

Mushroom Classification

Machine Learning
Models

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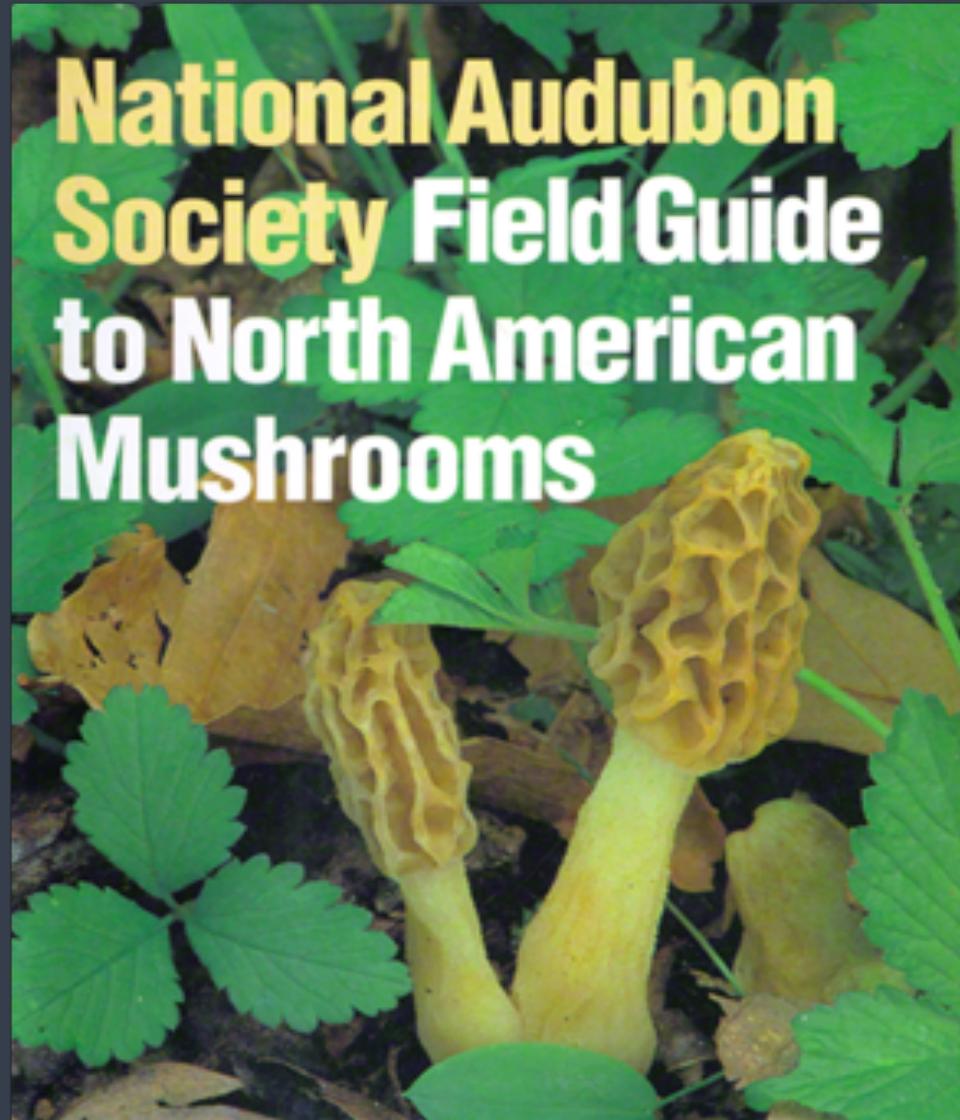
Viewing the data:

8,124 samples.

22 characteristics.

Categorical data.

Edible or Poison?

