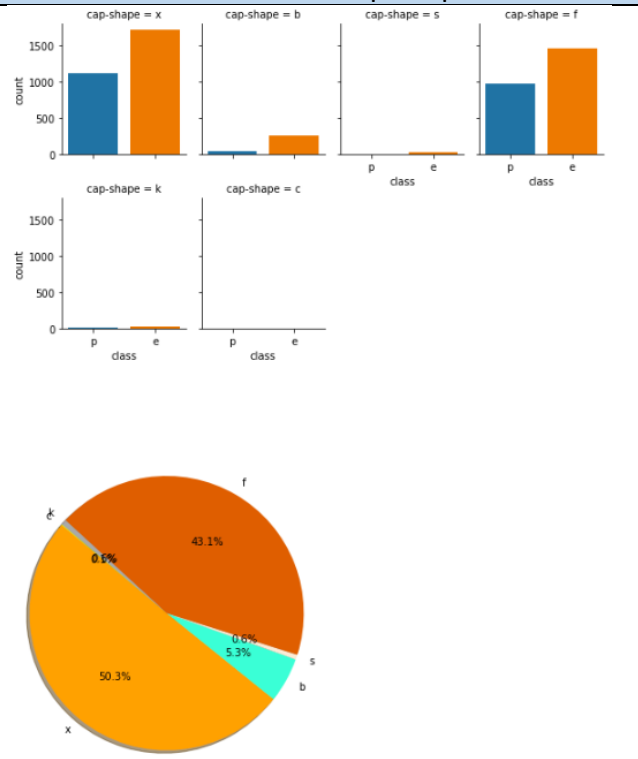
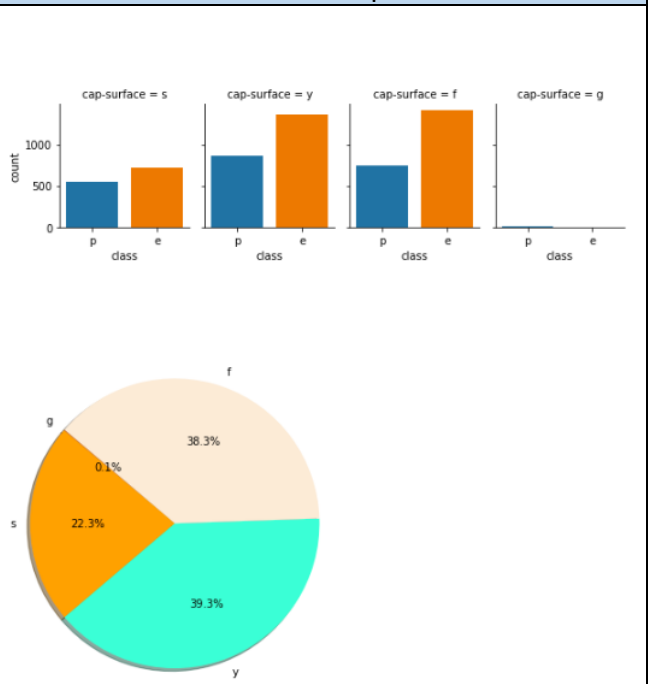
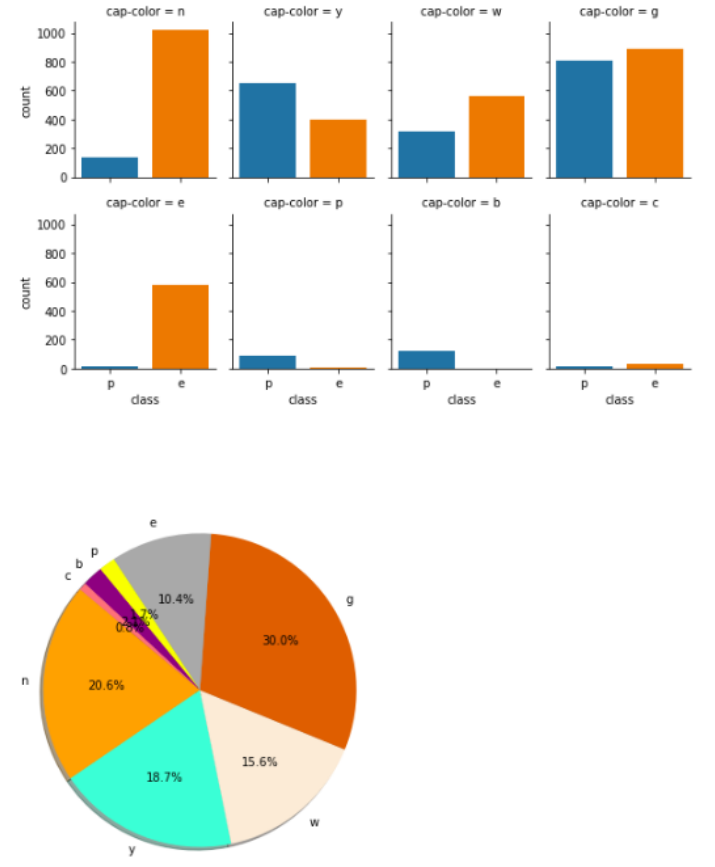
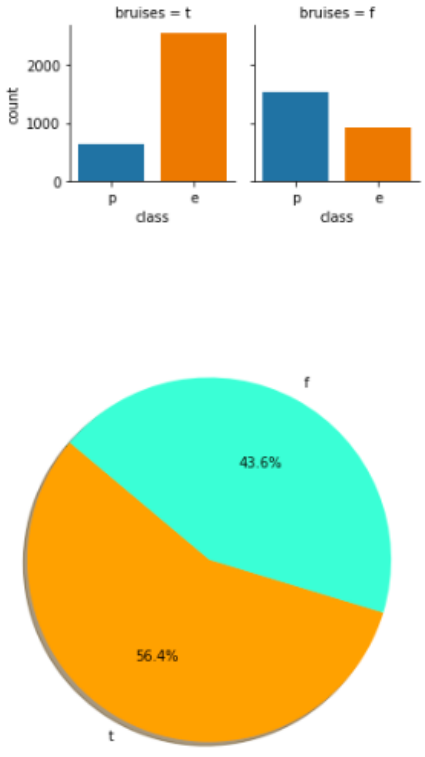
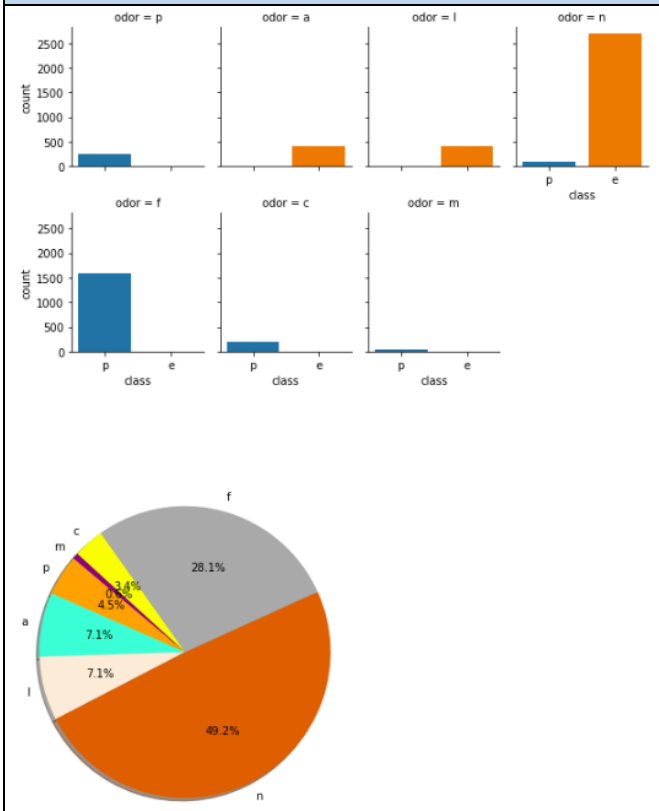
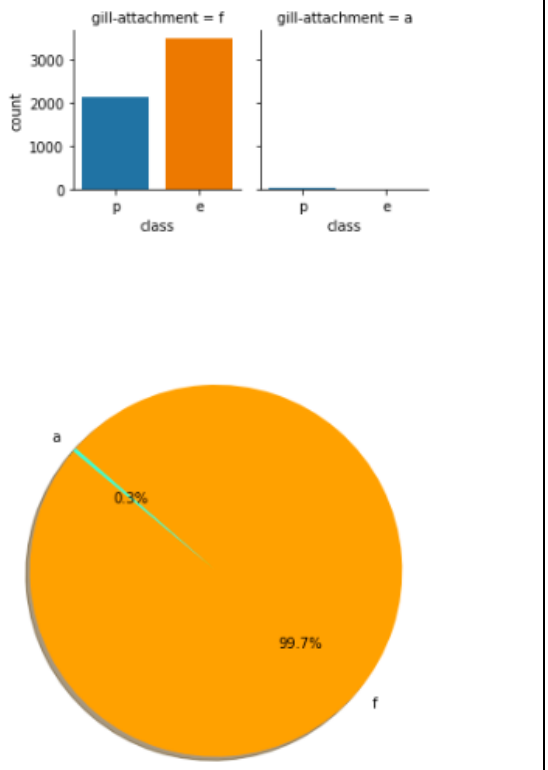
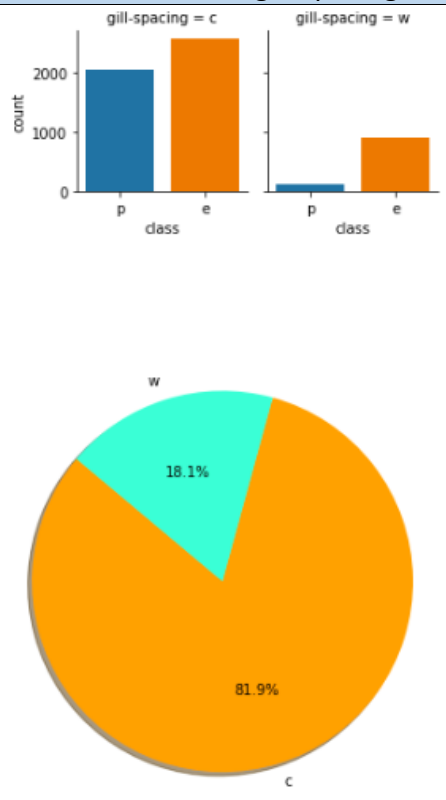
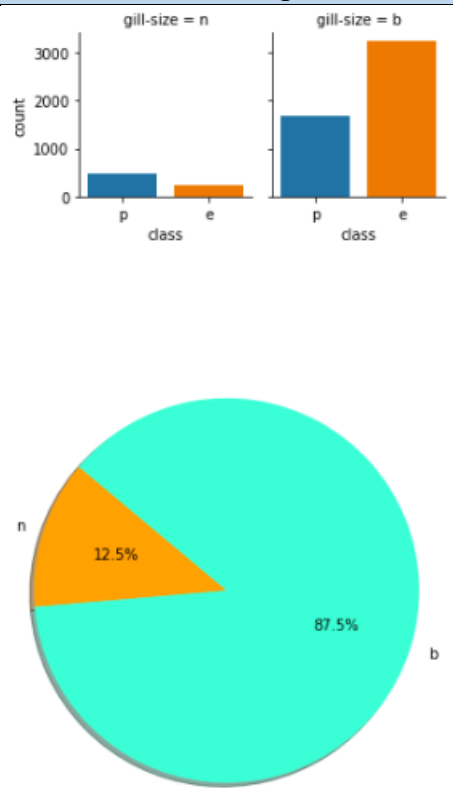
Snapshots Final Project Report

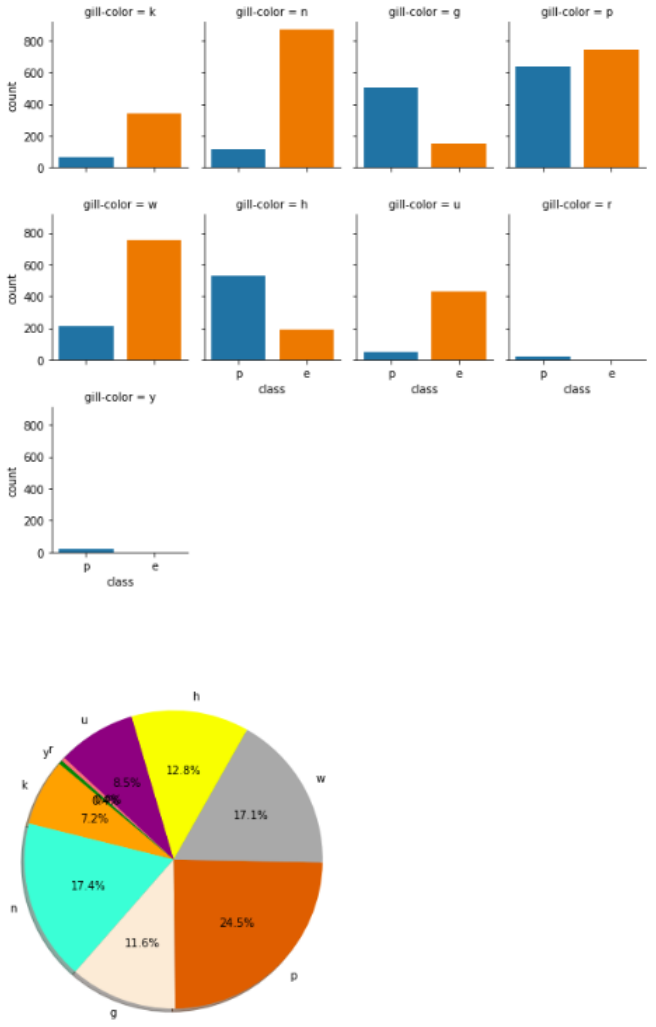
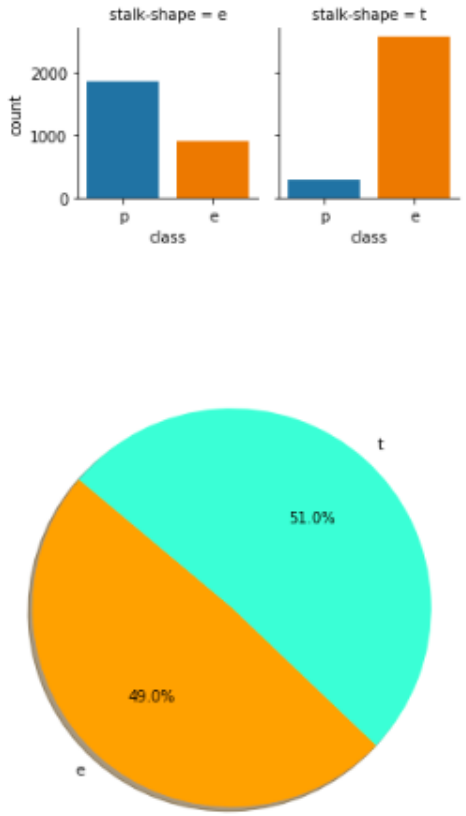
Distribution

