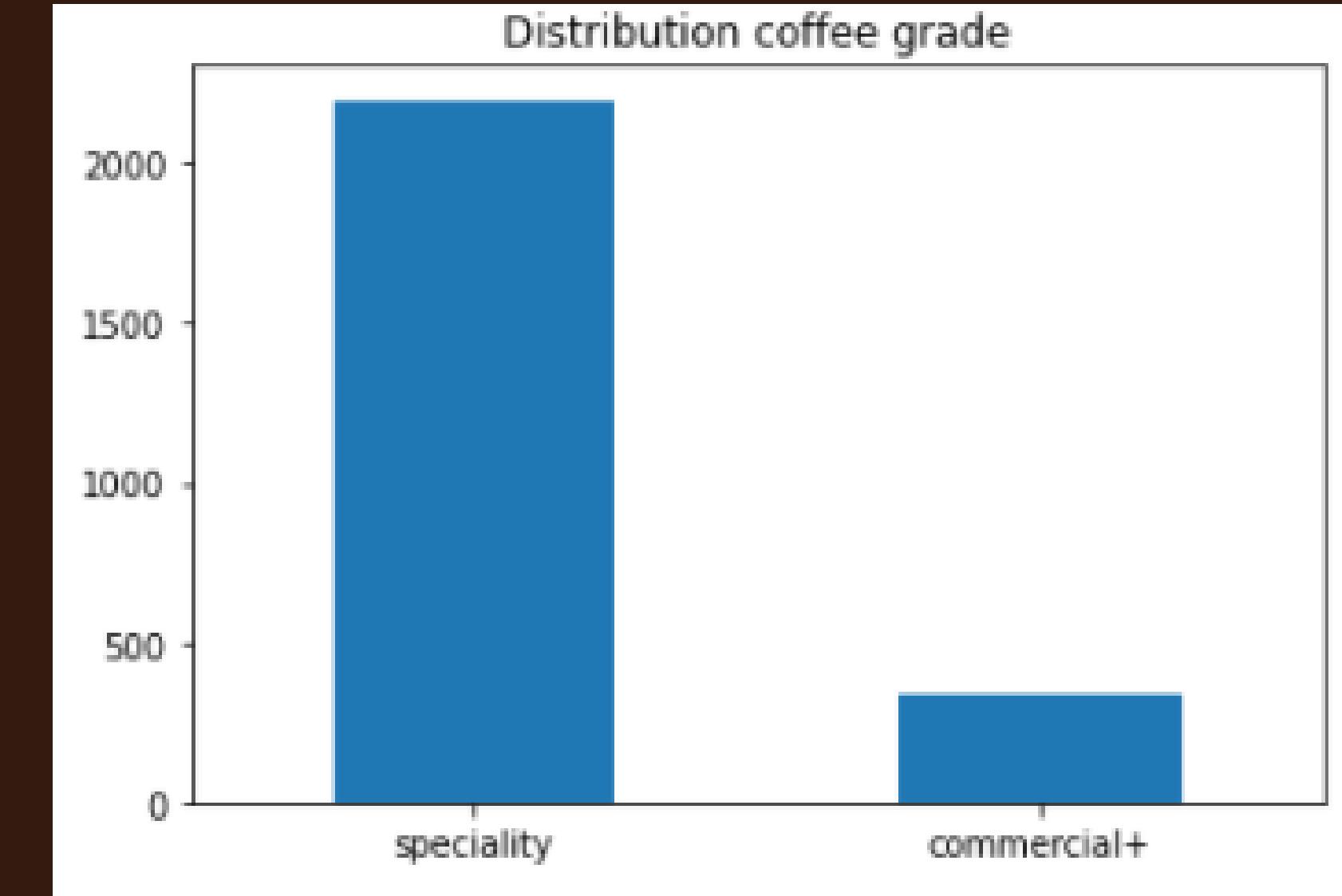
Cleanliness

Cupper
Points

EDA

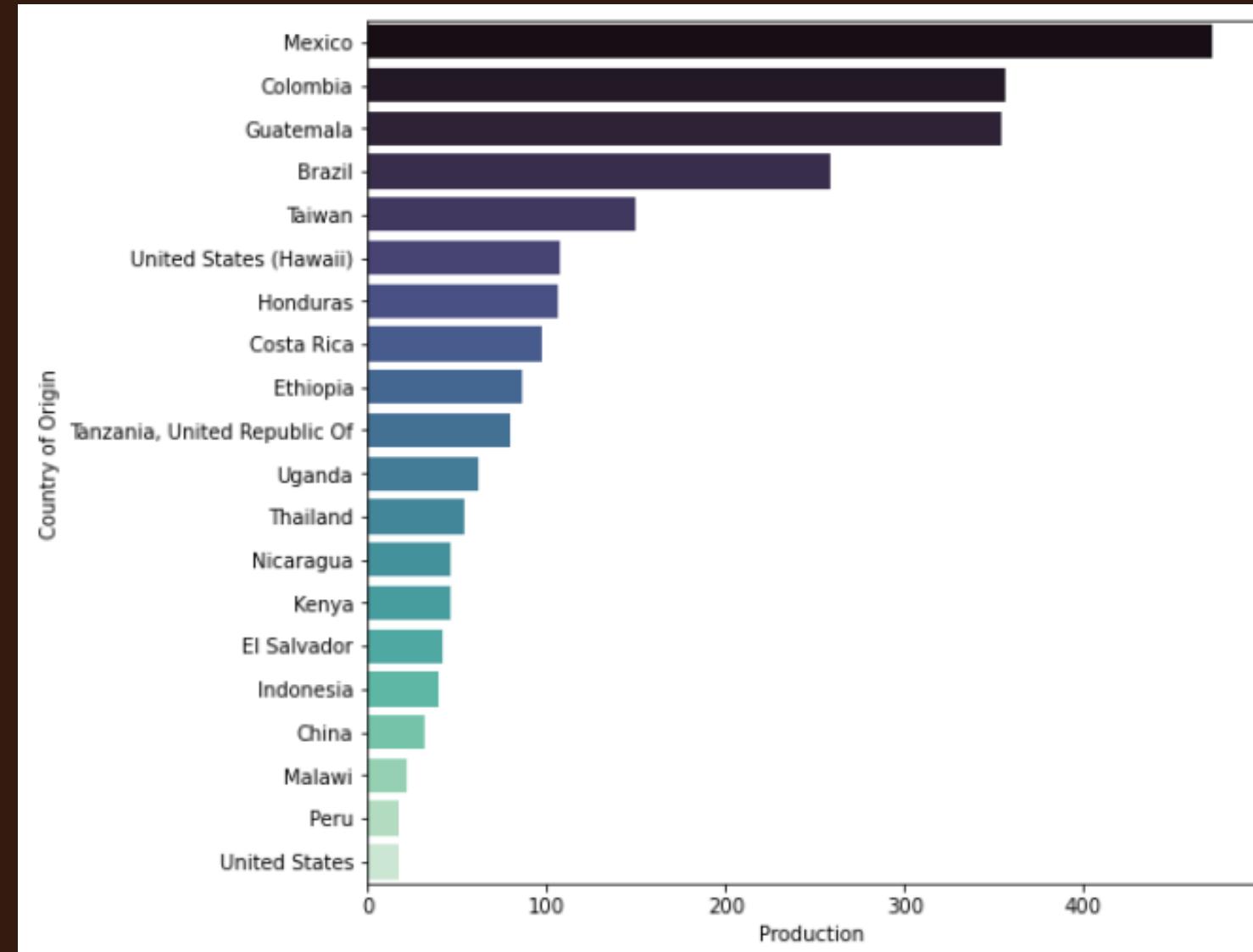


