INEURON.AI

Low Level Design (LLD)

Mushroom Classification

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Abstract

The Audubon Society Field Guide to North American Mushrooms contains descriptions of hypothetical samples corresponding to 23 species of gilled mushrooms in the Agarics and Lepiota Family Mushroom (1981). Each species is labelled as either definitely edible, definitely poisonous, or maybe edible but not recommended. This last category was merged with the toxic category. The Guide asserts unequivocally that there is no simple rule for judging a mushroom's edibility, such as "leaflets three, leave itbe" for Poisonous Oak and Ivy.

The main goal is to predict which mushroom is poisonous & which is edible.

Introduction

1.1. What is a Low-Level design document?

The goal of LLD or a low-level design document (LLDD) is to give the internal logical designof the actual program code for Mushroom classification. LLD describes the class diagrams with the methods and relations between classes and program specs. It describes the modules so that the programmer can directly code the program from the document.

1.2. Scope

Low-level design (LLD) is a component-level design process that follows a step-by step refinement process. This process can be used for designing data structures, required software architecture, source code and ultimately, performance algorithms. Overall, the data organization may be defined during requirement analysis and then refined during datadesign work.

1.3 AIM:

The goal of this project was to create a machine learning model that can accurately classifymushrooms as either edible or poisonous based on their images. This is a critical task in mushroom foraging and consumption, as some mushrooms can be extremely dangerous if ingested.

1.1 Constraints

We will only be selecting a few of the mushrooms

1.2 Risks

Document specific risks that have been identified or that should be considered.

1.3 Out of Scope

Delineate specific activities, capabilities, and items that are out of scope for the project.

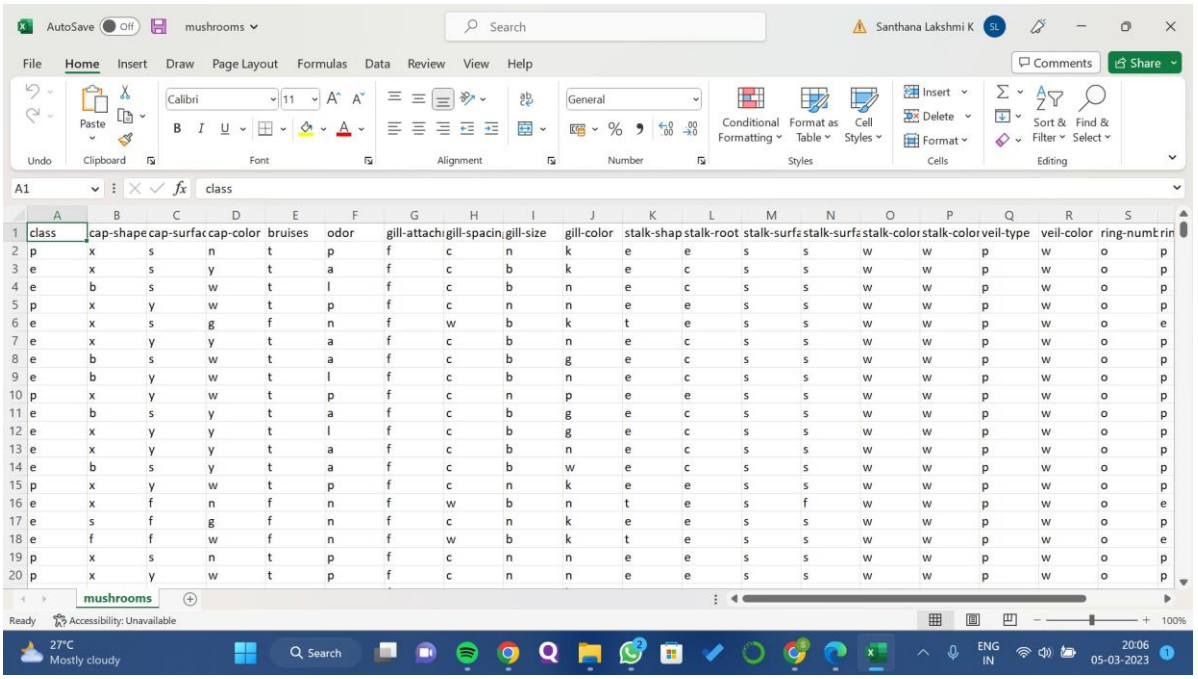
Technical specifications

2.1 Dataset

Mushroom dataset is the biggest publicly available dataset. This dataset contains 8314 rows and 23 columns.

2.1.1 Mushroom classification dataset overview

The dataset contains columns cap,cap-shape,cap-surface,cap-color,bruises,odor,gill-attach,gill-spaic etc.



2.2 Predicting Mushrooms.

- The incoming data is tested and validated depending on previous training.
- The system should be able to predict whether the given mushroom is edibleor poisonous.