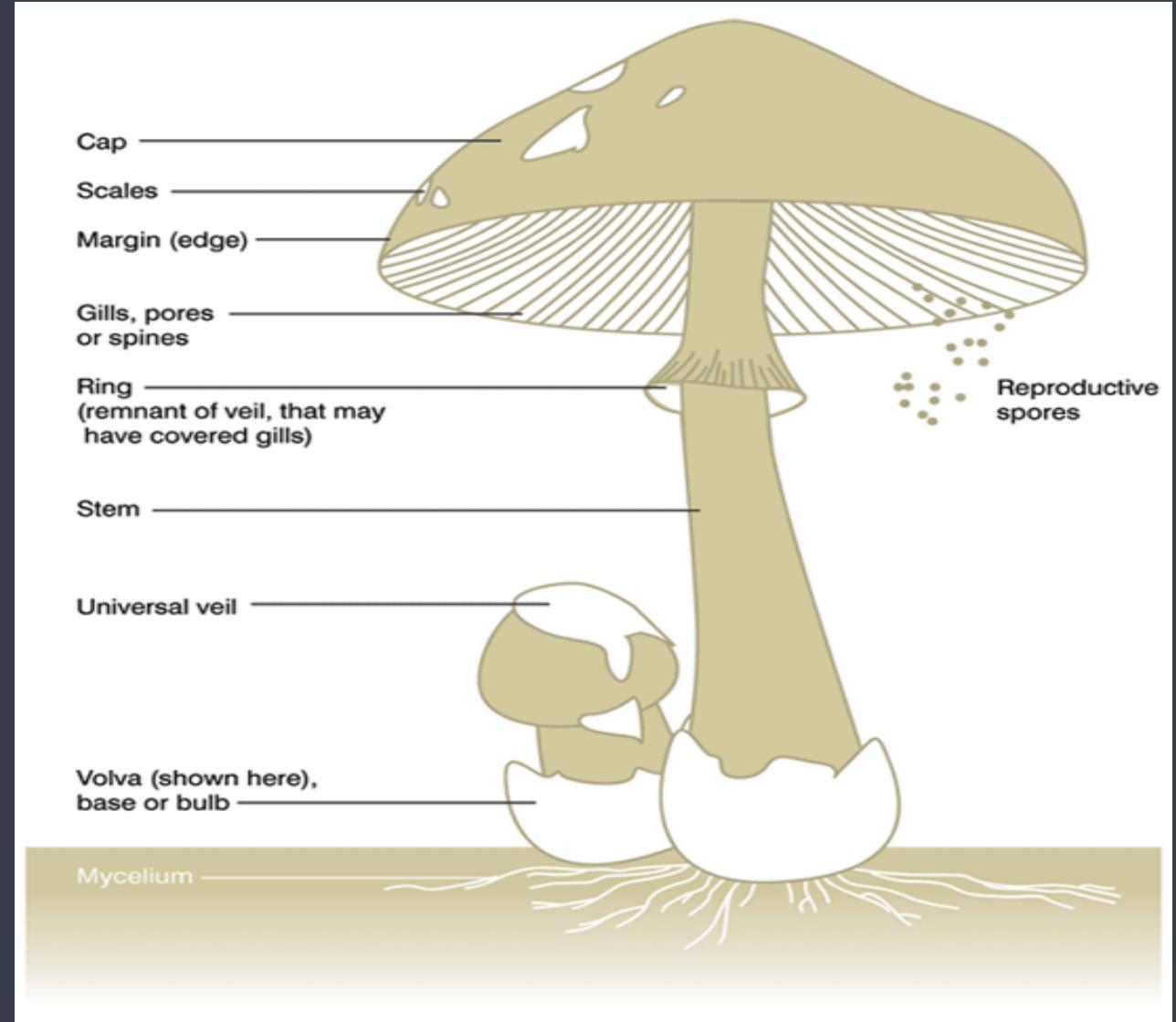


What is the goal?

Create a *strategy* to classify mushroom samples for edibility or poisonality.

What is the *strategy*?

Test classifications with machine learning models.



