Milestone 1: discovery

a)   Provide a clear and concise formulation of the problem you're solving (this formulation will later become the abstract for your final report).

- The description should be accessible for a computer science literate reader who is not familiar with your interdisciplinary area.
- It should be clear from the description what your final product is planned to be (a program implementing a computational model, a paper describing a new algorithm, a paper describing the study of the problem with your algorithm, etc.)
- If your project relies on analyzing data, describe how you will obtain it and nature of the data source (your advisor, another Tulane affiliate, data will be handed to you, you will get open dataset online, you will generate synthetic data that mimics real data, and so on).

b)   Describe previous work of other that's relevant to your project. You should describe at least:

- The context, a sample situation or a class of situation where the problem occurs.
- The audience, who is the potential user of your software, reader of your paper.
- Need, why doing the work you do is important? What would be the positive effect of having accomplished what you plan for yourself?
- Analogous situations, if applicable: does this problem or similar problem appear in other areas of life?
- Technologies/tools/approaches. Although this is an early phase and the technicalities may appear later or change, at this point you should have an overall idea of the techniques and tools (software packages, mathematical methods) necessary for your work. Describe them.
- Other solutions/competitive landscape. Describe the existing work that has already been done to accomplish your task or similar task. If applicable, provide comparisons of your approach with those solutions.
- Novelty/uniqueness of your problem. Are you analyzing new data with existing computational method? Are you developing a new computational method to look at the existing data? There should be a novel component in your capstone project, describe it.
- Any other information that you consider relevant to this initial discovery/learning phase.

A great discovery report is well organized, clearly written, and is easy to follow; relevant and legitimate information is presented. It has good mechanics (grammar, punctuation, spelling, etc.); 11-12 point font, with standard margins and 1-1.5 spacing; filler whitespace and text are avoided. The minimum lengths for the document is 1 page of text, not including references, the maximum is 3 pages. As a general guideline for this milestone and other reports, it's better to turn in a great concise document that's a few lines short of the requirement than a long watered-down document; this short(er) document should still satisfy all other quality criteria to receive full credit.

References are optional at this point, but while you're at this step, keep track of the sources used, and consider including them in the writeup to save yourself some time later. Published sources should contain standard bibliographical info (at minimum authors, title, venue/book/journal, year, pages). Online sources should contain working links. For theoretical results, only the articles published in peer-reviewed conference and journal papers, and books, are allowed sources. For practical projects, other public sources (such as Wikipedia, StackOverflow, Reddit, TechCrunch, Wired and the like) are allowed as long as you have critically assessed them and reasonably believe them to be true.

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