Distribution of coffee to
countries

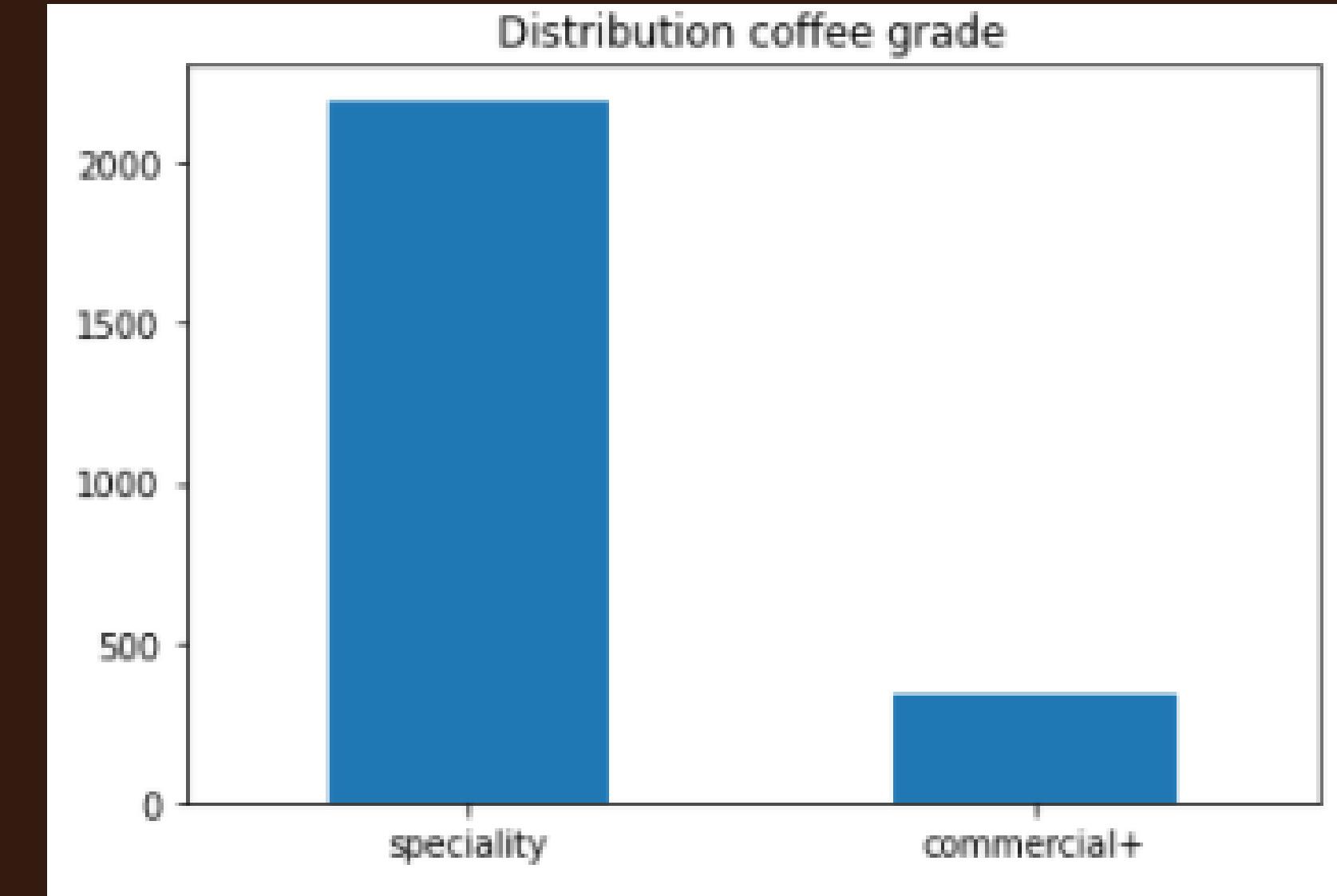