Best Models

Lasso Logistic Regression

Accuracy Score = 94%

87 False Negatives

PRO: Avoids overfitting

CON: Not entirely accurate

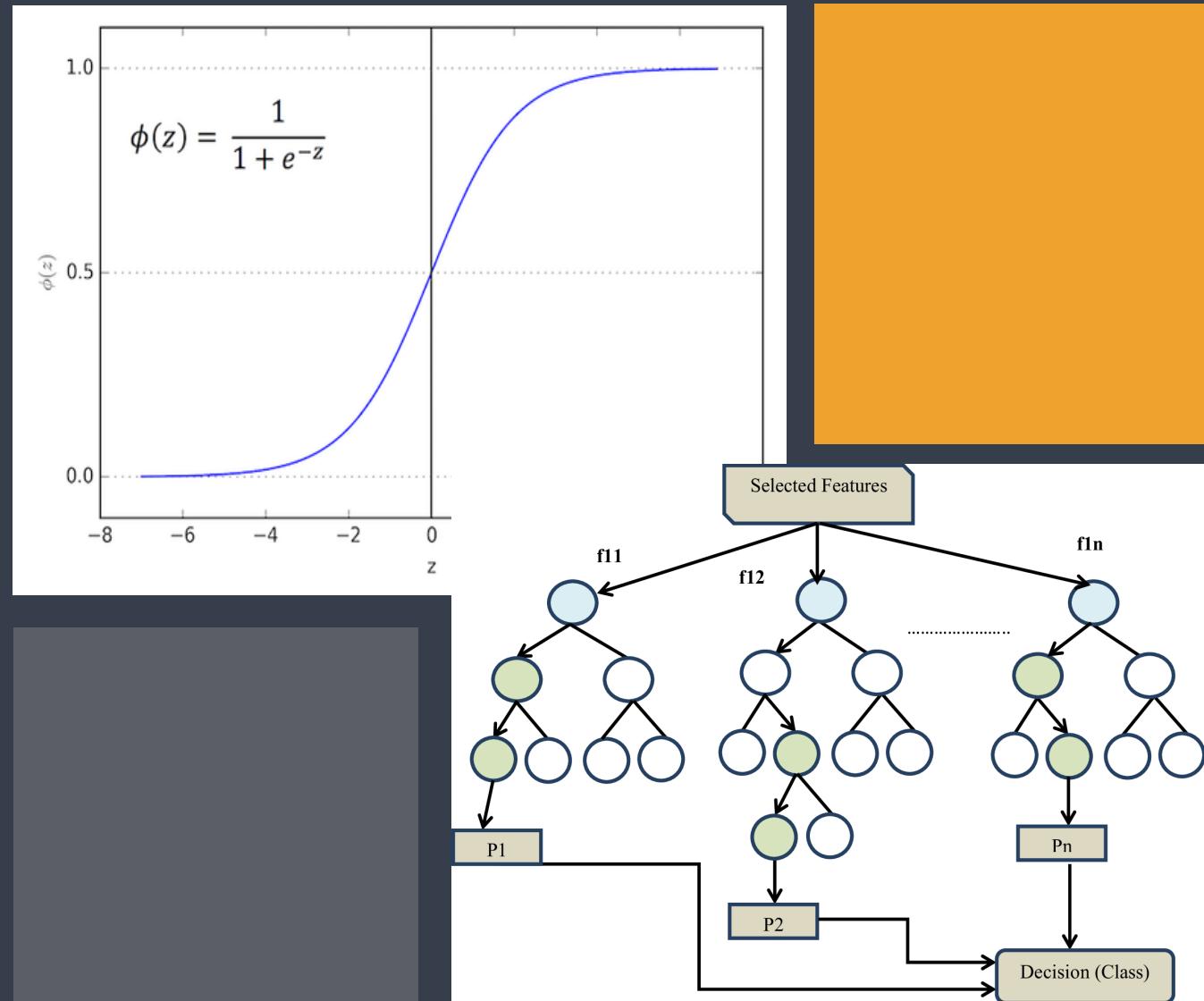
Tuned Random Forest

