

The Cat Who Guesses Smart

Naive Bayes

Prompts



- Build a Naive Bayes classifier with "yammy" as the target

Strategy



- Prepare the data
- Train the Naive Bayes Model
- Check the Accuracy and the Confusion Matrix

Code & Results

1. Prepare the data

This code checks the "star_rating" and puts a 1 in the new "yammy" column if it is greater than or equal to 4.5.

```
import pandas as pd

# Assuming you already have a DataFrame named df
data['yammy'] = (data['star_rating'] >= 4.5).astype(int)
data.head()
```

This code puts features between 0 and 1.

```
from sklearn.preprocessing import MinMaxScaler

# Select only numeric columns (excluding 'yammy' if it's a label)
features = data.drop(columns=['yammy']) # Drop target column if needed
numeric_cols = features.select_dtypes(include=[float64, 'int64']).columns

scaler = MinMaxScaler()
data[numeric_cols] = scaler.fit_transform(data[numeric_cols])

data[numeric_cols].head()
```

This code first splits the teacher from the features and then splits the data into training and testing sets.

```
from sklearn.model_selection import train_test_split

# Separate features and target
X = data.drop(columns=['yammy', 'star_rating'])
y = data['yammy']

# Split into training and test sets
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)
```

2. Train the Model

This code creates a Naive Bayes classifier and trains it using the training set.

```
from sklearn.naive_bayes import GaussianNB

# Initialize and train
nb = GaussianNB()
nb.fit(X_train, y_train)
```

3. Check the Accuracy & Confusion Matrix

This code evaluates model accuracy and calculates a confusion matrix.

```
# Predictions
y_pred = nb.predict(X_test)

# Evaluation metrics
print("Accuracy:", accuracy_score(y_test, y_pred))
print("Confusion Matrix:\n", confusion_matrix(y_test, y_pred))
print("Classification Report:\n", classification_report(y_test, y_pred))
```

Accuracy: 0.72

Confusion Matrix:
[[8 7]
[0 10]]

✔ The model got 72% of the tins right.

✘ It made some mistakes:

- It mislabeled 7 out of 15 meh tins as yammy