SECB3203-01 (PROGRAMMING FOR BIOINFORMATIC)

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Section 01

Story

Faculty of Computing

Dataset:
https://www.kaggle.com/datasets/uciml/mushroom-classification

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Mushrooms are interesting things that you can find in the forest and even near where people live. People like to eat mushrooms as food. A lot of them are very bad for you. The World Health Organization says that people getting sick from eating mushrooms happens a lot. In fact over the 18 years there have been 133,700 reported cases of people being exposed to mushrooms all around the world which is about 7,428 cases every year. Mushrooms can be dangerous and mushroom poisoning is a big problem that the World Health Organization is concerned about. These numbers show that it's common for mushroom poisoning to occur, concerning the society.

When people buy mushrooms at the store they do not have to worry about safety concerns because it is known that these mushrooms are safe to eat. For people who are just starting to spend time outdoors picking mushrooms can be very dangerous especially in areas with forests where you can find a lot of mushrooms on the ground, on trees and on dead plants. If someone is in an emergency and cannot find food, wild mushrooms can be served as survival food. Many mushrooms look safe to eat. In fact, they are not. For example, the Death Cap Mushroom, also called the Amanita phalloides. This mushroom looks like the one in the store but it is really poisonous.

Therefore, we have a promising solution to solve this problem using bioinformatics and computer science. When we talk about mushroom classification we have some categories that tell us about the biological attributes of mushrooms. These attributes including shape and color of the mushroom cap, gill attachment, odor, and the habitat. The dataset retrieved from Kaggle which is open to the public for research. However, the dataset is not fully used to analyze how the attributes differ in edible and poisonous mushroom. We are talking about mushroom classification and how it can help us understand the difference between mushrooms and poisonous mushrooms.

Figure 1.0: The Death Cap mushroom

So this thing includes two important steps:

1. Exploratory Data Analysis (EDA): A precise analysis of the characteristics of the features for understanding the dominant traits separating edible mushrooms from poisonous mushrooms.
2. Machine Learning Classification: Developing predictive models based on these variables in order to distinguish between poisonous and edible mushrooms.

This system can be used by people who're new to hiking and camping or visiting forests. It will help them learn about what makes a mushroom to eat and what does not. The system will teach them how to observe the mushroom before picking them

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