FIT5230 Malicious AI

Week 2 Lab: Introduction to Google Colab & AI Library

Objectives

This week's lab objectives are:

- To explore the **usage** of Google Colab
- To gain **hands-on** experience in machine learning by implementing simple regression and classification models while leveraging existing libraries, expose students to how these techniques can be applied on actual datasets.

Please refer to this Colab FIT5230 Week 2: Intro to Google Colab & ML - 2024 -lab and **make a copy** to your own Drive.

Task 1: Getting Started with Google Colab

Task 1 aims to get with started with Google Colab with some common functions and operations, such as:

- Mounting with Google Drive locally
- Using Google Colab with Github
- Executing shell commands
- Data Visualization

Task 2: Introduction to Machine Learning - Linear Regression

To give you a good idea of the fundamentals of machine learning, we will explore the widely used statistical technique, Linear Regression. The tasks include:

- Formulating Linear Regression manually
- Implementing Linear Regression using the Scikit-Learn library

Advanced Task 3: Introduction to Machine Learning - MNist Digit Classification

In this activity, we will demonstrate how to use Scikit-Learn to recognize images of handwritten digits (0-9) from the MNist Digit dataset. The tasks include:

- Simple image pre-processing to prepare images to train a classifier
- Implementing Support Vector Classification

- Exploring Classification report and Confusion matrix