

Student Names: TODO

Collaboration Statement:

Turning in this assignment indicates you have abided by the course Collaboration Policy:

www.cs.tufts.edu/comp/136/2022s/index.html#collaboration-policy

Total hours spent: TODO

We consulted the following resources:

- TODO
- TODO
- ...

CS 136 - 2022s - Checkpoint2 Submission

These are the official instructions for checkpoint 2. You can find instructions on how to submit at www.cs.tufts.edu/comp/136/2022s/checkpoint2.html

Please consult the full project description at <https://www.cs.tufts.edu/comp/136/2022s/project.html> in addition to this document when working on this checkpoint. It gives details on what we expect.

Applying Model to Dataset

In this section, you should describe the implementation of your model from checkpoint 1. If you have chosen to implement a model that we did not cover in a Coding Practice (CP), please describe any design choices you made when implementing it. If you used code from a CP, please specify exactly which part of the code. Your implementation should be your own (do not just use an existing package), but if you build off of a CP code base, you can use the implementation you submitted for the assignment, including the starter code. If you are using a model not covered by a CP, but the starter code for a CP is useful for you, you are welcome to use it, but please describe how you have done so.

Be sure to describe any issues you ran into when applying your model/learning method to your dataset, as well as how you have addressed them. For example, did you have trouble scaling the model to run in a reasonable amount of time on your dataset? If so, what changes to either the code or dataset did you make and what was the outcome?

Please additionally submit the code for this assignment in the separate Checkpoint 2 code submission.

Section grading rubric:

- Describe how you have implemented your model (3 points)
- Describe any bottlenecks you ran into (3 points)
- Describe how you addressed bottlenecks (3 points)
- Submitted code to implement the model and generate results in the following section (10 points)

Evaluating Hypotheses from Checkpoint 1

In this section, you should describe the outcome of 3 of your hypotheses from checkpoint 1. Separately for each of your 3 hypotheses, please include the information described in the

example hypothesis section below.

Hypothesis 1 (Example)

Each hypothesis should include no more than 1/2 page of text (excluding your result).

- Briefly reiterate your hypothesis.
- Describe how you evaluated your hypothesis in 2-3 sentences. Be sure to specify your performance metric and any design choices. For example, if you computed likelihood, be sure to specify whether it is computed on a held-out test set, and if it is, how the test set was held-out (e.g. random sampling, instances with a specific property, etc.)
- Include a specific result generated by the code you submit, relating to the performance metric. This can be a graph or a table of numbers. Your graph should include a title, a legend (where applicable), and clear labels on the axes.
- Describe the behavior of the result in 1-2 sentences. This should include a description of what you see on the graph (for example, line A is higher than line B in the left half of the graph).
- Analyze the implications of the result in approximately 1 paragraph. This should link back to the specific dataset and model/learning method properties you included in your original hypothesis.
- Was your hypothesis correct? Spend 2-3 sentences reflecting on why that might be the case.

Subsection grading rubric (for each hypothesis):

- Describe implementation details of how you evaluated your hypothesis (1 point)
- Include a specific result linked to the evaluation of your hypothesis (3 points)
- Is your result coherently presented (axis labels, titles, legends etc) (1 point)
- Description of the behavior of result (2 points)
- Analysis of implication of result (3 points)
- Link back to hypothesis: why was or wasn't it right? (2 points)

Proposing an Upgrade to your Model or Learning Method

This section should be no more than 1/2 page total.

Based on your results from the previous section, describe an idea for an upgrade to your model or learning method. First, spend 2-3 sentences describing the upgrade. You should be specific about which of the 4 options your upgrade falls into (see the project description for the full list). Then, write a short list (3-4 elements at most) of the changes you will need to make to implement your upgrade (these don't need to be exhaustive, we just want to get you thinking about what needs to happen, and provide feedback on how to approach it). Finally, explain why this upgrade might address a problem found in your previous hypotheses (2-3 sentences). If you would prefer to focus on a different problem, that is also ok, but make sure to describe the problem.

This section is largely to help us provide you with feedback and resources since you will have to include a more specific description of the upgrade in the next project checkpoint. The more detail you include here, the more helpful our feedback will be. While you are only required to submit one idea, you can submit up to 3 for feedback.

Subsection grading rubric:

- Which option does your upgrade fall under (1 point)
- Briefly describe your proposed upgrade (3 points)
- Short list of implementation changes that need to be made for upgrade (2 points)
- Explain why upgrade might be helpful (3 points)