Accuracy Score = 99%

4 False Negatives

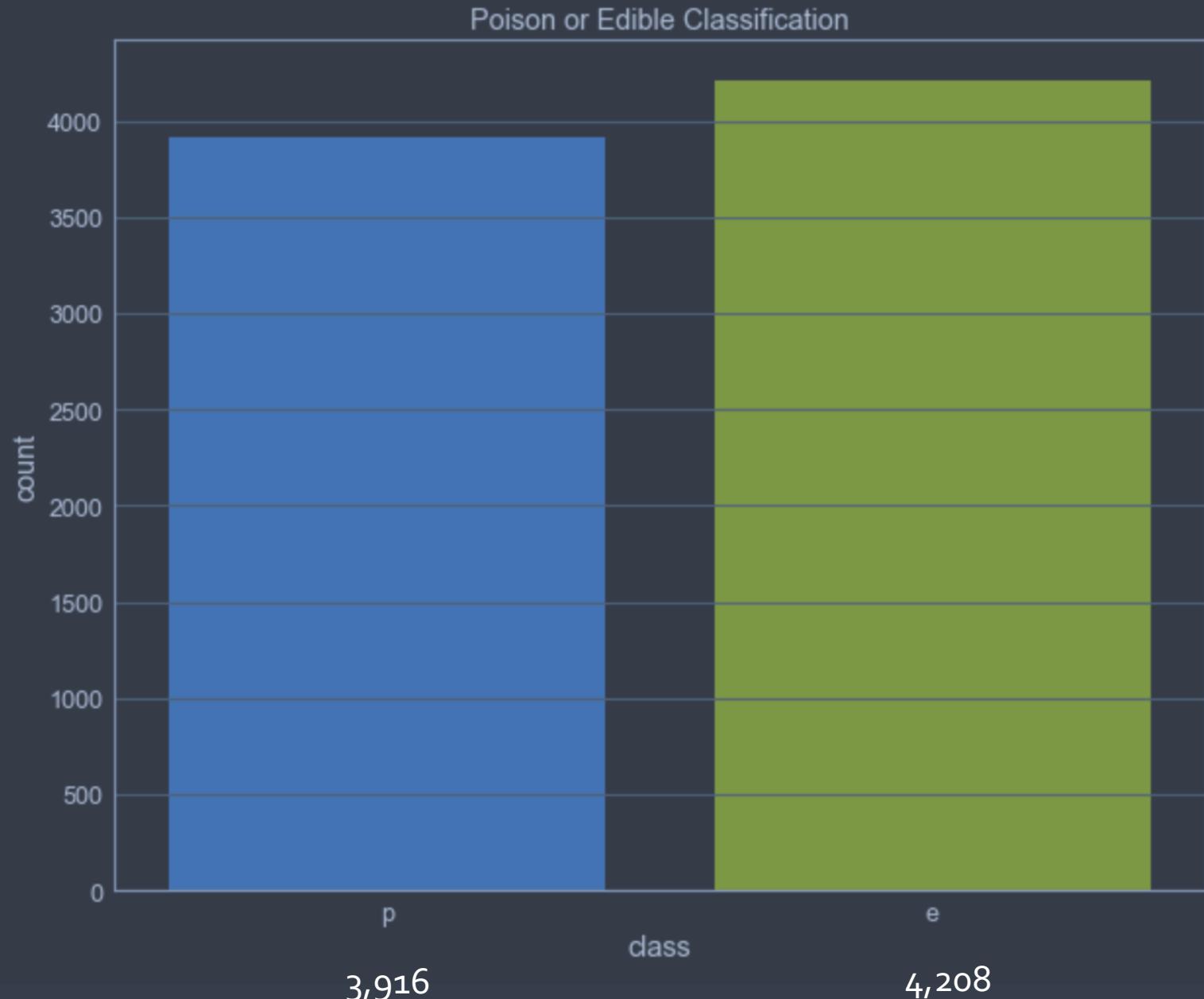
PRO: Very Accurate

CON: Computationally difficult



What are the most important characteristics?

