



# Mushroom Classification Using Machine Learning

## Authors



1. Shejuti Shithi Biswas  
20211103018

2. Fatamatuz Jannat Mim  
20211103016

3. Rehnuma Tabassum  
20211103001

4. Mst. Tamanna Akter  
19201103001

### INTRODUCTION

Mushrooms are fascinating organisms that come in a vast array of shapes, sizes, and colors. They play crucial roles in ecosystems as decomposers, breaking down organic matter and recycling nutrients back into the environment. While many mushrooms are harmless or even delicious edibles, some species can be highly toxic, making accurate identification essential for foragers and mushroom enthusiasts. The intricate patterns, unique textures, and diverse flavors of mushrooms have also captured the interest of chefs, scientists, and artists alike, inspiring culinary creations, scientific research, and imaginative works of art.

### OBJECTIVE

- This project aims to unravel the mysteries of the fungal kingdom through the development of a text-based mushroom classification system.

### MOTIVATION

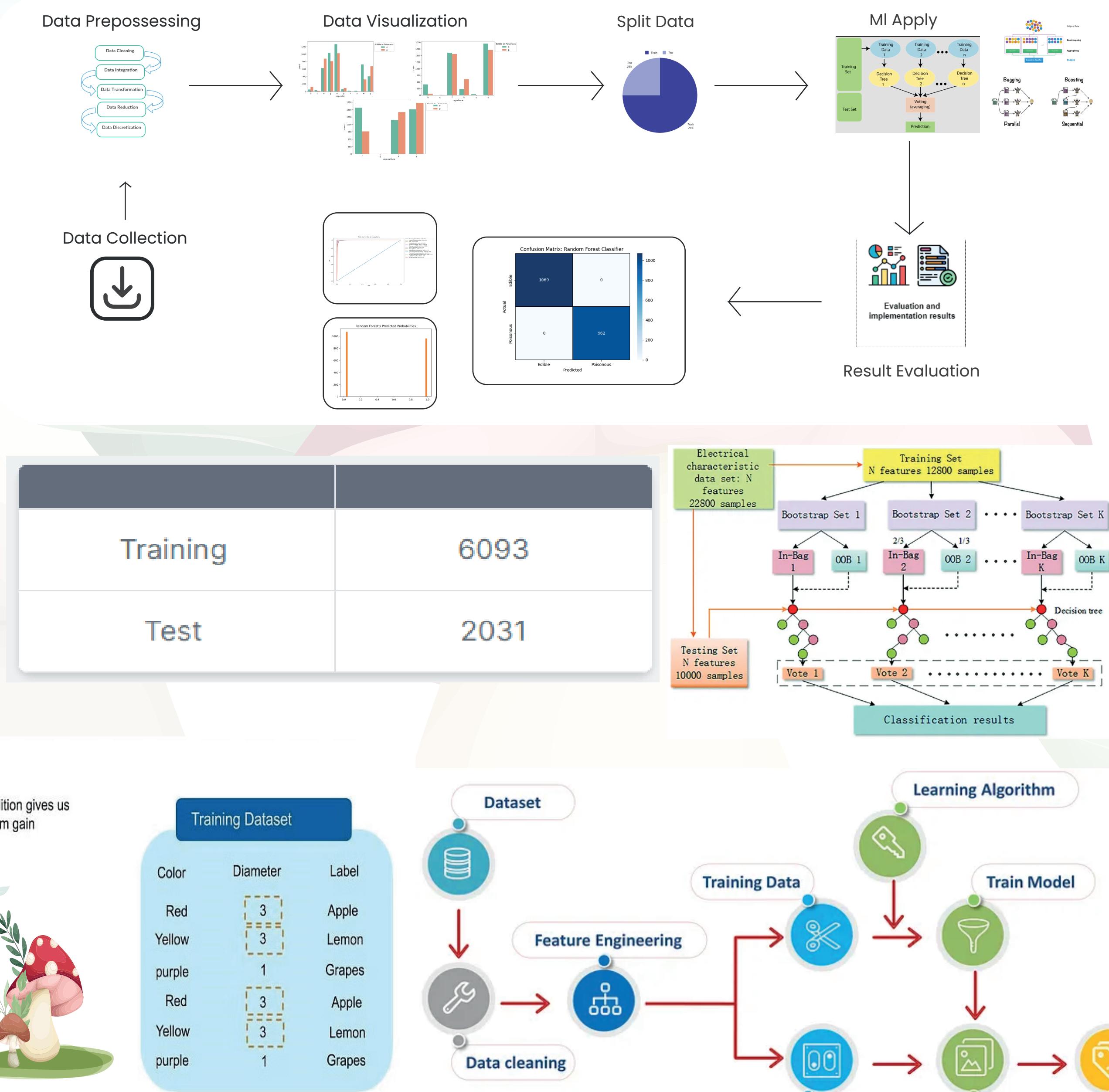
- Motivated by the rich diversity and ecological significance of fungi, our objective is to create a tool that enables enthusiasts, researchers, and conservationists to accurately identify and categorize mushrooms based on textual descriptions.
- By providing a user-friendly interface and leveraging natural language processing techniques, we seek to empower users to explore, learn, and contribute to the fascinating world of mycology.