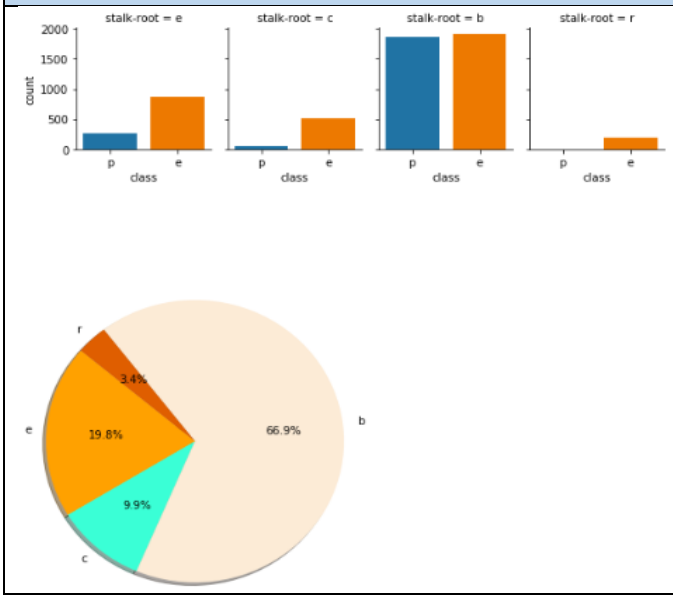
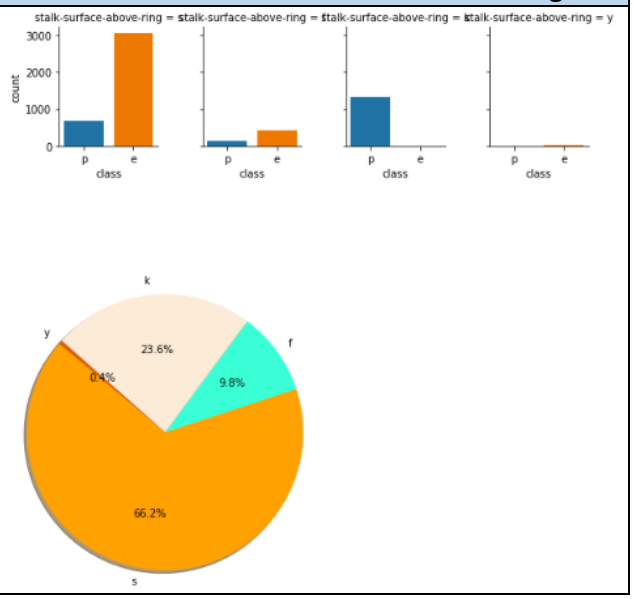
Distribution of cap-shape	Distribution of cap-surface
	