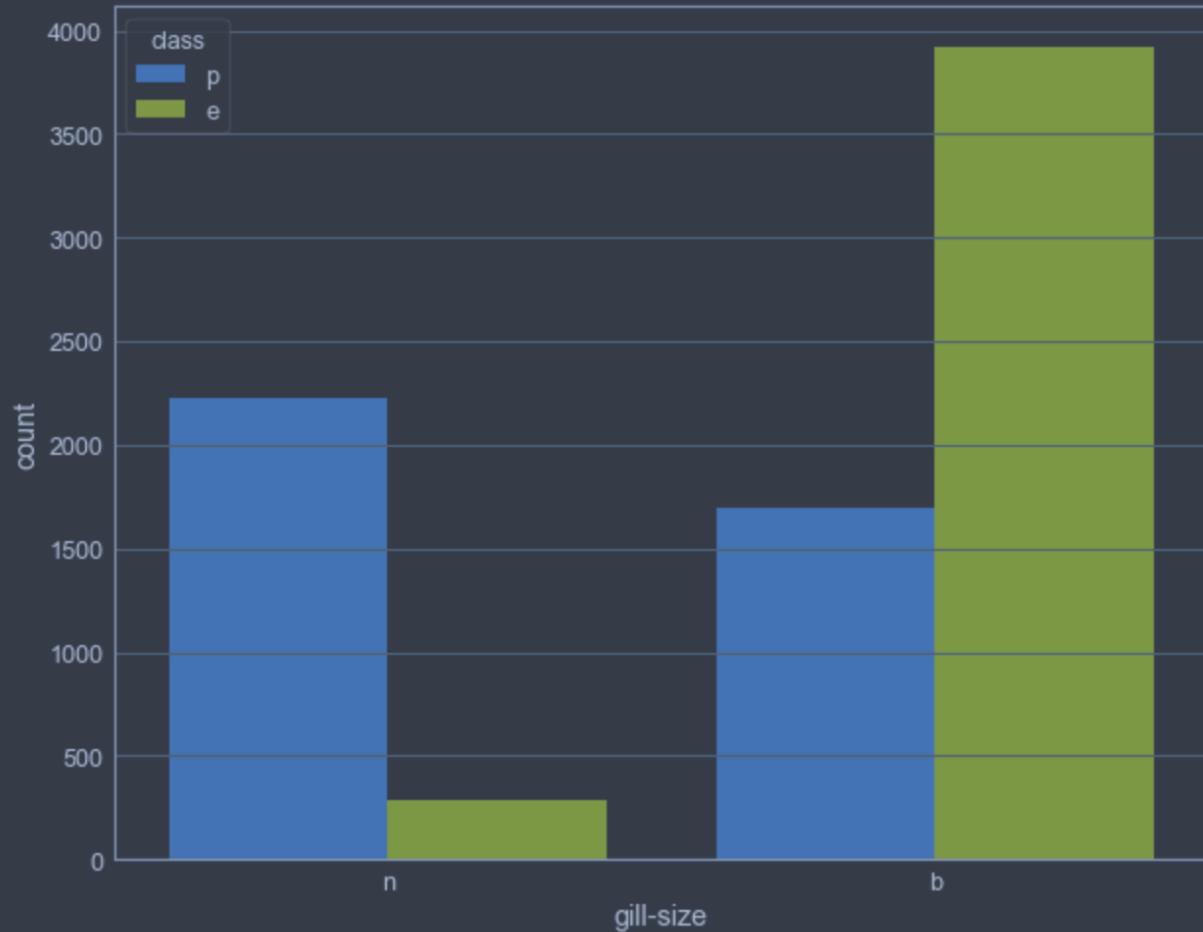
- Gill Size
- Ring Type
- Cap Surface
- Bruises
- Spore Print Color



Gill Size

Broad gills are likely to be edible.

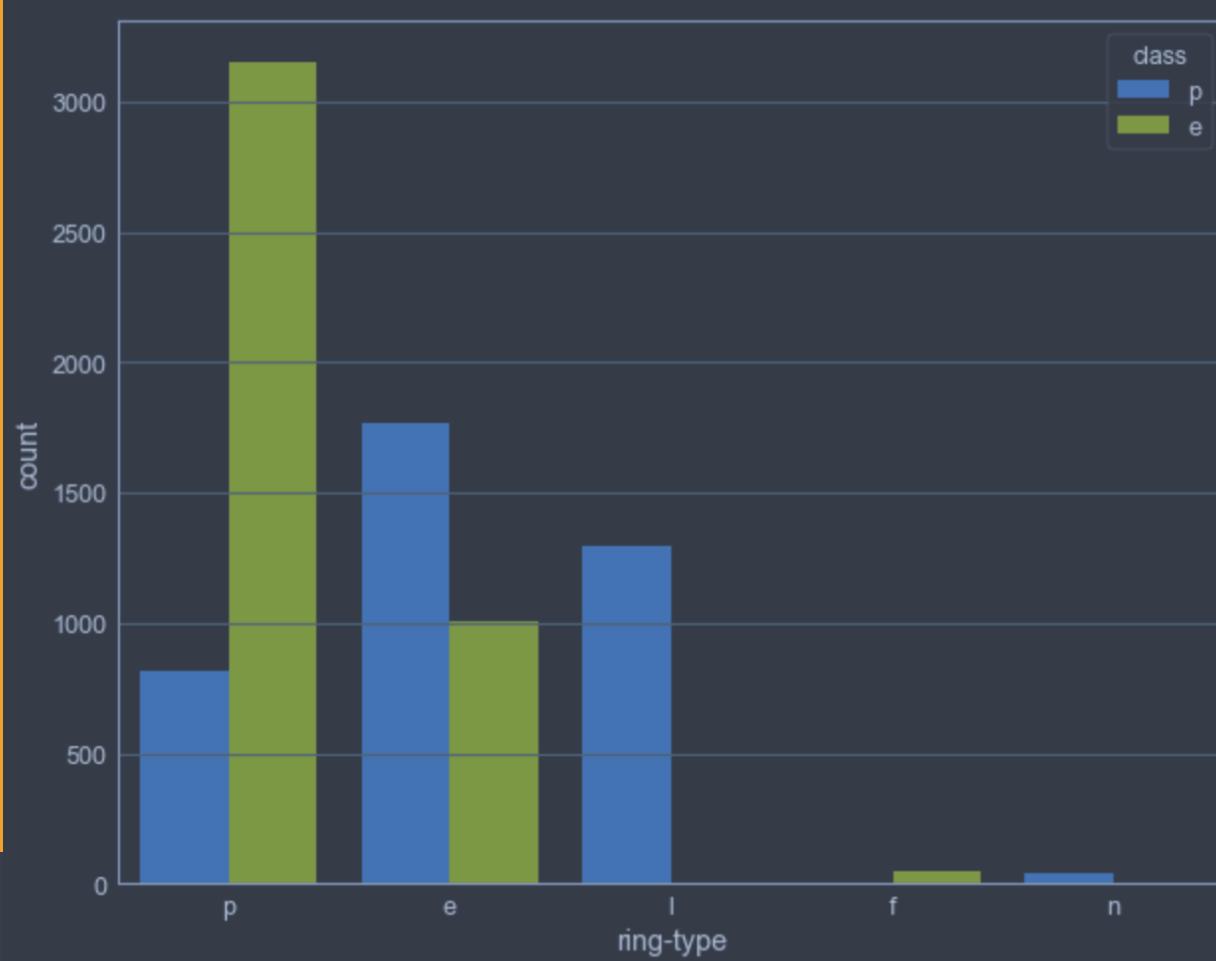
Narrow gills are likely to be poisonous.



