In [4]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

In [5]:
```
import os
for dirname, _, filenames in os.walk
    for filename in filenames:
        print(os.path.join(dirname,
```

In [7]:
```
data = pd.read_csv(r'C:\Users\DELL\D
data.head()
```

Out[7]:

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

5 rows × 23 columns

In [9]:
```
data.shape
```

Out[9]:
```
(8124, 23)
```

In [10]:
```
data.isnull().sum()
```

Out[10]:
```
class                       0
cap-shape                   0
cap-surface                 0
cap-color                   0
bruises                     0
odor                        0
gill-attachment             0
gill-spacing                0
gill-size                   0
gill-color                  0
stalk-shape                 0
stalk-root                  0
stalk-surface-above-ring    0
stalk-surface-below-ring    0
stalk-color-above-ring      0
stalk-color-below-ring      0
veil-type                   0
veil-color                  0
ring-number                 0
ring-type                   0
spore-print-color           0
population                  0
habitat                     0
dtype: int64
```

In [11]:
```
data.describe()
```

Out[11]:

	class	cap-shape	cap-surface	cap-color	bruises
count	8124	8124	8124	8124	8124
unique	2	6	4	10	2
top	e	x	y	n	f
freq	4208	3656	3244	2284	4748

4 rows × 23 columns

In [12]:
```
from sklearn.preprocessing import Lal

data_encoded = data.copy()
le = LabelEncoder()
for col in data_encoded.columns:
    data_encoded[col] = le.fit_trans

data_encoded.head()
```

Out[12]:

	class	cap-shape	cap-surface	cap-color	bruises	odor
0	1	5	2	4	1	6
1	0	5	2	9	1	0
2	0	0	2	8	1	3
3	1	5	3	8	1	6
4	0	5	2	3	0	5

5 rows × 23 columns

In [13]:
```
data_encoded.describe()
```

Out[13]:

	class	cap-shape	cap-surface
count	8124.000000	8124.000000	8124.000000
mean	0.482029	3.348104	1.827671
std	0.499708	1.604329	1.229873
min	0.000000	0.000000	0.000000
25%	0.000000	2.000000	0.000000
50%	0.000000	3.000000	2.000000
75%	1.000000	5.000000	3.000000
max	1.000000	5.000000	3.000000

8 rows × 23 columns

In [14]:
```
data.columns
```

Out[14]:
```
Index(['class', 'cap-shape', 'cap-su
rface', 'cap-color', 'bruises', 'odo
r',
       'gill-attachment', 'gill-spac
ing', 'gill-size', 'gill-color',
       'stalk-shape', 'stalk-root',
'stalk-surface-above-ring',
       'stalk-surface-below-ring',
'stalk-color-above-ring',
       'stalk-color-below-ring', 've
il-type', 'veil-color', 'ring-numbe
r',
       'ring-type', 'spore-print-col
or', 'population', 'habitat'],
      dtype='object')
```

In [35]:
```
import matplotlib.pylab as pylab
params = {'legend.fontsize': 'x-large
          'axes.labelsize': 'x-large',
          'axes.titlesize':'x-large',
          'xtick.labelsize':'x-large',
          'ytick.labelsize':'x-large'}
pylab.rcParams.update(params)
```

In [40]:
```
def plot_col(col, hue=None, color=['
    fig, ax = plt.subplots(figsize=(
    sns.countplot(col, hue=hue, pale
    ax.set(title = f"Mushroom {col.t
    if labels!=None:
        ax.set_xticklabels(labels)
    if hue!=None:
        ax.legend(('Poisonous', 'Edi
```

In [ ]:
```
class_dict = ('Poisonous', 'Edible')
plot_col(col='class', labels=class_d
```

In [ ]:
```
shape_dict = {"bell":"b","conical":"
labe = ('convex', 'bell', 'sunken',
plot_col(col='cap-shape', hue='class
```

In [ ]:
```
color_dict = {"brown":"n","yellow":"
              "orange":"b", "purple"
plot_col(col='cap-color', color=colo
```

In [ ]:
```
surface_dict = {"smooth":"s", "scaly
plot_col(col='cap-surface', hue='cla
```