



Hogwarts Sorting Hat

A Machine Learning Approach

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Introduction

The aim of this project was to build a machine-learning-powered Harry Potter's Sorting Hat that could predict the Hogwarts House the student belongs to based on given features.

Data Set

The dataset consisted of 15 features which were- Hogwarts House, First Name, Last Name, Birth Date, Best Hand, Arithmancy Astronomy, Herbology, Defense Against the Dark Arts, Divination, Muggle Studies, Ancient Runes, History of Magic, Transfiguration, Potions, Care of Magical Creatures, Charms, Flying.

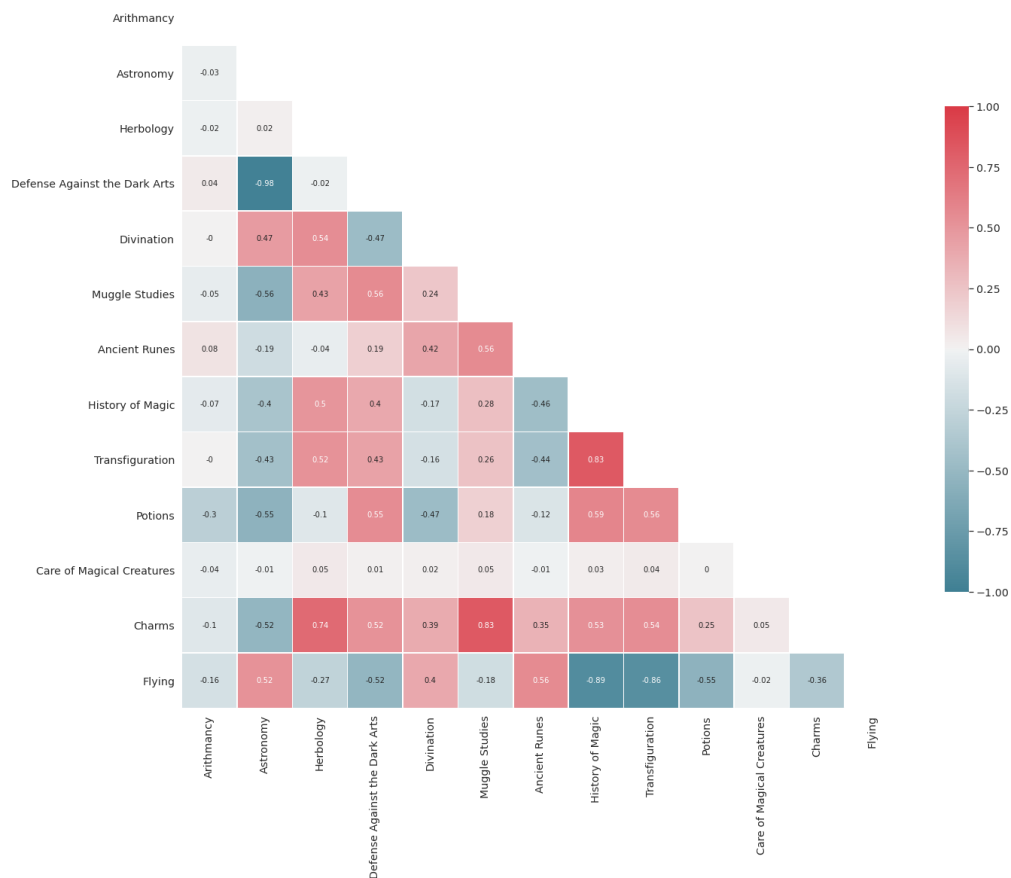
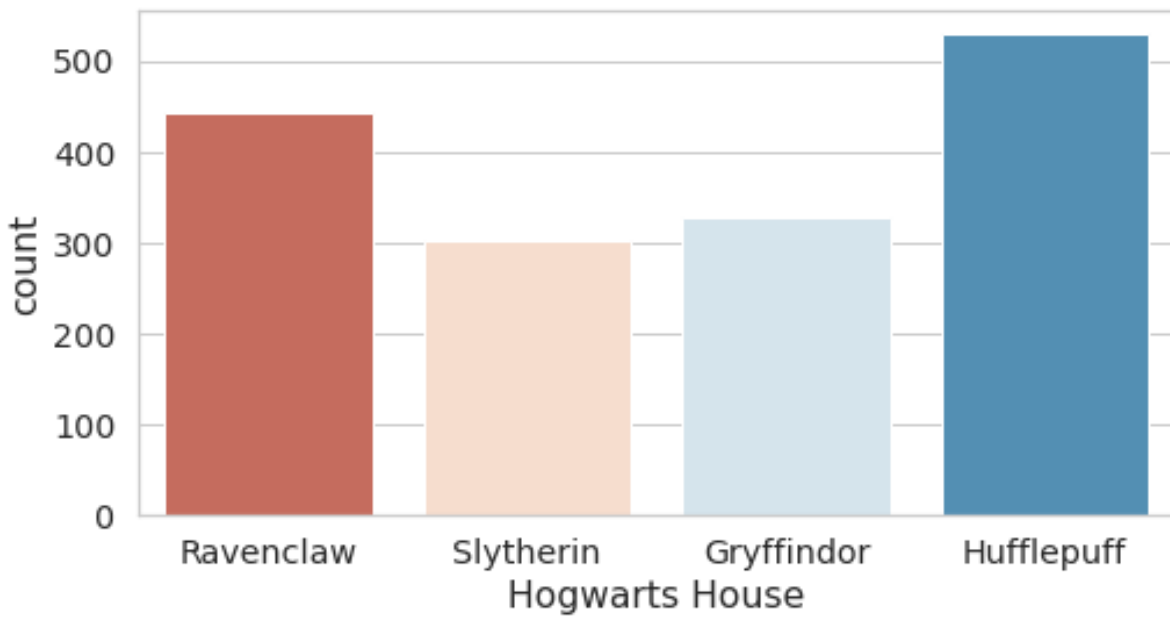
Approach

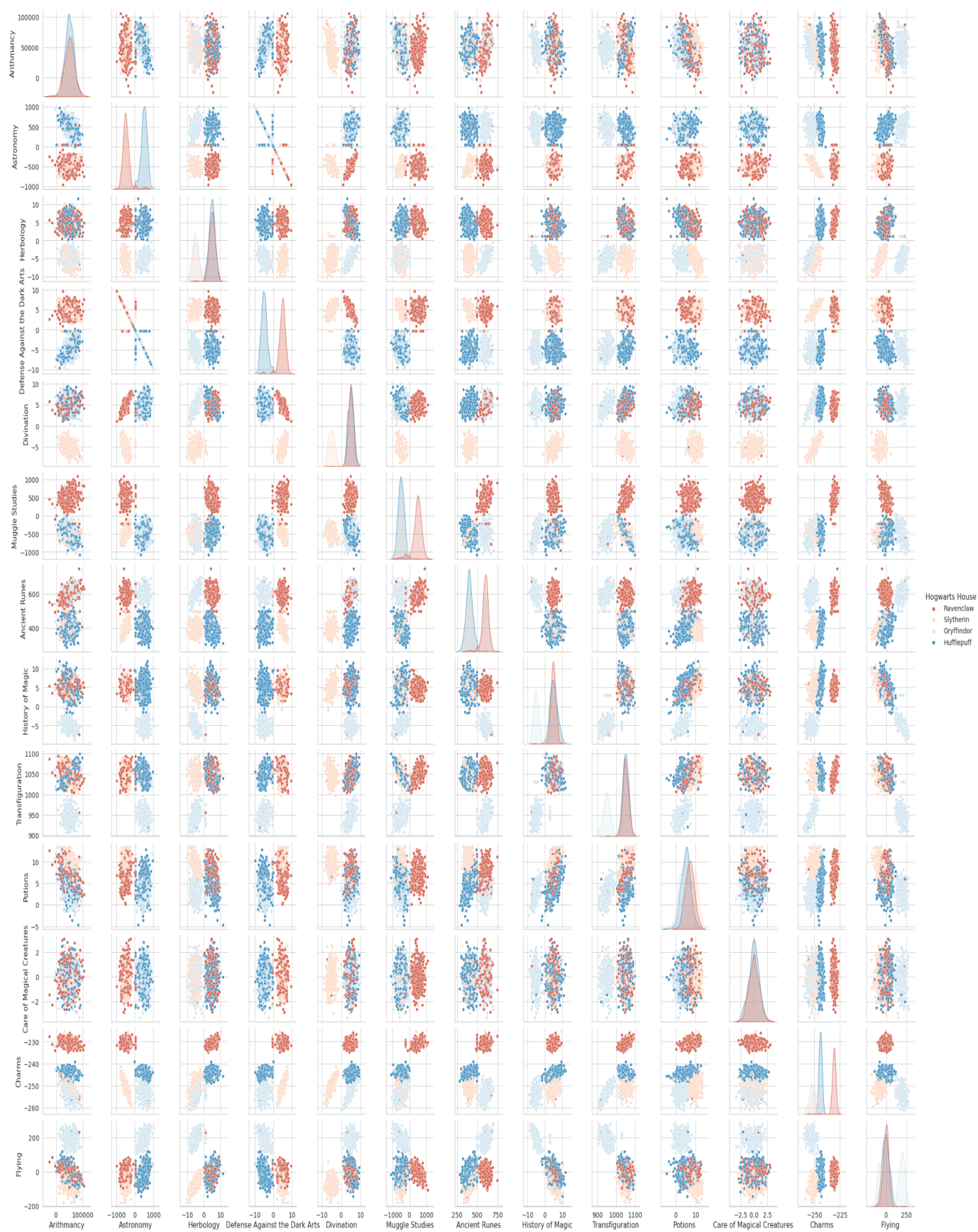
The approach used was as follows:

- *Exploratory Data Analysis*: Conducted to understand the structure of the data, distribution of variables, and feature correlation.
- *Data Cleaning, Pre-processing*: Missing data was handled, nominal and ordinal features were encoded.
- *Analysis and Modelling*: Several machine learning models were implemented on the data and the accuracy rates of diagnosis were compared.

This report will detail each step of this process, and examine the final results.

Exploratory Data Analysis

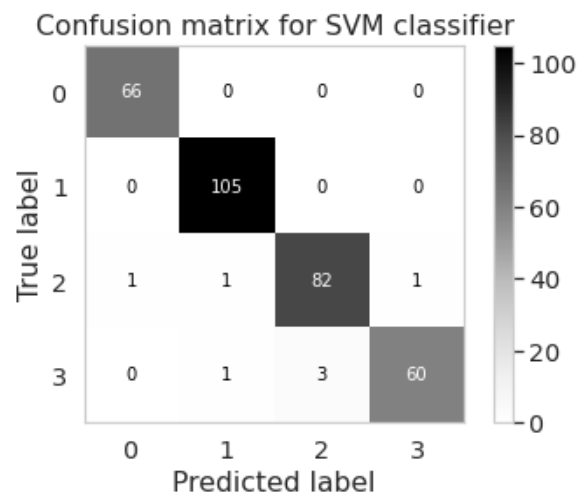




Multi-classification models:

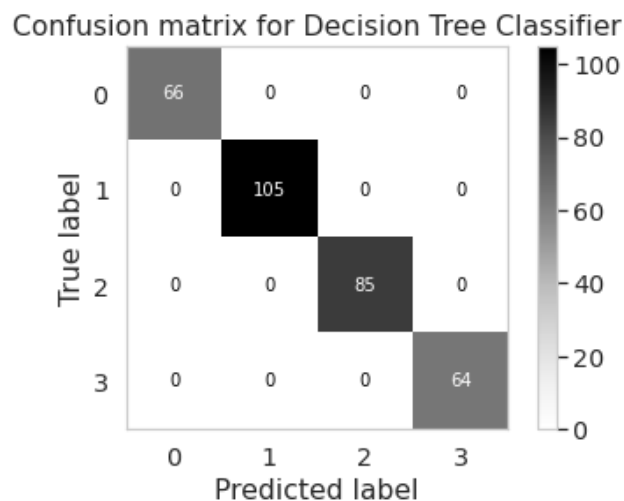
1. Support Vector Machine Classifier Model

Accuracy: 97.8125 %



2. Decision Tree Classifier Model

Accuracy: 100%



3. KNN Classifier Model

Accuracy: 80.625%

