PROJECT DELIVERABLE 2

Due: February 20th, 2019

Over the course of MAIS202, you will be completing a machine learning based project from a dataset of your choice for the final project. At the end, you will have the option to either:

1. *Demo your project by integration it in a webapp (or something more advanced) or*
2. *Present your work as a academic project through a poster.*

McGill AI Society will be hosting a science fair where you will be showcasing your work! It will be awesome!

For both cases, you will end the project by writing a blog post about it,

Submission

This is an individual deliverable. All deliverables should be electronically submitted on Github and completed with the same academic integrity and standards expected at McGill University. Include appropriate citations. Submit both your *well-documented* code and report.

Deliverable Description

In this deliverable, you will discuss your progress and report your preliminary results. Be precise in your explanation and report. If you discussed your approach with other students, you should honor them in your report.

1. Problem statement

Restate the initial project that you proposed in deliverable one in 2 - 3 sentences. Be sure to refer back to this problem statement in the following questions.

2. Data Preprocessing

Confirm the dataset you are working with. State any changes from the initial dataset you chose. Discuss the content of the dataset (number of samples, labels, etc). Describe and justify your data preprocessing methods, and how you designed and selected your features.

3. Machine learning model

In the first deliverable, you proposed a model for your project. If you decided to change your model, explain why. Estate your chosen model and elaborate on the design decisions.

Report the following:

- Discuss the framework and tools that you used for your model. Explain your choice. Provide architecture graphs as appropriate.
- Justify any decision about training/validation/test splits, regularization techniques, optimization tricks, setting hyper-parameters, etc.
- Description of validation methods (is your model overfitting / underfitting?)

Did you face any challenge implementing the model. If so, how did you solve it?

At this point, don't forget to save your trained weights! You will need them for the integration and/or testing your model!

4. Preliminary results

In this section, you will focus on the performance of your model. Present a detailed analysis of your results, provide graphs as appropriate. Analysis requirements defer in every field, but reporting the following is mandatory for everyone:

- Confusion matrix, accuracy and precision.
- Evaluation of performance and interpretation.
- Discussion of the feasibility of the project with these results.

Remember, graphs are beautiful and we love them!

5. Next steps

Discuss your next steps. Keep in mind that the final deliverable is due on *March 27th, 2019*.

Describe the pros/cons of your approach, and future work. Will you be altering your model? For example, will you be fine-tuning it? At this point, if you think that your model is not performing well and/or does not work, please reach out to an exec to see what you can do to improve it.