Ring Type

Pendant ring types are likely to be edible.

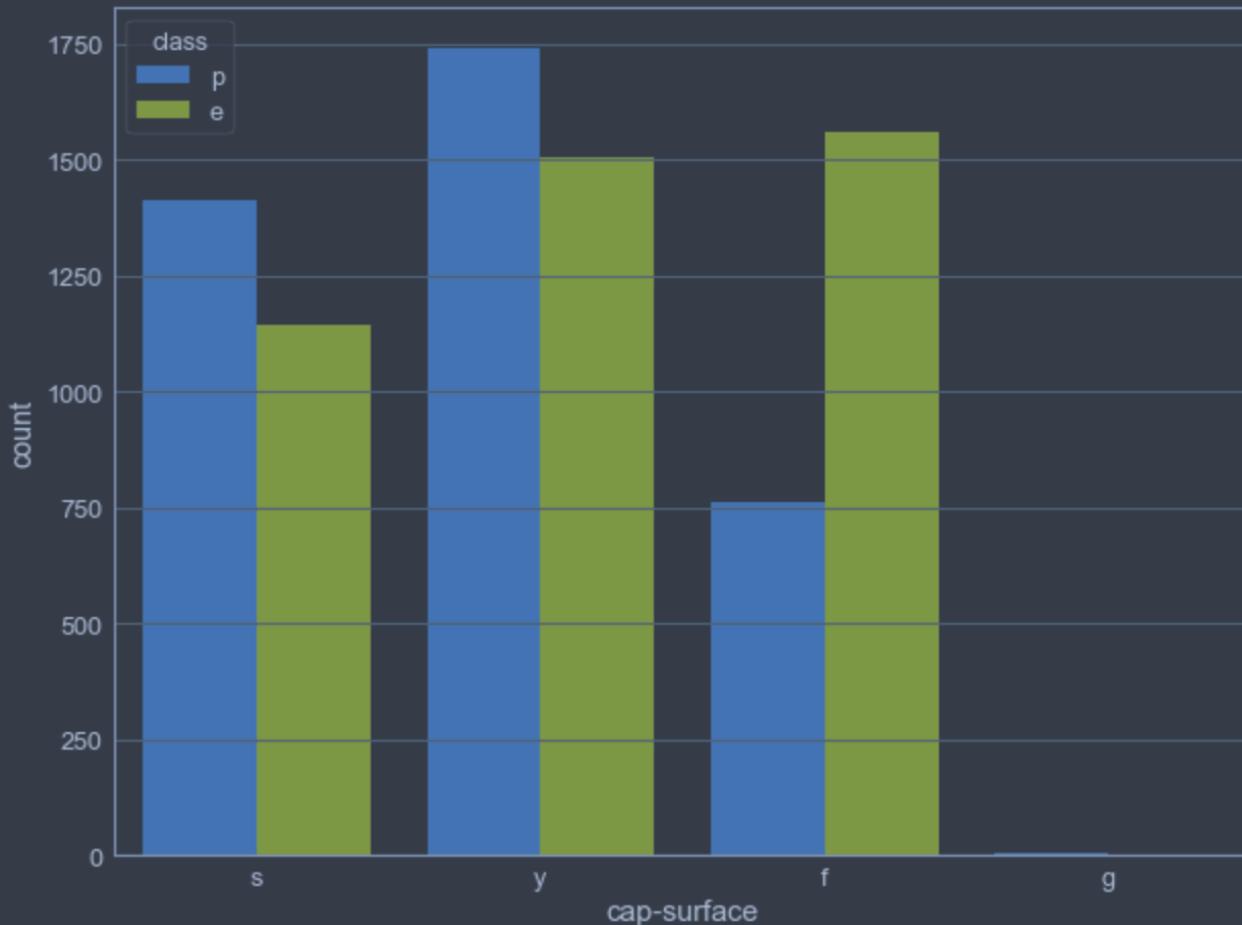
Evanescence and *large* ring types are likely to be poisonous.