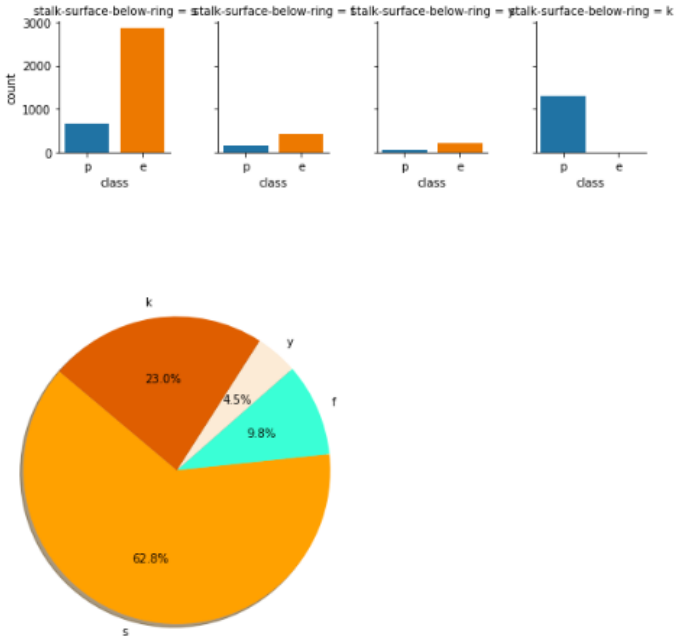
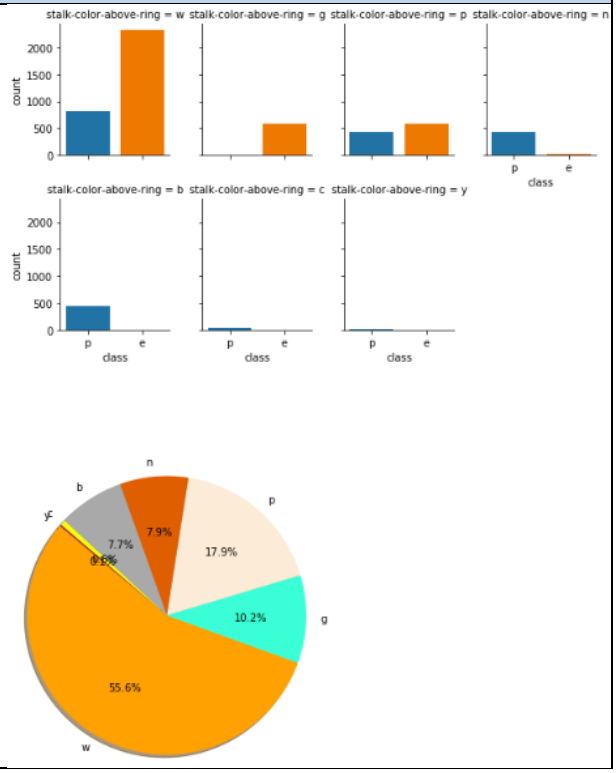
Distribution of cap-color	Distribution of bruises
	

