

# Project Proposal: Mushroom Classification Based on Poisonousness

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## 1. Introduction

Mushrooms are diverse organisms found in various ecosystems, with some species being edible, others medicinal, and many poisonous. Identifying poisonous mushrooms is crucial for avoiding potentially fatal health risks. This project aims to develop a machine learning (ML) model capable of classifying mushrooms based on their poisonousness, thereby assisting users in distinguishing between safe and harmful varieties. The model will be trained using the UCI Mushroom Dataset, which provides a structured set of mushroom characteristics and classifications, or image data if needed. Such a tool is especially valuable for outdoor enthusiasts, foragers, and educators in mycology, providing a user-friendly, accessible way to improve mushroom safety.

## 2. Problem Statement

The inability to accurately identify poisonous mushrooms can lead to severe health issues, including poisoning, organ failure, and even death. While mushroom identification often requires expert knowledge, an AI-powered tool can empower non-experts by providing reliable classifications based on structured mushroom data or images. This project seeks to bridge the knowledge gap by offering a practical, accessible solution that reduces the risk of accidental poisoning due to incorrect mushroom identification.

## 3. Goals

- **Develop a machine learning model** that accurately classifies mushrooms as poisonous or non-poisonous using the UCI Mushroom Dataset or images.
- **Integrate the model into a web application** to make it easily accessible for users in real-time settings, such as during outdoor activities.
- **Evaluate the model's reliability and accuracy** using structured data or image inputs to ensure it performs well across various conditions and use cases.

## 4. Related Work

- <https://www.jcbi.org/index.php/Main/article/view/726/583>
- [https://link.springer.com/chapter/10.1007/978-981-32-9088-4\\_17](https://link.springer.com/chapter/10.1007/978-981-32-9088-4_17)