Distribution of coffee to the
grades

EDA



Distribution of coffee to
countries



85.8%

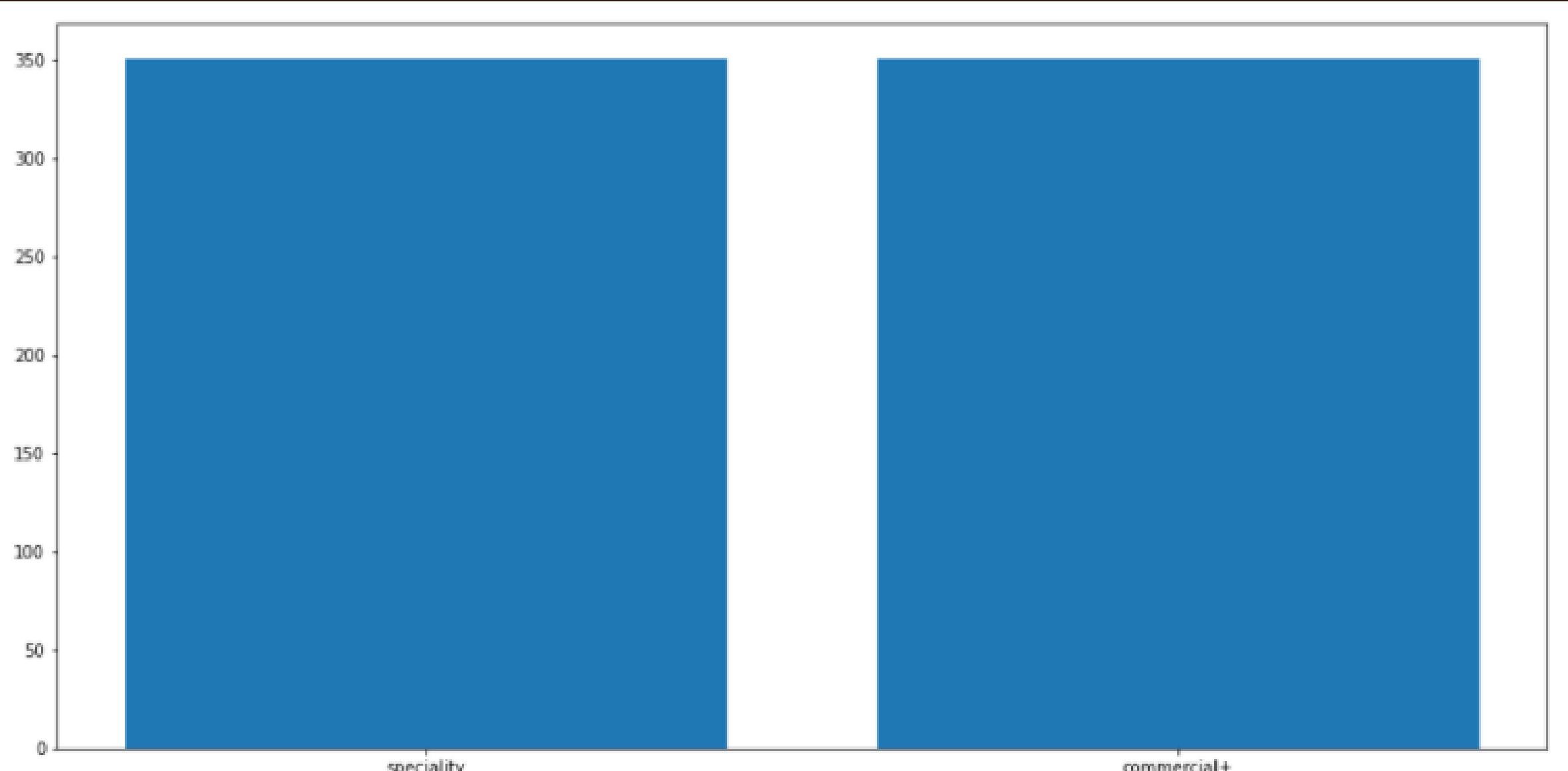
Distribution of coffee to the
grades

14.2%

EDA



Apply SMOTE to
balance the classes.