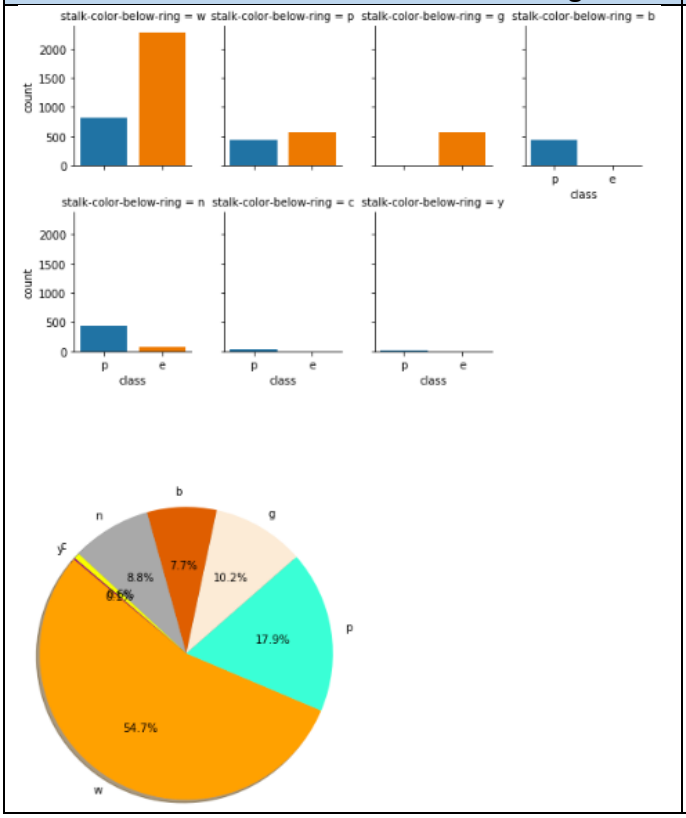
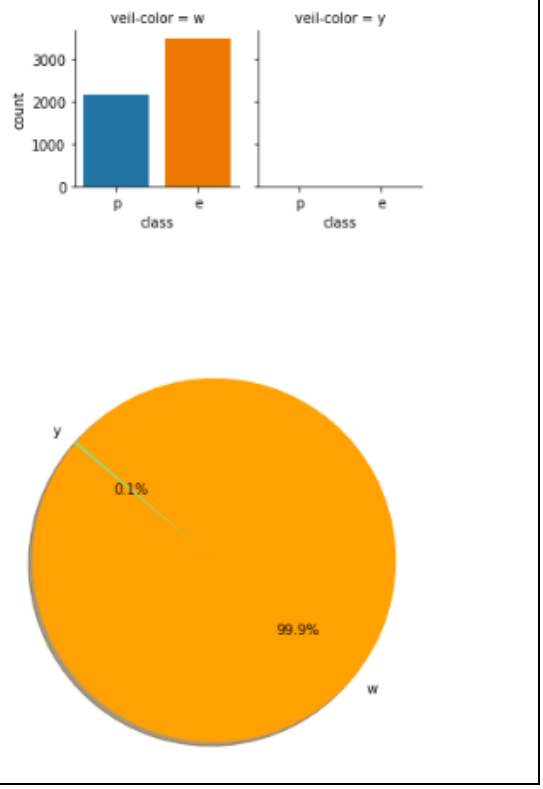
Distribution of odor	Distribution of gill-attachment
	

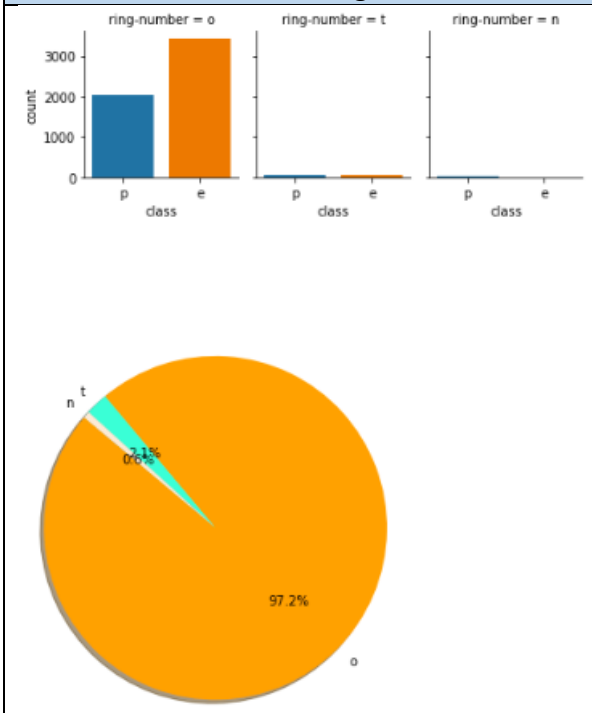
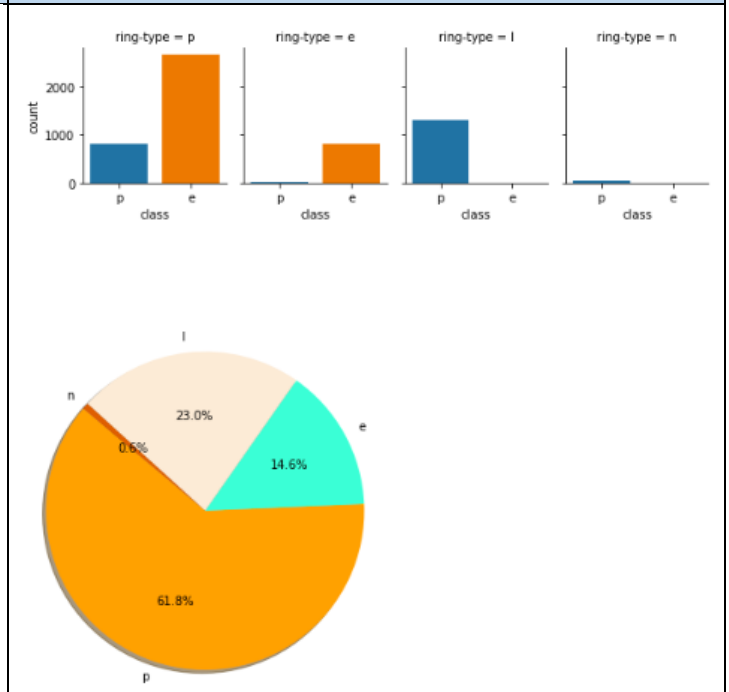
Distribution of gill-spacing	Distribution of gill-size
	

