Audio Machine Learning

Summative Assessment 1: Machine Learning Challenge

The summative assessment consists of two Python Notebooks, which you should complete and submit. The Notebooks are released on Learn within the ".zip" file this handout was contained in. The two Notebooks, called "Part-1.ipynb" and "Part-2.ipynb", describe the summative assessment.

Note that for "Part-2.ipynb" you are required to download a dataset. The instructions for doing this are provided in the Notebook. Please don't hesistate to ask if you have any trouble downloading this dataset. I recommend you do this before beginning work on the assignment.

Completing the Assignment in Noteable

You can upload these Notebooks to the Noteable service, where you can follow the instructions within the Notebooks to complete the assignment. When using Noteable for this assignment, be sure to select the "Language and Machine Learning" Notebook server.

Completing the Assignment locally on your computer

You may wish to complete the assignment locally on your own computer, instead of using the Noteable service. That is completely fine, but you should ensure that the Python environment you use to complete the assignment has the same versions of the libraries used in the assignment as the "Language and Machine Learning" Notebook server. If you are unsure, you can upload your assignment to Noteable after completing it to make sure it still runs properly in the "Language and Machine Learning" Notebook server.

Assessment

Each Notebook contains a number of "Assessed Sections" which are clearly marked. The cells contained within the "Assessed Sections" will be graded and will form your complete mark.

Remember that you will be marked both on correctly implementing the instructions, as well as overall clarity of your code. You should include comments explaining what each line or section of your code is doing, and you should give variables clear and meaningful names. (For example, a variable called "great_variable123" is not a clear and meaningful name. If a variable that holds your training dataset is called "train_dataset", then that is an example of a clear and meaningful variable name). In general, you should aim to make it so that someone else reading your code will be able to understand what it is doing.

Please attempt to complete all sections of the Notebook, even if you get stuck on an earlier section. On each section you will be assessed on whether you followed the instructions in that section correctly. Errors in previous sections won't be considered, so it is worth attempting every section.

Submission Details

Your submission should consist of one ZIP file with a name of the form "AML_MLC_ExamNumber.zip", completed with your Exam Number. This ZIP file should contain a folder which contains the two completed Python Notebooks, named as "Part_1_ExamNumber.ipynb" and "Part_2_ExamNumber.ipynb".

Assessment Criteria

The assessed sections of the Notebooks will be marked according to the following criteria:

- Correctness, Efficiency, and Errors [UG:45%, PG:39%]: Have you completed the tasks correctly, and as instructed? Have you avoided unnecessary computation? Is your coding efficient? Do all the Notebook cells run without producing errors? Have you avoided for-loops where possible, by, for example, using broadcasting and vectorised operations?

- Organisation, Comments, and Readability [UG:20%, PG:19%]: Is the code well organised and readable? Do you have comments throughout explaining what your code is doing? Are any plots created labelled properly? Are variables given clear and easy to understand names?

- Filenames [UG:2%, PG:2%]: Did you submit your Notebook files with the correct names, as instructed?

Getting a Higher Mark

The total marks available from the above criteria sum to 67 for Undergraduate students and 60 for Postgraduate students. At the end of each Notebook there are some suggestions for "Further Work" which you are free to explore and implement to demonstrate the required level for a higher mark. You should implement these at the end of the Notebook after the "Further Work" section.