Cap Surface

Fibrous mushroom caps are more likely to be edible.

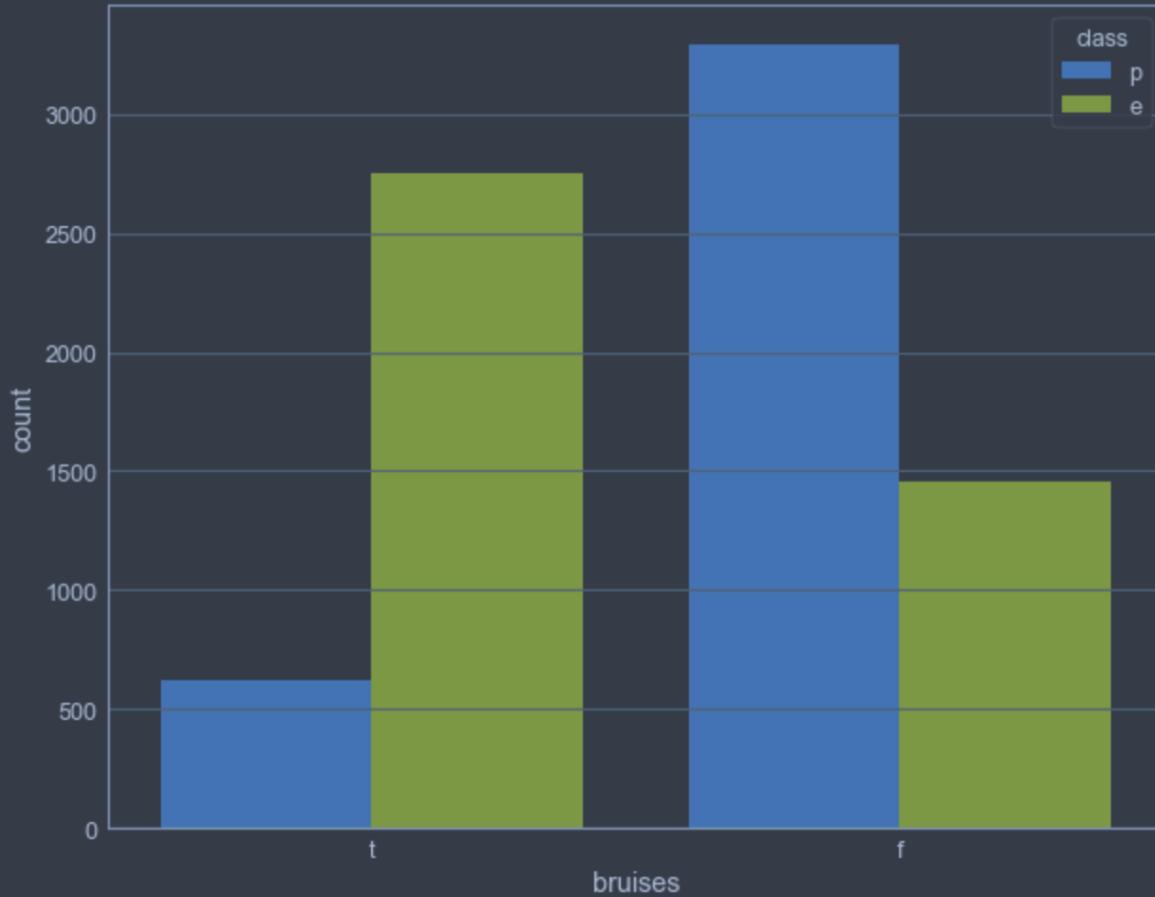
Smooth or *Scaly* mushroom caps are more likely to be poisonous.



