MUSHROOM CLASSSIFICATION

REPORT

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Abstract: This study explores the use of machine learning for mushroom classification. Traditional methods are time-consuming and require expert knowledge. The researchers collected a dataset of mushroom samples, labeled them with their classes, and used feature extraction techniques. Various machine learning models were trained and evaluated, demonstrating higher accuracy compared to traditional methods. The results highlight the potential for automated mushroom identification and quality control in the food industry.

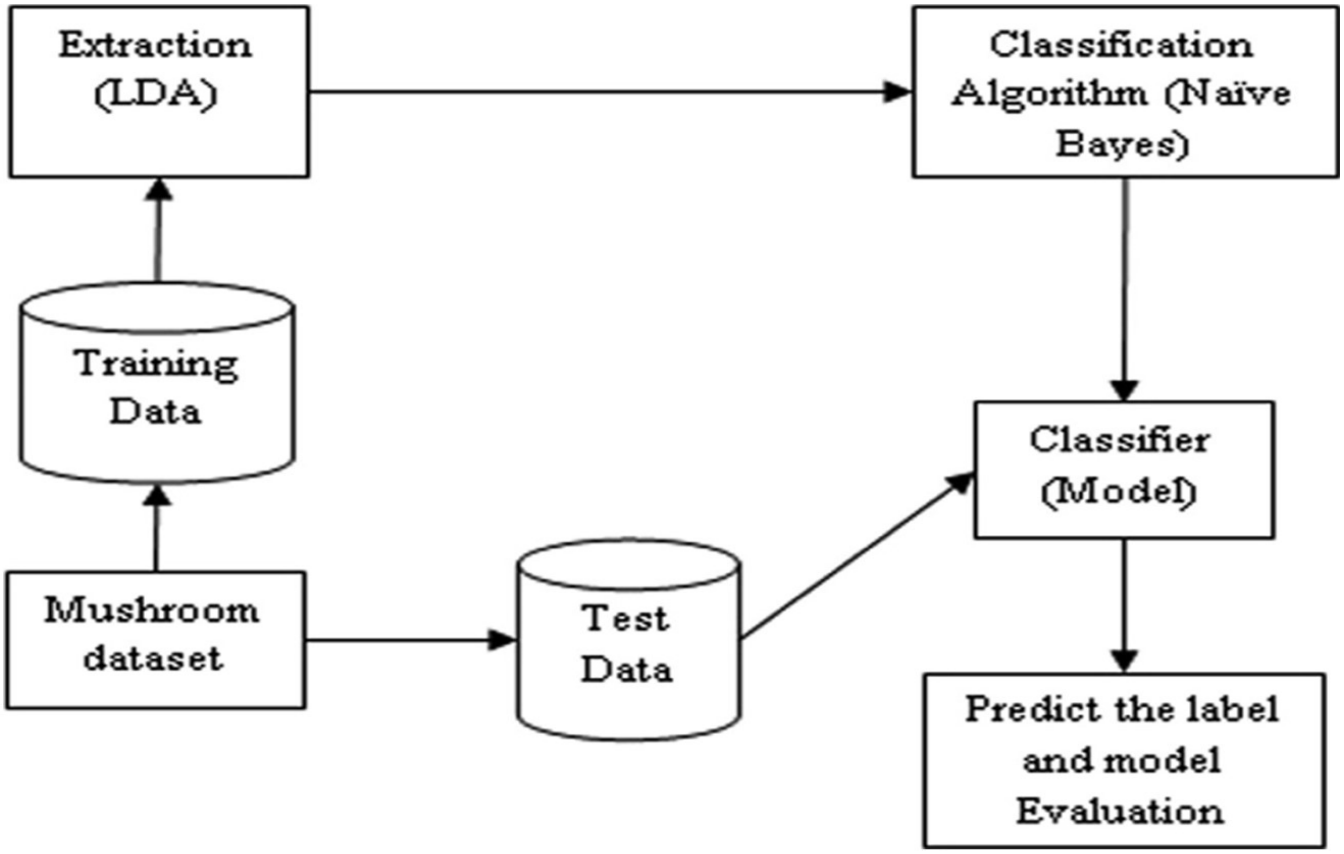
Objective:

- Development of a predictive model for Mushroom classification
- determine whether a mushroom is edible or poisonous .

Benefits:

- Detection of upcoming poisonous mushrooms.
- Gives better insight of edible mushrooms.
- Detection of upcoming poisonous mushrooms.

ARCHITECTURE



Model Training:

Data Preprocessing

- Performing EDA to get insight of data like identifying distribution , outliers, trend among data etc.
- Check for null values in the columns. If present impute the null values.
- Encode the categorical values with numeric values.
- Perform Standard Scalar to scale down the values.

Feature Selection:

Use feature selection techniques

Relevant information as possible. This helps to simplify the classification task and avoid over fitting.

➢ Model Selection

- Select an appropriate machine learning model such as SVM (Support VectorMachines), Random Forest, or Neural Networks. Train the model on the preprocessed and reduced feature dataset using a training set of labeled examples. In this project we used SVM model.

➢ Model Evaluation:

Evaluate the model's performance on a separate testing set of labeled examples. Fine-tune the model's hyper parameters and architecture to optimize its performance.

➢ Prediction and Deployment

Use the trained model to predict the class of new mushroom images that were not used during the training and testing phases. Deploy