50%

50%

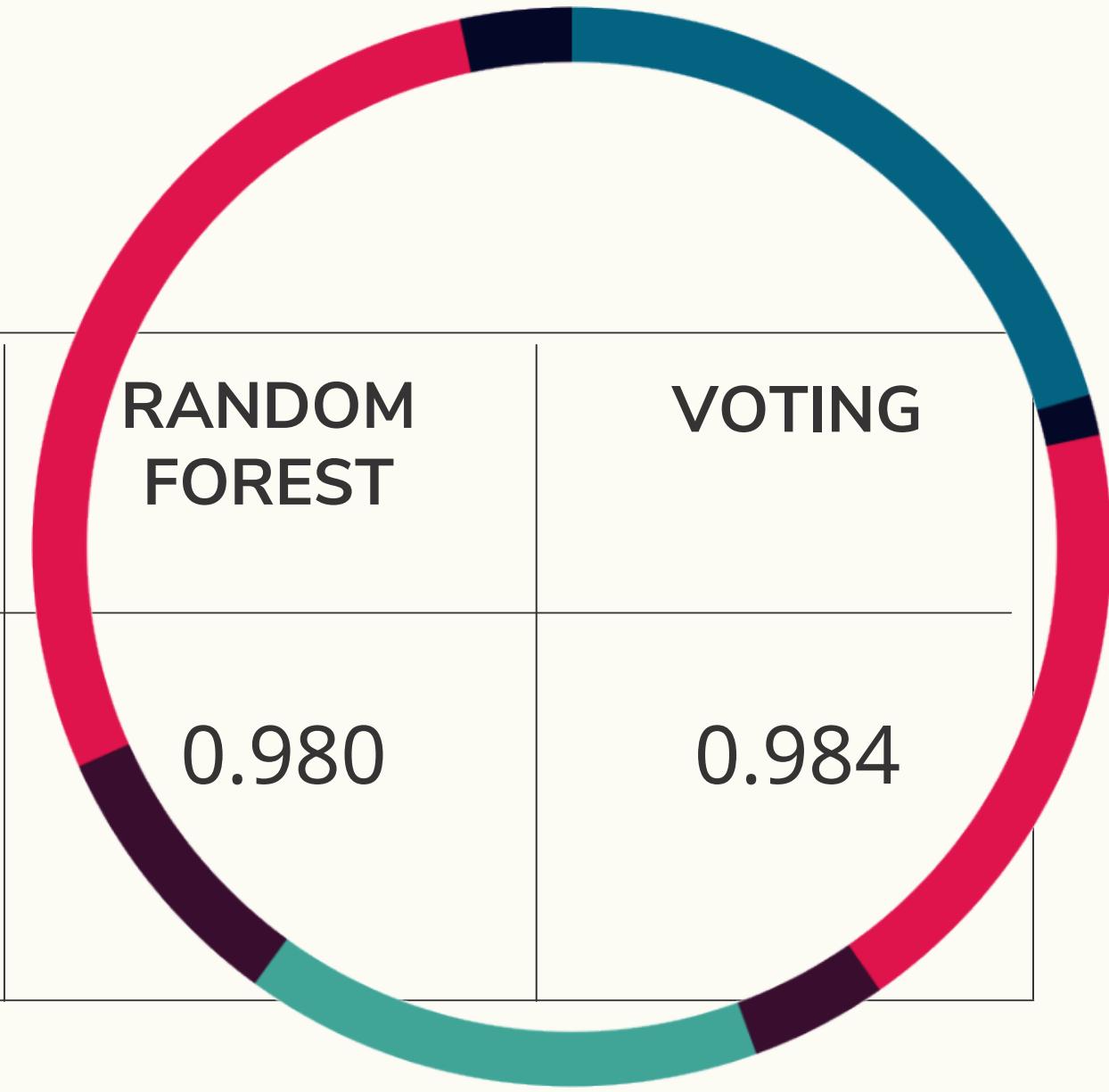
Models

| NAME OF MODEL | LOGISTIC REGRESSION | KNN | DECISION TREE | RANDOM FOREST | VOTING |
|---------------|---------------------|-------|---------------|---------------|--------|
| Recall | 0.972 | 0.977 | 0.975 | 0.980 | 0.984 |



Models

| NAME OF MODEL | LOGISTIC REGRESSION | KNN | DECISION TREE | RANDOM FOREST | VOTING |
|---------------|---------------------|-------|---------------|---------------|--------|
| Recall | 0.972 | 0.977 | 0.975 | 0.980 | 0.984 |





THANK YOU

سولي الكيف وارهولي من الدله
البن الاشقر يداوي الراس فنجاله
كيف نه لنا نحرقه بالثار ونذله
وليا انقطع لو وري صناء عينينا له