ShroomSafe

Mark Rubin

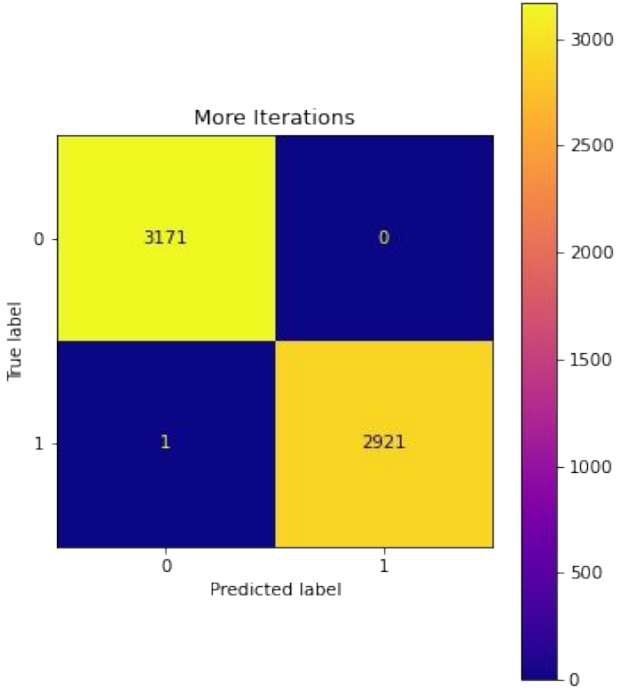
The ShroomSafe Mission:

- ShroomSafe is an app based platform that will bring mushroom foraging to the 21st century.
- Our application is designed to take away the burden of having to manually identify consumable mushrooms using a field guide.
- ShroomSafe will help save lives by accurately predicting if a mushroom is poisonous or edible.
- ShroomSafe will simplify, and streamline the users mushroom identification process.
  - ShroomSafe's goal is to be a more efficient and effective mushroom identification field guide.

Data and Model

- ShroomSafe uses a machine learning prediction model to predict whether or not a mushroom is poisonous or edible.
  - Logistic Regression Modeling with higher iteration had the best results.
  - The model was evaluated using the Recall metric.
- ShroomSafe's prediction model was trained using The Mushroom Dataset sourced from the UCI Machine Learning Repository.
  - This data set includes descriptions of hypothetical samples corresponding to 23 species of gilled mushrooms in the Agaricus and Lepiota Family .
  - Each species is identified as definitely edible, definitely poisonous.
  - The dataset contained 8,124 instances and did not have a class imbalance in the data for the target feature.

Models


More Iterations
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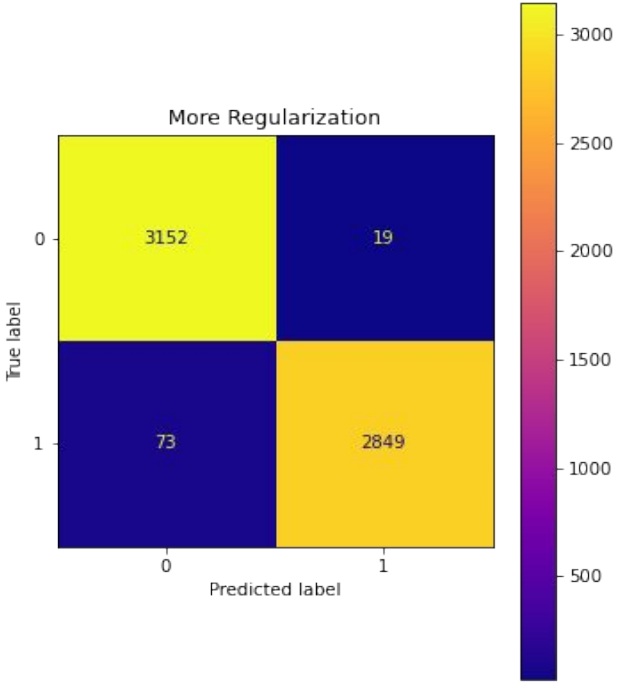
0
1
2921
0
1
True label
Predicted label
3000
2500
2000
1500
1000
500
0


More Regularization
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19
73
2849
0
1
True label
Predicted label
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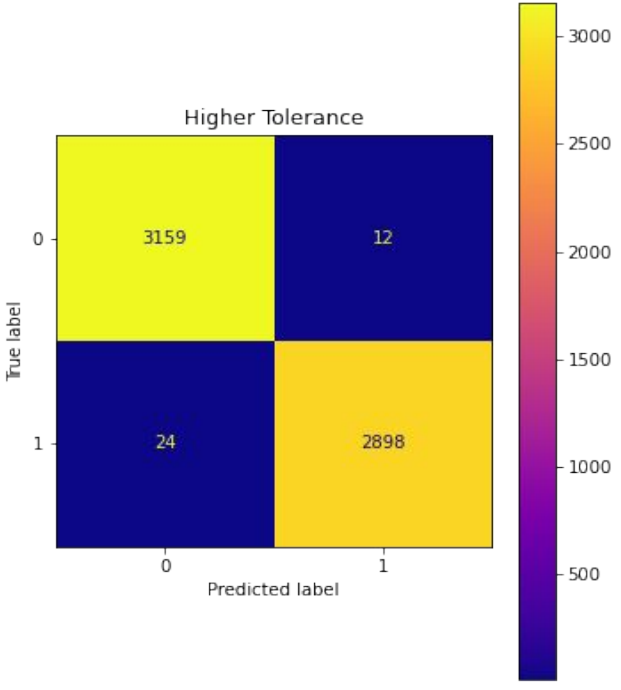
2500
2000
1500
1000
500


