COMP 6721 Applied Artificial Intelligence

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Introduction

This project includes several files, and the files are listed below:

- Python Code
- Dataset
- Project Report
- Read Me
- Originality Form

The Python code folder includes the codes for all the data preprocessing, analysis, and data visualization code. Inside the folder, there are two executable python scripts. The data_analysis.py file holds the Python script for the data cleaning and augmentation. The visualization.py script holds the codes for the data visualization task.

In the dataset folder, there is a file named dataset.txt, which will explain the sources of the dataset and the link to our finalized dataset. Along with this file, there is a folder named Data, which has a demo dataset where you can find 10 representative images from each class of our dataset.

The Report.pdf file is the main project report, which includes all the implementation details, results, explanations, tables, figures, and references of our project.

The ReadMe.txt file will explain the purpose of each of the deliverables in the submission folder. It will also explain the procedure to run the codes.

The Originality form folder holds all the signed originality contracts from each of the team members.

Code Execution

This section will explain everything about executing the Python scripts used in this project. Follow the steps below to execute the provided codes successfully.

Recommended Modules

This program has the following system and library requirements:

- Windows/Linux operating system
- Any standard IDE (VS Code, PyCharm etc.)
- Python 3.7 or above
- numpy
- matplotlib
- Scikitlearn
- OpenCV

Installation

If you need to install python in your system, please visit this site. For installing the standard Python libraries, please visit this site.

Procedure

Data Cleaning

To run the Python scripts of the data cleaning and analysis part, please open the file named data_analysis.py in your IDE. Then, you will see that the code is divided into different parts for different operations. Keep the useful imports part and the part of the code related to your desired operation, and comment on the rest of the code. In this way, for each operation you want to perform, just keep the imports and corresponding code uncommented and comment out everything else, and then just run the code. Please make sure to modify the data source according to your specified folder where mentioned.

Data Visualization

For the Python script on data visualization please just open the visualization.py script in your IDE, then modify the data source and run the file. You will get the desired results.