Method of Approach Section

Whenever you are writing about how to complete a technical task, the steps must be clearly written so that the task may be reproduced by other researchers. The reproducibility of the research’s results may determine whether your readers accept your methodology and your project’s outcomes. In other words, if the methods and experiments in your work cannot be redone by others, exactly as you have done, and with the same results, then the conclusions of the work may appear untrustworthy. It is therefore essential that each step of your method be detailed and justified so that your work may be reproduced and confirmed by others.

The Method of Approach section in your proposal is the section where you will inform the reader about what steps are involved to complete your project. The discussion of the steps may include description of algorithms, technologies (software tools, programming languages, etc.), data sets, analyses and similar elements of research that are involved in your work. This section tends to attract the most criticism if the writing contains flaws. The readers will discredit the whole work if the Methods section appears to be inappropriate or misinformed for the project. It is therefore necessary to write your Method of Approach section clearly where each of your steps is clearly discussed to support the project.

In this assignment, you will locate and study the accessories to the method which are relevant to your own project, which may include theories, algorithms, hardware and software tools, etc. that you can use to conduct the work you are proposing. Once you have found an accessory to your method that you believe will benefit your work, be sure to make a note of the technology and then describe how this accessory will be used in your own project.

Part 1: A Survey of Tools and a Method of Approach Outline

First, spend time to determine which accessories will be relevant to your project. Be sure to ask questions about the technology’s significance to your own academic pursuit. Does some new technology make sense to use in your project? Will this tool or software be necessary for the completion of your work? Will a theoretical framing, an algorithm or a tool that you found online help you to reach your research goals? If you are using any data, how will data be collected and analyzed? Make sure you cite any data and software tool sources you describe in this section.

Once you have found the accessories that you feel will be helpful to your work, make an outline involving each one. For each accessory make sure to add another a justification for how your project will benefit from it.

Handed out: 7th April 2020
Part 2: Writing the Method of Approach Section, DUE on April 16th

Once you have a working outline for the Method of Approach section, you can follow it to fill in the text for this section. In addition to an overall description of your approach, materials, and procedures, your Method of Approach section should also describe limitations of your approach, assumptions you are making, and any possible threats to validity in your method.

You can use the assessment points below to evaluate the completeness of your Method of Approach section.

1. The Method of Approach section explains the process to be utilized in the proposed study (how the proposed work will be completed).
2. The Method of Approach section includes the description of algorithms, programming languages, platforms and software (as relevant) that will be used in the proposed project.
3. The Method of Approach section includes a discussion of limitations, assumptions and threats to validity.
4. At least one of the following is used in the Method of Approach section: technical diagram, equation, algorithm, graph.
5. The section includes introductory and concluding remarks.
6. The section follows a logical flow.
7. There are no typographical or grammatical errors in the proposal draft.
8. There is no extraneous text.

Evaluation Strategy

The Evaluation Strategy section should explain what steps you will take to evaluate your proposed method. Here you should describe what testing you will conduct to ensure your software or hardware product is correct. Also, if you intend to conduct experiments, then you must clearly define your evaluation metrics. And, if you plan to conduct user studies to evaluate your method, then you must describe the user study in detail (you can take information for this from you lab 05). Overall, evaluation takes place after the completion of the project, it assesses the quality and success of a project in reaching its objectives and presents the information collected for project outcomes.

Part 3: Evaluation Strategy Outline

As before, it might be helpful for you to create an outline for your evaluation before you start writing this section. You should choose criteria by which to evaluate your results when your work will be completed, for example, coverage, efficiency, accuracy, effectiveness, elegance, user friendliness, etc. To get ideas for appropriate evaluation metrics for your project, you can see what others in the related literature have used to assess their work. You should plan to repeat, whenever possible, these tests against competing or previous approaches.
Following our previous outline templates, in your outline for this section, each topic can be the type of evaluation, for example, automated testing, comparison study, user study, etc. Then, for each of these topics you can describe criteria as your points and provide justification for using them as your supporting evidence.

Part 4: Writing the Evaluation Strategy Section, DUE on April 23rd

Once you have a working outline for the Evaluation Strategy section, you can follow it to fill in the text for this section. You can use the assessment points below to evaluate the completeness of your Evaluation Strategy section.

1. The Evaluation Strategy section describes the process to be undertaken to validate the proposed work using applicable evaluation metrics.
2. The section includes introductory and concluding remarks.
3. The section follows a logical flow.
4. There are no typographical or grammatical errors in the proposal draft.
5. There is no extraneous text.

Part 5: Writing the Abstract, DUE on April 30th

Abstract should provide a concise summary of your proposed research and be approximately 250 words. Abstract is not an introduction, it is a summary of the entire document and it should present all the major elements of your work in a highly condensed form. In addition to serving as a preface to the thesis proposal, an abstract must be capable of substituting for the whole proposal document when there is insufficient time and space for the full text to be used.

Part 6: Writing the Conclusion, DUE on April 30th

Conclusion section should summarize the proposed research and discuss its possible impact. You should also indicate open issues and directions for further or future work in this area.

Submission

All sections of the proposal must be submitted via your project repository in GitHub. A PDF of the completed proposal must be released to be fully considered for grading.

Help?

Please let the instructor know of any questions that you may have. Please use email, Slack or make office-hour appointment slots if you would like to discuss an issue.