Higher Tolerance
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24
2898
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True label
Predicted label
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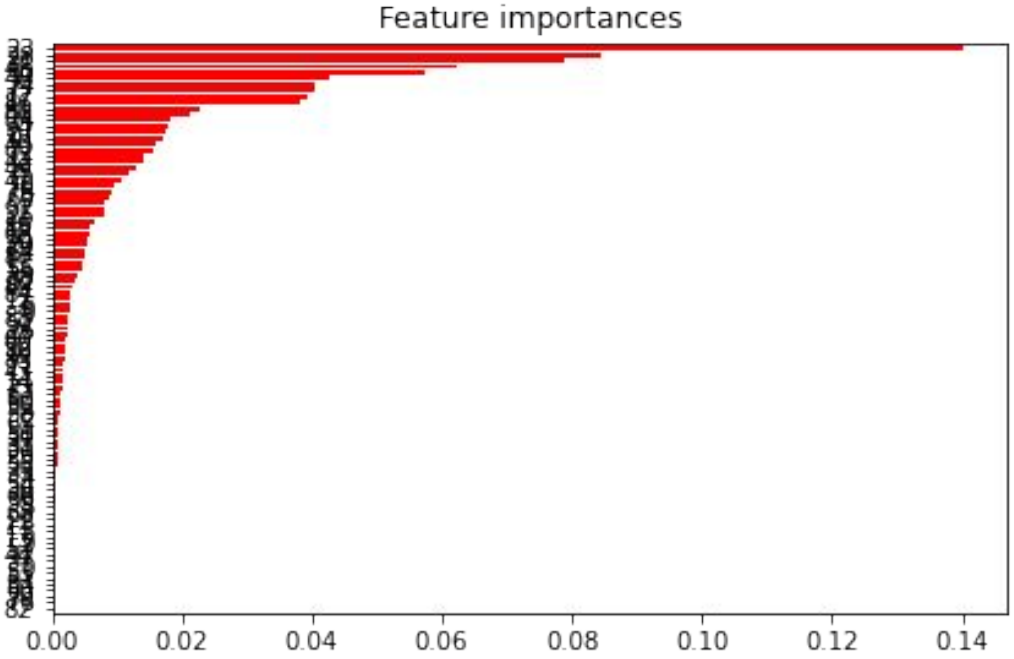
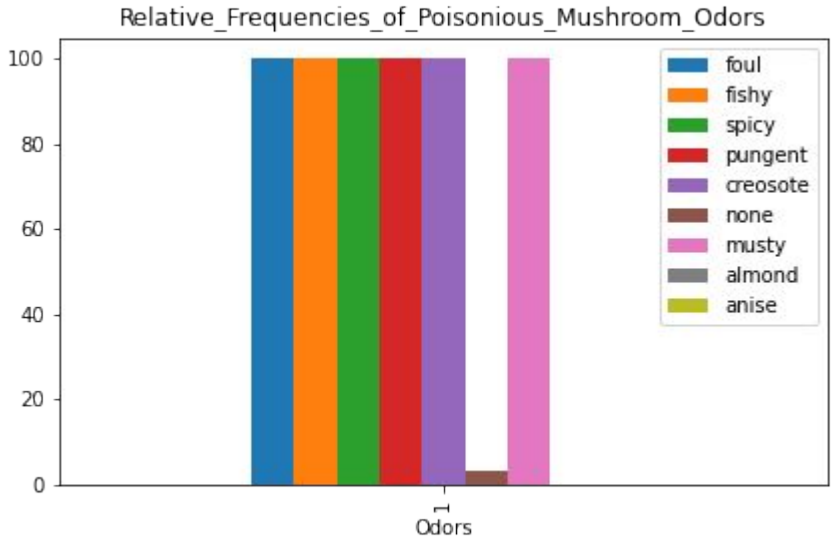
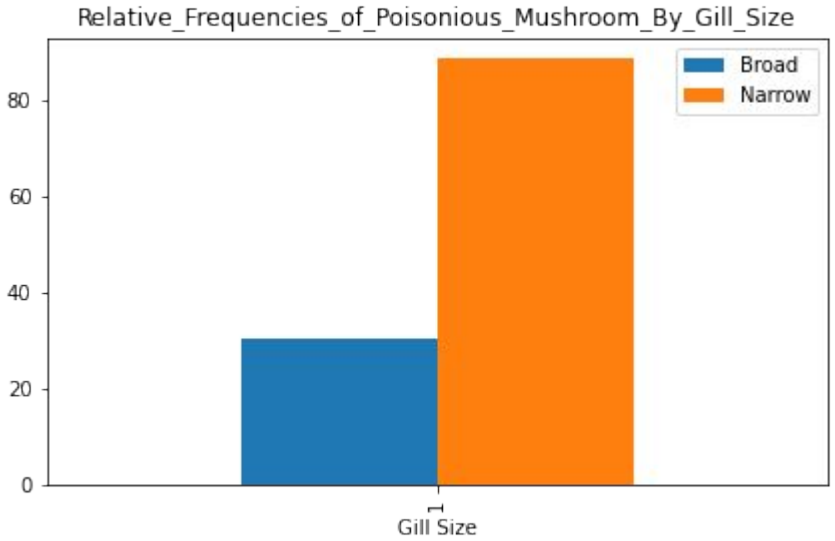
2500
2000
1500
1000
500

