Instructions for final project

Below are guidelines on how to write-up your report for the final project and prepare the associated presentation. Not all of the comments will be relevant to every project. Still, as much as possible please follow these general guidelines when structuring your report.

Due dates: presentations in class on **Dec 8**, report due **Dec 15,** one person can upload the pdf for each team.

Grading: 40pt presentation, **60pt** report

A. PRESENTATION

We have 16 teams in 2 parallel tracks (purple: zoom link 1, blue: zoom link 2, red: different time zone arranged individually) :

1	Real estate price prediction	Nasser Al-Rayes,Corrina (Yang) Gao,Neeraj Joshi
2	Finance forecasting	Hongxu Hao, Yafu Ruan, Yuyue Zhou
3	Latent space models for neural populations	Pedro Herrero Vidal
4	Olfactory navigation in fruit flies	Hannah Gattuso (hcg255), Gabriella Hurtado (gh1408), Param Shah (prs392)
5	Transportation in covid times	Emmy Phung (mtp363), Cora Hyun Jung (hj1399), Sujeong Cha (sjc433)
6	Forecasting w optimal transport	Daeyoung Kim
7	Detecting commands in speech	Tong Li, Bella Lyu, Sumedha Rai
8	Bike share data analysis and prediction	Gaomin Wu(gw1107) Tongxin Xu(tx557) Chutang Luo(cl5293)
9	Spoken digits recognition	Youpeng Gu (yg2148) Eric Spector (ejs618) Adrian Pearl (ap3465
10	Box-Jenkins method for commodity prices	Jonas Peeters Nathan Griffin
11	Forecasting Wikipedia Web Traffic	Neeraj Yadav
12	Automatic Speech Recognition	Fan Yang (fy2019),Yanbing Wang (yw2115), Mingdi Zheng(mz2698)

13	Stock Prediction Integrating Tweets	Alex Ye (sy1880),Colin Wan (kw2815),Melody Yin (yy1932)
14	Item sales prediction	Shengshi Yuan, Xinyi Tan,
15	VoxCeleb Dataset Exploration And Audio Analysis	Chaojie Zhang
16	Real Estate Price Prediction	Chengyu Chen, Yupei Zhou

This means a strict **12 min limit for each team**, including questions and swaps — the actual talk should be not longer than **<u>10min</u>**. The timing will be strictly enforced. Each person in the team should contribute to part of presentation. For a traditional project this would likely involve 4-5 slides: 1) problem formulation 2) Key idea for the solution 3) brief description main result and 4) conclusions. Focus on the big picture: why was the problem interesting, what have you learned in the process.

Keep things visual if possible, do not overcrowd slides with text, **practice** to make sure that you can say what you need in the allocated time.

Some tutorials for delivering effective short presentations here:

https://www.youtube.com/watch?v=dBhUaghf2Ek

http://blogs.nature.com/naturejobs/2015/06/04/public-speaking-the-elevator-pitch/

https://www.youtube.com/watch?v=dBhUaghf2Ek

B. REPORT STRUCTURE

1 Introduction

Motivate and abstractly describe the problem you are solving and how you are addressing it. What is the problem? Why is it important? What is your basic approach? A short discussion of how it fits into related work in the area is also desirable. Summarize the basic results and conclusions that you will present.

2 Related work

This section is optional. If in working on your project you came across other papers tackling the same or a similar problem, cite and describe the related work: What is their problem and method? How is your problem and method different? Why might your approach be better? How does your work fit in the bigger picture? Alternatively, some of these points could be included in the intro and/or discussion.

3 Problem definition and algorithms
3.1 Task

Precisely define the problem you are addressing (e.g. formally specify the inputs and outputs).

3.2 Algorithm

Describe in reasonable detail the algorithm(s) you are using to address this problem. A pseudocode description of the algorithm(s) you are using is frequently useful. Trace through a concrete example, showing how your algorithm processes this example. The example should be complex enough to illustrate all of the important aspects of the problem but simple enough to be easily understood. An intuitively meaningful example is better than one with meaningless symbols.

Your description of the algorithm should include what assumptions if any you are making about the data, and also what parameters or design choices need to be made (the consequences of these choices should then be explored in detail in the experimental evaluation).

4 Experimental evaluation
4.1 Data Describe the data sets that you use in your experimental evaluation. Any data preprocessing should also be described here.

4.2 Methodology Describe the experimental methodology that you used. What are the criteria that you are using to evaluate your method? What specific hypotheses does your experiment test? If relevant for your project, did you do training/validate/test splits? Comparisons to competing methods that address the same problem are particularly useful, if relevant.

4.3 Results Present the quantitative results of your experiments. Graphical data presentation such as graphs and histograms are frequently better than tables. What are the basic differences revealed in the data? Are they statistically significant?

4.4 Discussion Is your hypothesis supported? What conclusions do the results support about the strengths and weaknesses of your method compared to other methods? How can the results be explained in terms of the underlying properties of the algorithm and/or the data.

5 Conclusions, future work

Briefly summarize the important results and conclusions presented in the paper. What are the most important points illustrated by your work?

If you were to continue working on the project, what are the interesting areas for future work? What are the major shortcomings of your current method? For each shortcoming, propose additions or enhancements that would help overcome it.

6 References

Be sure to include a standard properly formatted, comprehensive bibliography with citations from the text referring to previously published papers in the scientific literature, resources, or code that you utilized or referenced during your project.

7 Student contributions

Briefly say who did what. e.g. CS: implemented alg. A, CS+TK wrote report, etc

8. Formatting and page length

Use NIPS 2020 latex formatting. Aim for 6-8 pages (bibliography does not count to the page limit). Report to be submitted on nyu classes, as pdf — once per group.

Acknowledgement: This is adapted from Vibhav Gogate and Joan Bruna.