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In [2]: import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

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# Load the dataset

url = 'https://archive.ics.uci.edu/ml/machine-learning-databases/mushroom/agaricus-lepiota.data'

columns = ['class', 'cap-shape', 'cap-surface', 'cap-color', 'bruises', 'odor', 'gill-attachment',
           'gill-spacing', 'gill-size', 'gill-color', 'stalk-shape', 'stalk-root', 'stalk-surface-above-ring',
           'stalk-surface-below-ring', 'stalk-color-above-ring', 'stalk-color-below-ring', 'veil-type',
           'veil-color', 'ring-number', 'ring-type', 'spore-print-color', 'population', 'habitat']
df = pd.read_csv(url, names=columns)

# Display the first few rows of the dataset
print(df.head())

# Bar Plot of Mushroom Class Distribution
plt.figure(figsize=(8, 6))
sns.countplot(x='class', data=df)
plt.title('Mushroom Class Distribution')
plt.xlabel('Class')
plt.ylabel('Count')
plt.show()

# Pie Chart of Cap Shape
plt.figure(figsize=(8, 6))
df['cap-shape'].value_counts().plot.pie(autopct='%1.1f%%')
plt.title('Cap Shape Distribution')
plt.ylabel('')
plt.show()

# Heatmap of Correlation Matrix
plt.figure(figsize=(12, 10))
corr_matrix = df.corr()
sns.heatmap(corr_matrix, annot=True, cmap='coolwarm')
plt.title('Correlation Matrix')
plt.show()

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class cap-shape cap-surface cap-color bruises odor gill-attachment \
0 p x s n t p f
1 e x s y t a f
2 e b s w t l f
3 p x y w t p f
4 e x s g f n f

gill-spacing gill-size gill-color ... stalk-surface-below-ring \
0 c n k ... s
1 c b k ... s
2 c b n ... s
3 c n n ... s
4 w b k ... s

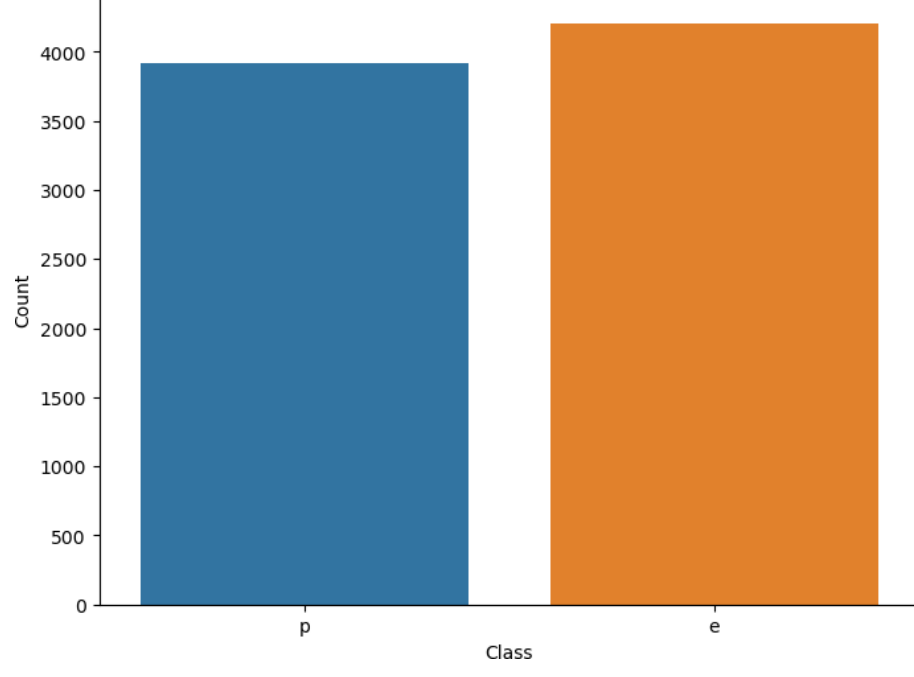
stalk-color-above-ring stalk-color-below-ring veil-type veil-color \
0 w w p w
1 w w p w
2 w w p w
3 w w p w
4 w w p w

ring-number ring-type spore-print-color population habitat
0 o f k s u
1 o f n n g
2 o f n n m
3 o f k s u
4 o e n a g

```

[5 rows x 23 columns]

Mushroom Class Distribution



Cap Shape Distribution