Feature Importances From Random Forest Classifier

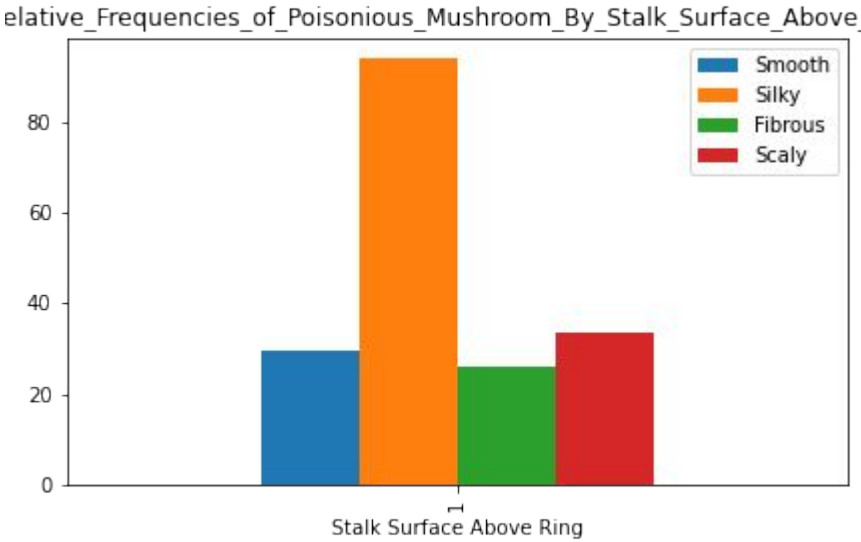


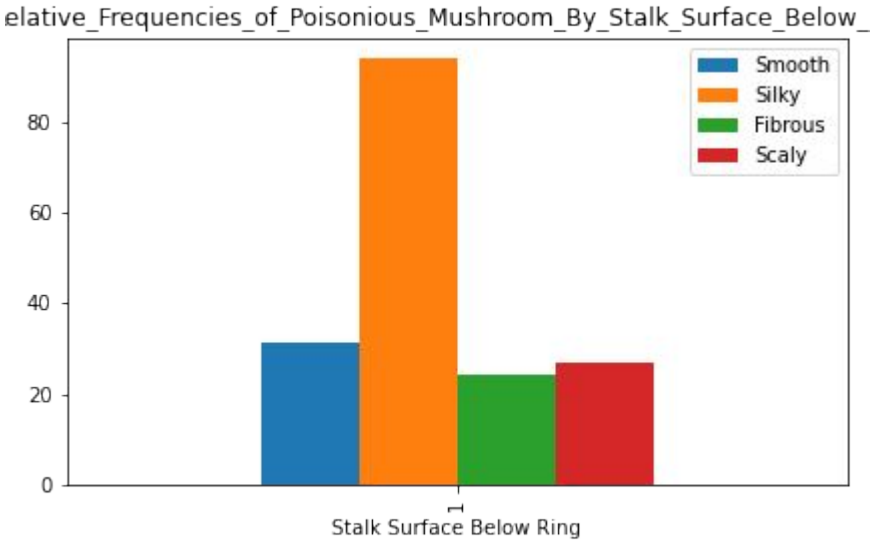
Some of the Most Important Features Found





Some of the Most Important Features Found Cont.





Conclusion and Next Steps

- The model performed well for making predictions on the test data, but performance has not been evaluated using other unseen data.
- Certain features were definitely more important for making predictions.
  - Discovered during my EDA and further found from investigating the results of my modeling.
- Next Steps:
  - Use feature elimination techniques to reduce the number of features needed for an accurate prediction.
  - Collect more data on other families of mushrooms to make a more comprehensive prediction model.