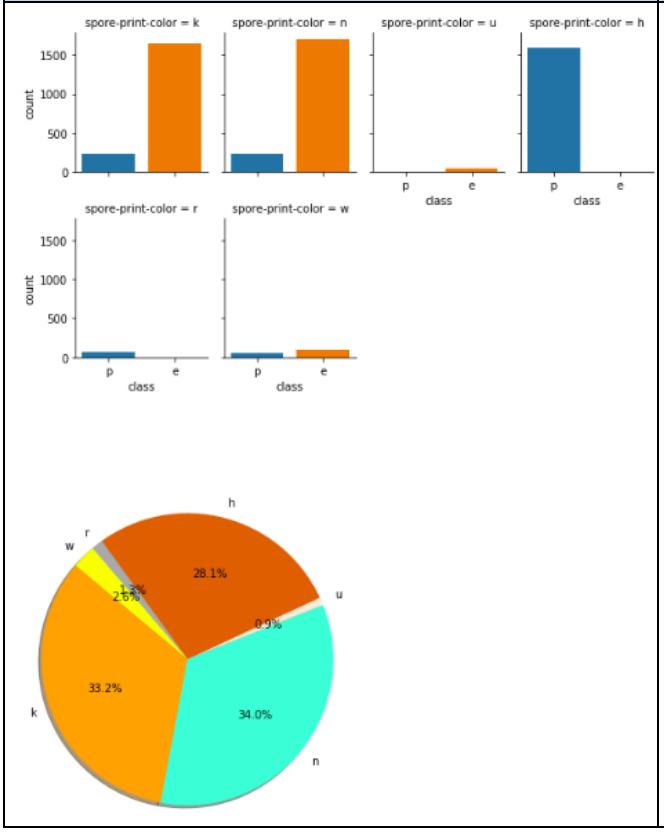
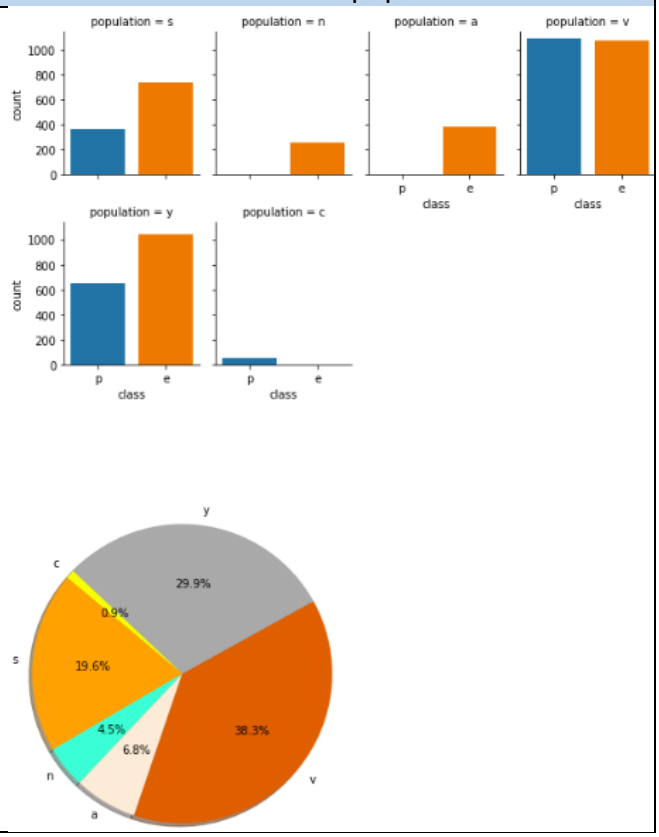
Distribution of gill-color	Distribution of stalk-shape
	

Distribution of stalk-root	Distribution of stalk-surface-above-ring
	

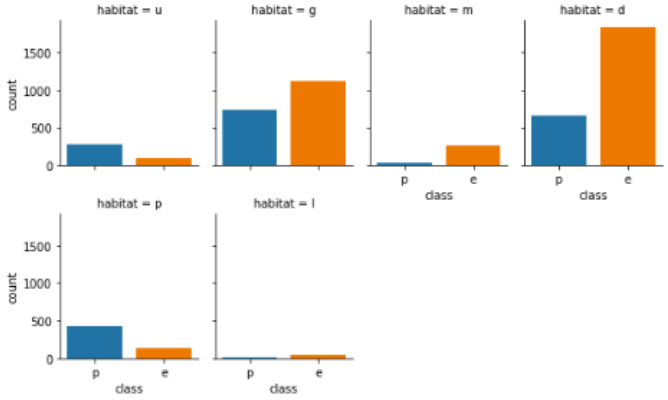
Distribution of stalk-surface-below-ring	Distribution of stalk-color-above-ring
	

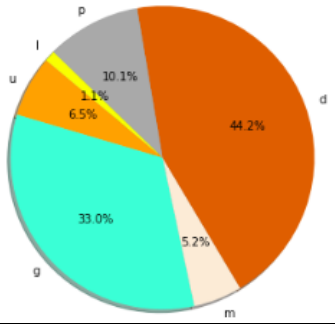
Distribution of stalk-color-below-ring	Distribution of stalk-surface-above-ring
	

