README Document

The purpose of this document is to provide technical details of the project. It consists of the following sections:

- Dataset Information
    - Dataset Organisation
    - Class Information
- Folder Hierarchy
- Recommended IDE
- Resources

Dataset Information

The dataset we are working on for this project is the Spoken Digits dataset.

Size	26 MB
Dataset Characteristics:	Audio
Attribute Characteristics:	Raw audio signal at fixed time intervals
Associated Tasks:	Classification
Number of Instances:	3000
Number of Attributes:	Variable length feature vector per sample
Missing Values?	N/A
Number of Classes (for classification)	10
Area:	Audio
Additional Details:	N/A

The audio of spoken digits is in `.wav` format at 8kHz. 6 speakers (namely, A-F) contribute to the dataset, which in total contains 3,000 recordings (each speaker has 50 recordings per digit).

Dataset Organisation

data/

- 0_A_0.wav
- 0_A_1.wav
- …

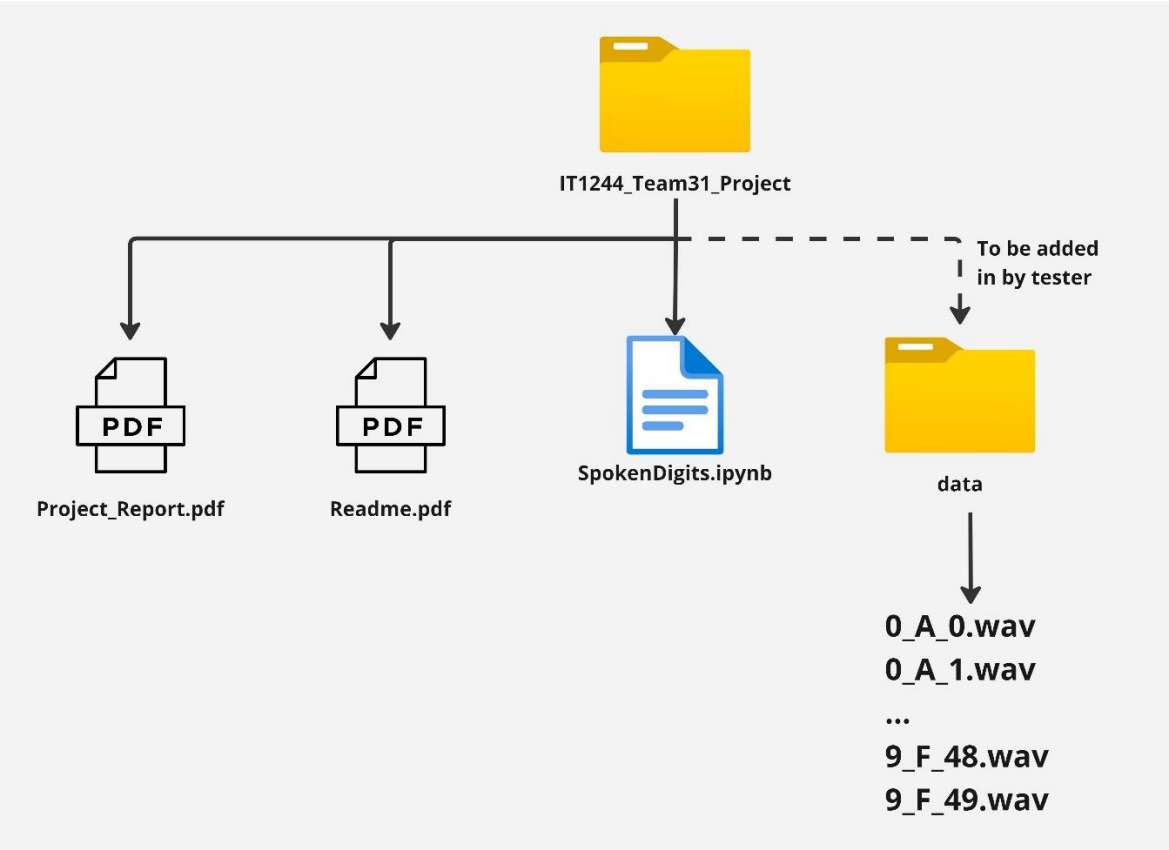
Class Information

The digits 0-9 are evenly distributed in the dataset, so each digit has 300 recordings.

Folder Hierarchy

The following diagram shows the folder hierarchy we used for this project. It has to be adhered to strictly or else the code might not run.

Do note that the dataset is not contained in the submission folder and has to be added in by the tester before running the ipynb file. Refer to the diagram below on where the dataset folder should be inserted and the naming for the dataset folder.



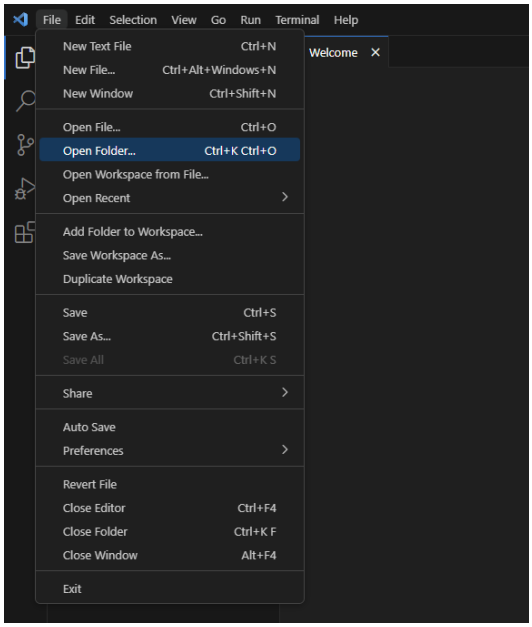
Recommended IDE

The IDE we are using for our project is VS code with Python and Jupyter Extension. We did not use Google Colab as some of our models and hyperparameter tuning frameworks used are resource-intensive. So running the code locally would be much faster. Essentially, the following things are needed:

- Python
- VS code
- Jupyter Extension in VS code
- Python Extension in VS code

If any of these are missing, please refer to the next section where there are links to detailed guides on setting up Jupyter on VS code.

Once everything is set up, open VS code and open the project folder “IT1244_Team31_Project” inside VS code (Refer to the screenshot below). Click on the ipynb file in the left pane and start running the code.



Resources

https://www.youtube.com/watch?v=h1sAzPojKMg

https://code.visualstudio.com/docs/datascience/jupyter-notebooks