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

# 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()
```

```
  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         p                 k          s       u
1           o         p                 n          n       g
2           o         p                 n          n       m
3           o         p                 k          s       u
4           o         e                 n          a       g

[5 rows x 23 columns]
```