Distribution of ring-number	Distribution of ring-type
	

Distribution of spore-print-color	Distribution of population
	

Distribution of habitat

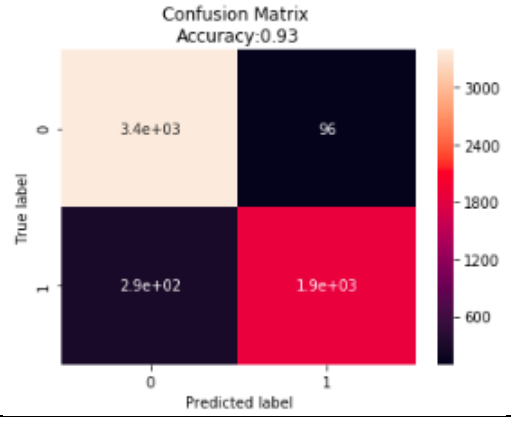




Algorithms confusion matrix

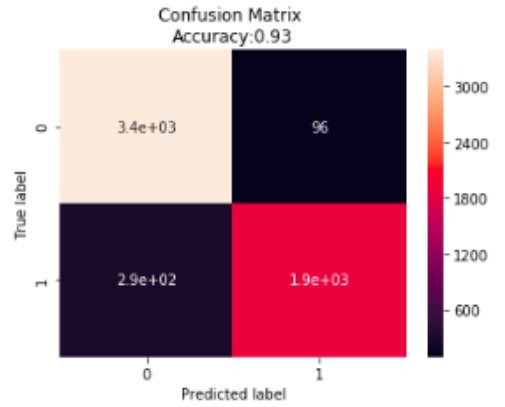
Decision Tree

```
      0     1
0  3392    96
1   292  1864
```



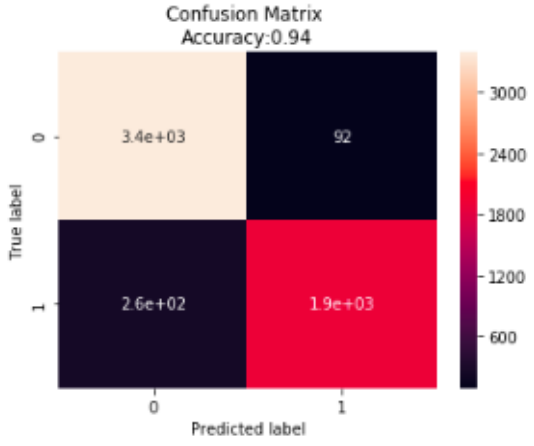
Random Forest

```
      0     1
0  3392    96
1   292  1864
```



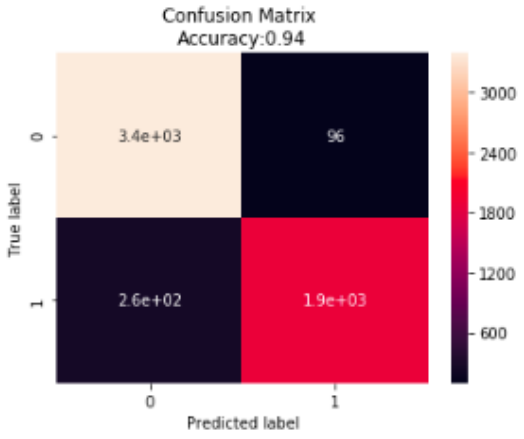
K-Nearest Neighbor

```
      0     1
0  3396    92
1   256  1900
```



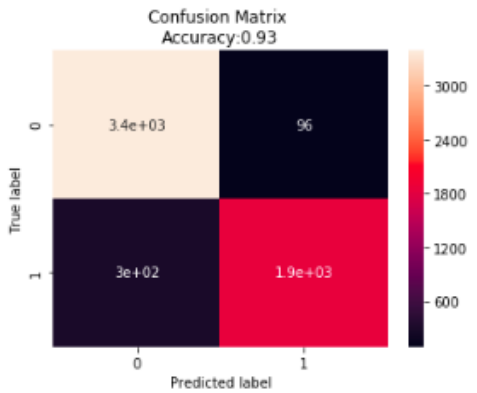
Naïve Bayes

```
      0     1
0  3392    96
1   260  1896
```



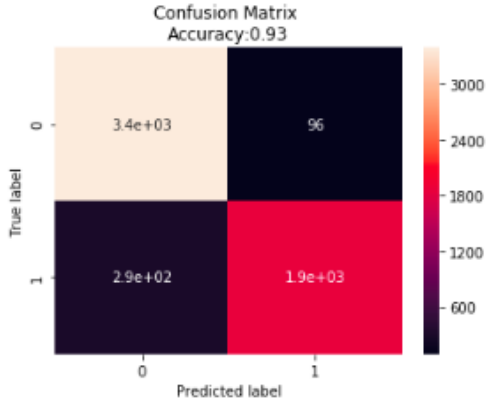
XG Boosting

```
      0     1
0  3392    96
1   300  1856
```



SVM

```
      0     1
0  3392    96
1   292  1864
```



Association rules

Association rules for class poisonous

	antecedents	consequents	antecedent support	consequent support	support	confidence	lift	leverage	conviction	antecedent_len
533	(spore-print-color_h, ring-type_l)	(class_p)	0.229624	0.381999	0.229624	1.0	2.617811	0.141908	inf	2
134	(odor_f, stalk-surface-below-ring_k)	(class_p)	0.229624	0.381999	0.229624	1.0	2.617811	0.141908	inf	2
63	(ring-type_l)	(class_p)	0.229624	0.381999	0.229624	1.0	2.617811	0.141908	inf	1
364	(stalk-surface-above-ring_k, stalk-shape_e)	(class_p)	0.236003	0.381999	0.236003	1.0	2.617811	0.145850	inf	2
488	(stalk-shape_e, stalk-surface-below-ring_k)	(class_p)	0.229624	0.381999	0.229624	1.0	2.617811	0.141908	inf	2
49	(stalk-surface-below-ring_k)	(class_p)	0.229624	0.381999	0.229624	1.0	2.617811	0.141908	inf	1
482	(stalk-surface-below-ring_k, bruises_f)	(class_p)	0.229624	0.381999	0.229624	1.0	2.617811	0.141908	inf	2
3716	(spore-print-color_h, stalk-shape_e, stalk-sur...	(class_p)	0.229624	0.381999	0.229624	1.0	2.617811	0.141908	inf	4
558	(stalk-shape_e, ring-type_l)	(class_p)	0.229624	0.381999	0.229624	1.0	2.617811	0.141908	inf	2
1408	(spore-print-color_h, stalk-surface-above-ring...	(class_p)	0.229624	0.381999	0.229624	1.0	2.617811	0.141908	inf	3