Bruises

Bruised mushrooms are likely to be edible.

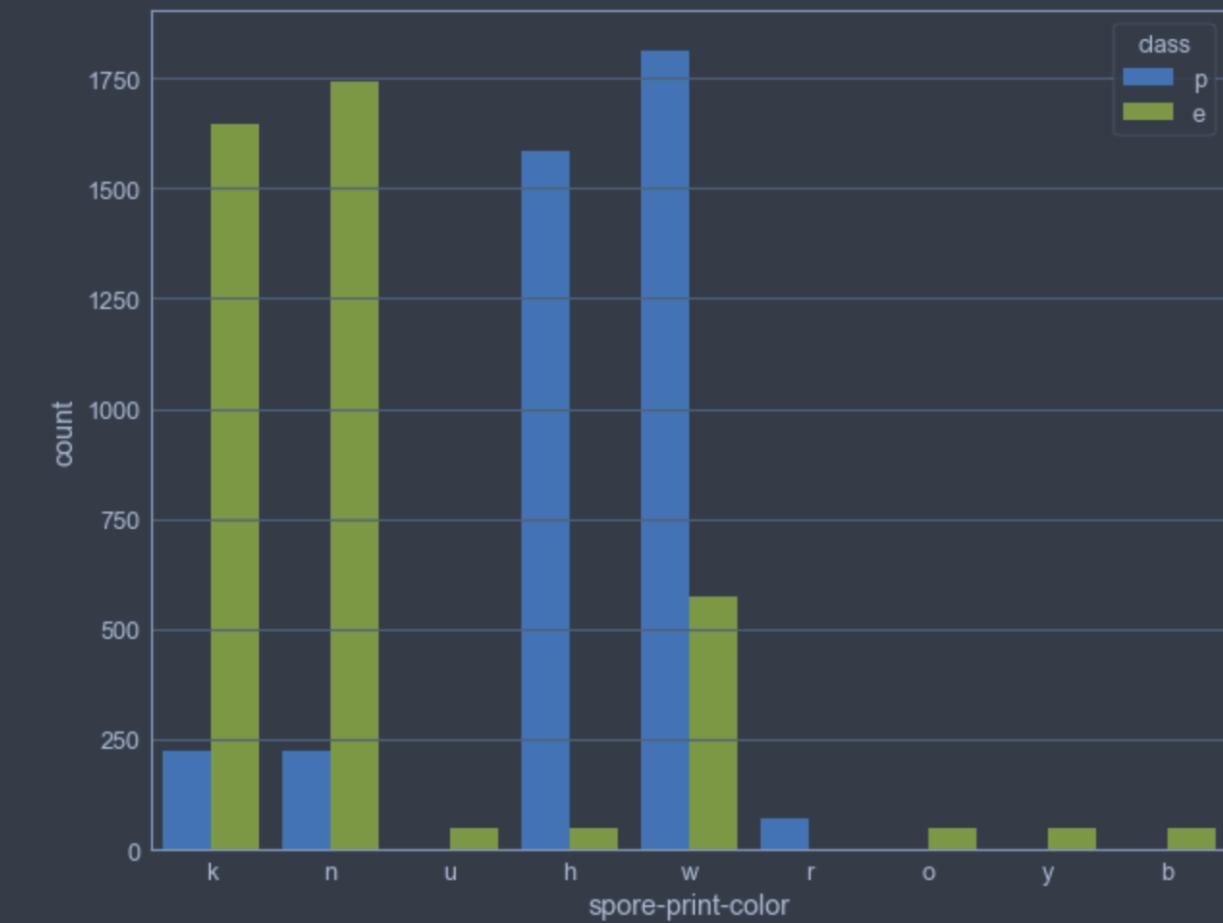
Non-bruised mushrooms are likely to be poisonous.



Spore Print Color

Black and brown colors are likely to be edible.

Tan and white colors are likely to be poisonous.



Conclusion:

Used machine learning to classify mushrooms.

Logistic Regression and Random Forests work best.

Don't eat poisonous mushrooms.



THANK YOU!

