**Structure for Project Report and Presentation**

1. **Title:** what is your paper about? Who is in your project group?
2. **Abstract:** (in report only, not necessary in presentation): The abstract should be a 4-8 sentence paragraph that clearly (but concisely) describes your main research questions, the type of data you have, and your primary findings.
3. **Introduction:** Just like in your project proposal, you should clearly state your primary research question. Build a case for why your research question is important. Don’t assume that “it’s obvious”. Explain why your question is relevant and what the implications might be if you find an association. Make citations where appropriate.
4. **Data:** State where your data came from and how it was collected. What are the cases and variables in your data set? Include any information/definitions which helps establish the context of your data.
5. **Exploratory Data Analysis:** Show the distributions (and/or summary statistics) of your most important variables. Show some bivariate graphs relevant to your questions. Describe what your graphs are telling you.
6. **Models:**

When building models, you should do the following:

1. Build at least two models. One model is easier to interpret. The other one is better at prediction.
2. Use cross-validation to for model selection and hyperparameter tuning. Evaluate the final model on the test dataset.
3. Check model conditions when possible. For example, in linear regression, check the L.I.N.E. conditions and collinearity.
4. Interpret the results such as coefficients, significance, variable importance, etc.

Report the results of your models (summary of the models, relevant graphs, performance metrics, etc.) Tell us how you arrived at your final model: how you selected/transformed features, how you carried out cross-validation, what hyperparameters you have tuned (if any), how you compared your final model with other models (e.g. performance metrics). Tell us whether the conditions of the models have met if applicable (part iii above) and the interpretations from your models (part iv above). Make sure to interpret the results in context.

1. **Discussion/conclusion:** Answer your research question as best as you can based on your analysis so far. It’s a good idea to start the discussion section with “We found that….”. You should only interpret models that are described in the models section. Describe the big picture of your analysis and conclusions, and explain what you can and can’t tell about your data. Do your results confirm or contradict previous studies or beliefs that you hold? Discuss any problems encountered in your analysis. What are the limitations of your study? Are there any new questions raised by your study? Are there any other variables you would have liked to have obtained?
2. **References:** Attach a bibliography of the articles that you have cited and the data sources that you used.

**Additional guidelines**

Proof read your report. Make sure the tone is formal. For example, say “We sought to determine if sleeping habits are associated with study habits” not “We thought it might be interesting to look at sleep and study habits to see if there is an association”.