2.3 Database

System needs to store every request into the database and we need to store it in such away that it is easy to retrain the model as well.

The system stores each and every data given by the user or received on request to thedatabase. Database you can choose your own choice whether MongoDB/ MySQL.

2.4 Deployment

1. AWS

Technology stack

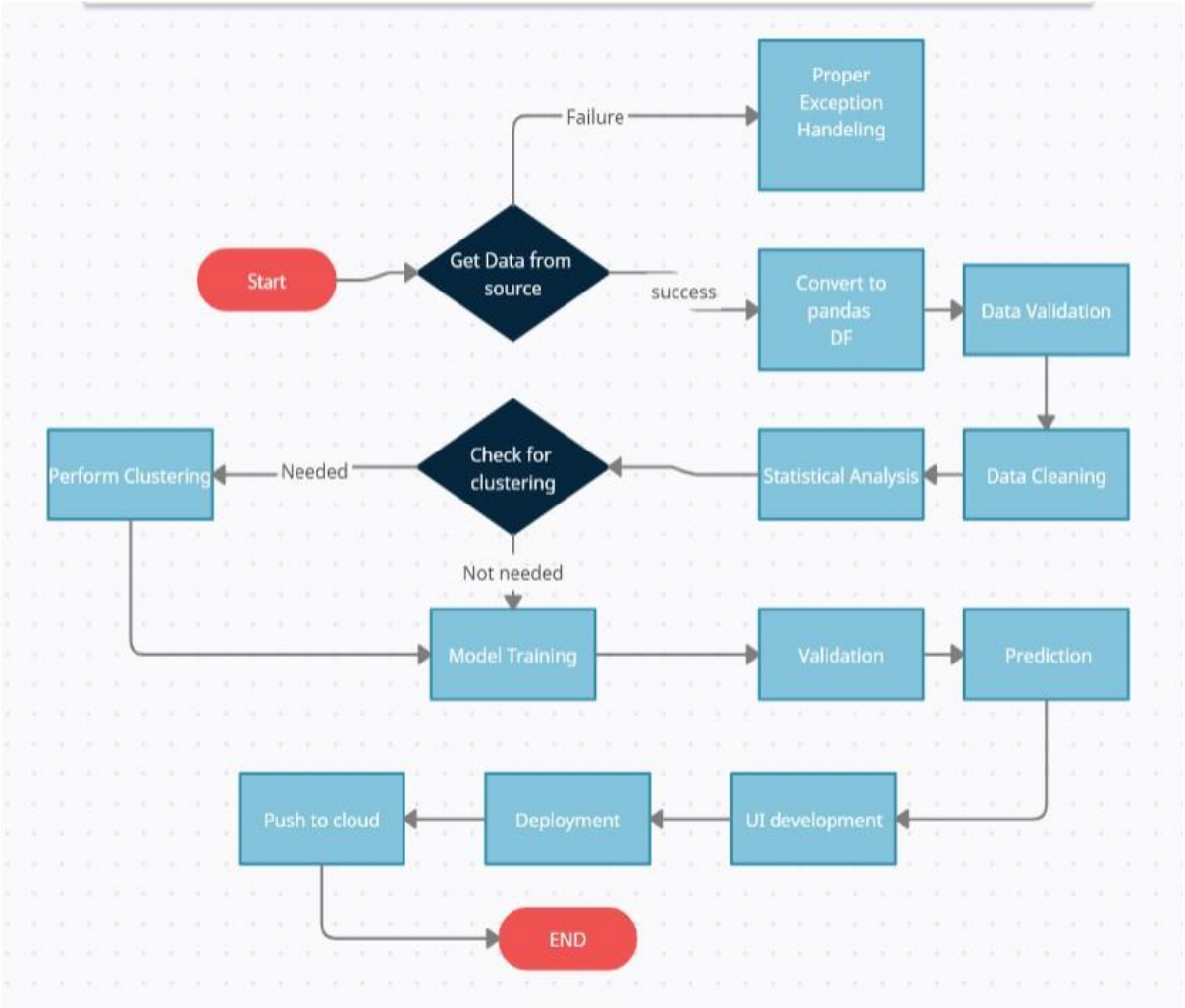
Front End	HTML/CSS/JSth/React
Backend	Python Django
Database	MongoDB/MySql
Deployment	AWS

Proposed Solution

Based on the dataset, predict the future then we might want to consider using SVM. However, drawing a baseline in the form of some Machine Learning algorithm would be helpful. Why make a baseline model important? Well, to compare the performance of our actual model, let say SVM in this case, is very important to ascertain that we are in the rightdirection as if performance of SVM is not better than the baseline model then there is no point of using SVM.

1. Baseline Model: Logistic Regression, since this is a classification problem.
2. Actual model: SVM.

Model training/validation workflow



ARCHITECTURE DIAGRAM: