50% marks for app and 50% for the report
You may experience the difficulty in implementing in python because it is designed to be implemented in R

Data - because you program may run for a long time, purpose is how to interactively show your client how it works

Group coursework 1 [25%]

Report - writing and presentation, clear logic of discussion, interpretation of plots, high resolution of plots

Task

submit - script, data and report

Design and develop your own **Shiny app** to visualise **tree-based methods**. The purpose of the app is to explain to clients with little or no machine learning background:

- how tree-based methods work; and
- the key conclusions from your data analysis.

- feature selection methods to downsize on features
- random sampling method to reduce number of rows

Your app should therefore be clear, interactive, and accessible to a non-technical audience.

what is the input and output with explanations

stratified sampling method to down sample

Dataset Requirements

1. You may use **any dataset of your choice**. However, for illustration purposes, the dataset must contain:
   - fewer than 500 observations; and
   - fewer than 50 features.

   If you select a larger dataset, you must **down-sample** it to satisfy these criteria.
2. You are **not allowed** to use existing Python or R libraries that provide pre-built Shiny apps for visualising tree-based methods developed by other authors.

   You must design and implement your own app interface and visualisations.

Report Requirement

In addition to the app, you must submit a written report (maximum **1000 words**) that includes:

1. A clear description of the dataset and its task.
2. A discussion of your analysis and the main findings.

If your report exceeds the word limit by more than **10%**, a penalty will be applied.

Submission Requirements

- Please upload the following:

  1. your Python/R Shiny script,
  2. the dataset, and
  3. your report in **one single PDF file**.

  Please also state the **total word count** on the front page of your report.

- Ensure that your code contains **sufficient comments** to make it **readable** to others.

  There should be **no error messages** when your scripts are executed.

Assessment Criteria

This coursework will be assessed based on:

- the quality of the app (e.g., clarity of layout, user-friendliness, and how clearly the tree-based methods are explained through the app); and
- the quality of the report (e.g., presentation, writing, and the quality of the plots).