import pandas as pd

import seaborn as sns

import matplotlib.pyplot as plt

from sklearn.model\_selection import train\_test\_split

from sklearn.naive\_bayes import GaussianNB

from sklearn.metrics import accuracy\_score

# Step 1: Reading the dataset

data = pd.DataFrame({

'battery\_power': [842, 1021, 563, 615, 1821, 1859, 1821, 1954, 1445, 509],

'blue': [0, 1, 1, 0, 0, 1, 1, 0, 1, 1],

'clock\_speed': [2.2, 0.5, 0.5, 2.5, 1.2, 0.5, 1.0, 0.5, 1.7, 0.5],

'dual\_sim': [0, 1, 1, 0, 1, 0, 1, 1, 1, 1],

'fc': [1, 0, 2, 13, 3, 4, 0, 3, 0, 0],

'four\_g': [0, 1, 1, 1, 1, 1, 1, 1, 0, 1],

'int\_memory': [7, 53, 41, 10, 44, 22, 4, 53, 22, 46],

'm\_dep': [0.6, 0.7, 0.9, 0.2, 0.5, 0.3, 0.4, 0.1, 0.8, 0.1],

'mobile\_wt': [188, 136, 145, 131, 141, 164, 139, 187, 174, 93],

'n\_cores': [2, 3, 5, 6, 2, 3, 5, 6, 2, 5],

'pc': [2, 6, 6, 9, 14, 7, 0, 16, 10, 6],

'px\_height': [20, 905, 1263, 1216, 1208, 1004, 381, 512, 1988, 754],

'px\_width': [756, 1988, 1716, 1786, 1215, 1654, 1366, 1028, 858, 1784],

'ram': [2549, 2631, 2603, 2769, 1411, 1067, 3220, 700, 1099, 513],

'sc\_h': [9, 17, 11, 16, 8, 13, 17, 19, 11, 16],

'sc\_w': [7, 3, 2, 8, 2, 8, 1, 10, 0, 7],

'talk\_time': [19, 7, 9, 11, 15, 10, 18, 5, 19, 2],

'three\_g': [0, 1, 1, 1, 1, 1, 1, 1, 0, 1],

'touch\_screen': [0, 1, 1, 0, 1, 1, 0, 1, 0, 1],

'wifi': [1, 0, 1, 0, 1, 0, 0, 1, 0, 1],

'price\_range': [1, 2, 2, 2, 1, 1, 1, 3, 0, 0]

})

# Step 2: Printing the first five rows

print(data.head())

# Step 3: Basic statistical computations

print(data.describe())

# Step 4: Identifying columns and their data types

print(data.info())

# Step 5: Detecting and handling null values

print(data.isnull().sum())

# Replacing null values with mode

for column in data.columns:

if data[column].isnull().sum() > 0:

mode\_value = data[column].mode()[0]

data[column].fillna(mode\_value, inplace=True)

print(data.isnull().sum())

# Step 6: Exploring the dataset using a heatmap

plt.figure(figsize=(10, 8))

sns.heatmap(data.corr(), annot=True, cmap='coolwarm')

plt.show()

# Step 7: Splitting the data into training and testing sets

X = data.drop('price\_range', axis=1)

y = data['price\_range']

X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, y, test\_size=0.2, random\_state=42)

# Step 8: Fitting the Naive Bayes Classifier model

model = GaussianNB()

model.fit(X\_train, y\_train)

# Step 9: Predicting with the model

y\_pred = model.predict(X\_test)

# Step 10: Finding the accuracy of the model

accuracy = accuracy\_score(y\_test, y\_pred)

print(f'Accuracy of the Naive Bayes Classifier: {accuracy:.2f}')