### LITERATURE REVIEW

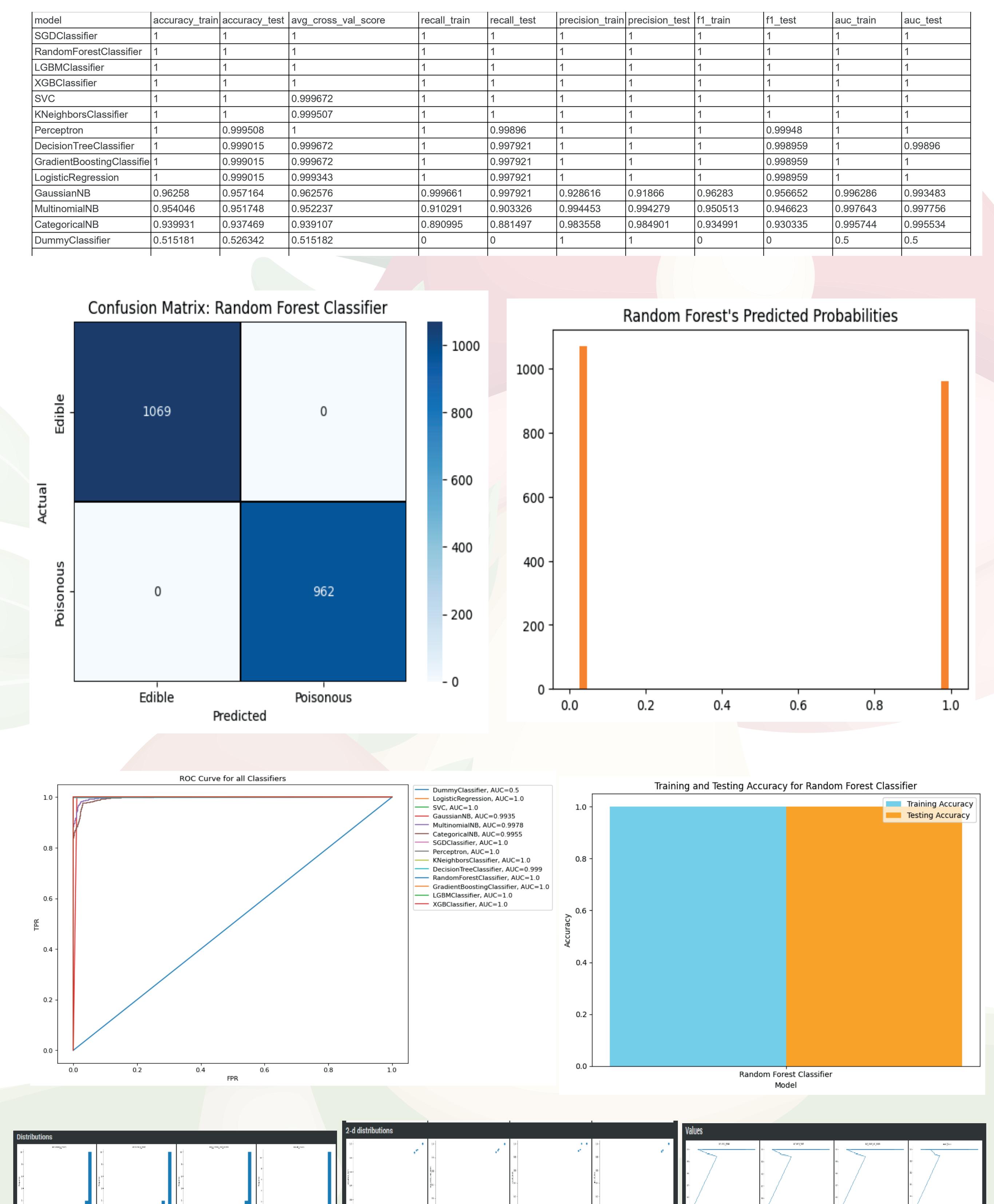
Title	Author Name	Algorithm / Model	Accuracy
Behavioural Features for Mushroom Classification	Shuhaida Ismail	Naive Bayes, Knn	90%
Mushroom spawn quality classification with machine learning	Phongsakhon Tongcham	SVMs, KNN, DNN, NCC, Decision trees	98.8%
Mushroom Classification Using Feature-Based Machine Learning Approach	Pranjal Maurya	SVMs	76.6%
Classification algorithm for edible mushroom identification	Agung Wibowo	SVMs, Decision trees	100%

### METHODOLOGY

#### Flow of work



### RESULT ANALYSIS



### Conclusion

To summarize this analysis, we can predict with 100% accuracy whether a mushroom is poisonous or edible with this dataset. Well performing models for this problem are tree based models, like Random Forest, XGBoost, etc. These models all performed well without the need for hyperparameter tuning. Odor and gill size are the most important features in determining whether a mushroom is edible or poisonous.

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