

## CS250 - ARTIFICIAL INTELLIGENCE LAB

### ASSIGNMENT-1: Exploratory Data Analysis(EDA)

**Date:** January 10, 2024

**Total Credit:** 10

- Markings will be based on the correctness and soundness of the outputs.
- Marks will be deducted in case of plagiarism.
- Proper indentation and appropriate comments are mandatory.
- *All code needs to be submitted in '.py' format.* Even if you code it in '.IPYNB' format, download it in '.py' format and then submit
- You should zip all the required files and name the zip file as:
  - <roll\_no>\_assignment\_<#>.zip, eg. 1501cs11\_assignment\_01.zip.

#### Problem Statement:

Problem Statement: Conduct an exploratory data analysis (EDA) on a wine dataset to uncover meaningful insights and patterns. Explore key attributes such as alcohol content, acidity levels, and phenolic compounds to understand their distribution and relationships. Identify trends, outliers, and potential factors influencing wine quality, providing valuable information for wine enthusiasts, producers, and connoisseurs.

1. Download Wine Dataset
2. You need to perform Data Exploration Analysis (EDA) over the above data:
  - 2.1 Balanced or imbalanced classes?
  - 2.2 Checking missing values
  - 2.3 Features correlation: is features selection or reduction necessary?
  - 2.4 Feature Scaling

**Dataset:**

```
#get the wine dataset from sklearn and take a look at the description provided  
from sklearn import datasets  
wine = datasets.load_wine()  
print(wine.DESCR)
```

**Note:** Code should be written from scratch and existing tools can not be used

**For any queries regarding this assignment, contact:**

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