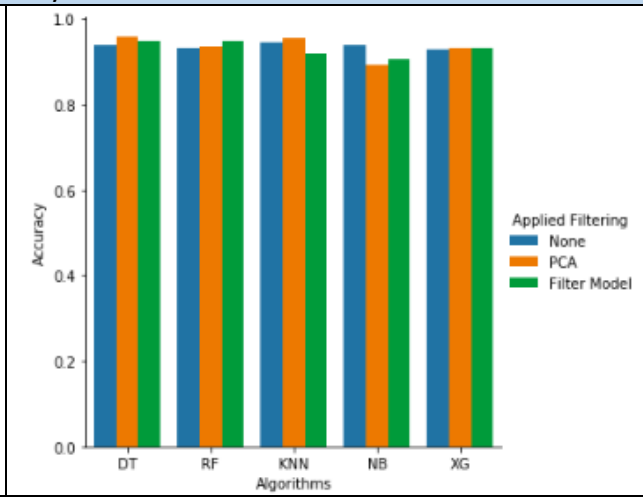
Association rules for class edible

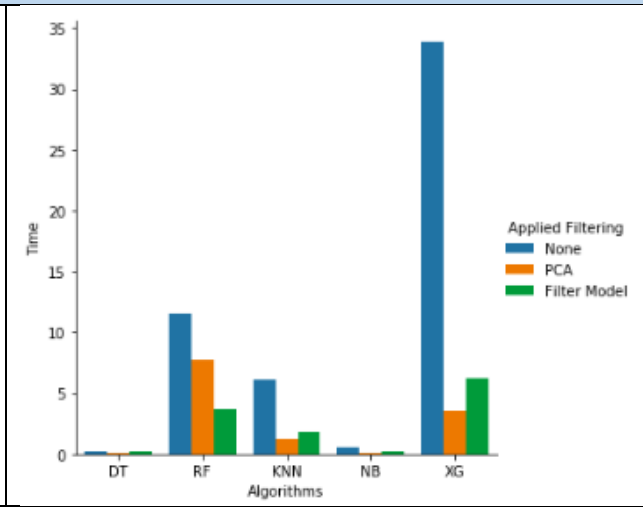
	antecedents	consequents	antecedent support	consequent support	support	confidence	lift	leverage	conviction	antecedent_len
269	(odor_n, stalk-shape_t)	(class_e)	0.442240	0.618001	0.442240	1.0	1.618119	0.168935	inf	2
3035	(odor_n, stalk-surface-above-ring_s, bruises_t...	(class_e)	0.306166	0.618001	0.306166	1.0	1.618119	0.116955	inf	4
1213	(odor_n, stalk-surface-below-ring_s, stalk-sha...	(class_e)	0.374203	0.618001	0.374203	1.0	1.618119	0.142945	inf	3
587	(bruises_f, stalk-shape_t)	(class_e)	0.136074	0.618001	0.136074	1.0	1.618119	0.051980	inf	2
2975	(odor_n, stalk-surface-above-ring_s, stalk-sur...	(class_e)	0.340184	0.618001	0.340184	1.0	1.618119	0.129950	inf	4
3066	(odor_n, bruises_t, stalk-surface-below-ring_s...	(class_e)	0.306166	0.618001	0.306166	1.0	1.618119	0.116955	inf	4
1188	(odor_n, bruises_f, stalk-surface-below-ring_s)	(class_e)	0.089298	0.618001	0.089298	1.0	1.618119	0.034112	inf	3
1241	(odor_n, bruises_f, stalk-shape_t)	(class_e)	0.136074	0.618001	0.136074	1.0	1.618119	0.051980	inf	3
1253	(odor_n, bruises_t, stalk-shape_t)	(class_e)	0.306166	0.618001	0.306166	1.0	1.618119	0.116955	inf	3
1161	(odor_n, stalk-surface-above-ring_s, stalk-sha...	(class_e)	0.374203	0.618001	0.374203	1.0	1.618119	0.142945	inf	3

Resuts

Accuracy

Algorithms	Applied Filtering	Accuracy
DT	None	0.939797
RF	None	0.931286
KNN	None	0.943514
NB	None	0.936960
XG	None	0.929868
DT	PCA	0.956780
RF	PCA	0.936427
KNN	PCA	0.955546
NB	PCA	0.893384
XG	PCA	0.931467
DT	Filter Model	0.947598
RF	Filter Model	0.947598
KNN	Filter Model	0.919963
NB	Filter Model	0.905086
XG	Filter Model	0.931467



Time

Algorithms	Applied Filtering	Time
DT	None	0.245738
RF	None	11.593764
KNN	None	6.082677
NB	None	0.588353
XG	None	33.890323
DT	PCA	0.140816
RF	PCA	7.676284
KNN	PCA	1.226569
NB	PCA	0.064753
XG	PCA	3.609290
DT	Filter Model	0.200474
RF	Filter Model	3.702401
KNN	Filter Model	1.775133
NB	Filter Model	0.216660
XG	Filter Model	6.183594