Welcome to the third milestone of your project. Now that you've completed the planning for your analysis, it's time for you to do the analysis itself. This portion of the project should be more straightforward and similar to the types of GIS work you've been doing in the rest of the specialization.

Your primary objective in this milestone is purely to do all of your data processing. Once this milestone is complete, you'll want to only have mapping and interpretation of your results left. So, this phase is for you to do all of your data analysis to answer the questions in your research proposal. What that involves is up to you.

When you have completed your data analysis, you should add any appropriate metadata to your final dataset, once again making sure to include:

- any data sources and where you got them from, along with the date you retrieved them
- a summary of your analysis steps
- what the final data *means* - interpret it for the reader
- information detailing the names and meanings of any fields your analysis created in the attribute table that mean something for your final results.
- your name and date analysis was completed
- any other relevant information that would be required for someone to use your dataset or to reproduce the results

The report

You will also write up a document detailing your analysis work and the approach you took. This document will overlap significantly with your metadata - feel free to write it once and copy/paste it into your metadata. The document will have two sections, a section describing the methods you used to generate your results and a section for your results and your interpretation of those results. Each of these should be a minimum of 100 words. There is no maximum length - make sure to describe your project appropriately.

The methods section should include an overview of your approach (such as if there is a specific name for a technique you used and what you were trying to accomplish), and the detailed processing steps you took to complete your analysis. You don't need to specify specific tools (eg: "used the Clip tool to cut polygon A using polygon B"). Instead specify operations you did (eg: "clipped polygon A using polygon B") so that the concepts of your analysis are explained.

The results and analysis section should include some sort of summary of the results of your data, whether as a brief data table, or as a numbers written into your text (eg: "inland electrical stations had 56% higher risk of failure, largely due to heat"). This summary can be as short as a paragraph, depending on your data, project, and results. After summarizing your data, provide some thoughts on what it means. You have already done the objective portion of your analysis, and this is the chance to include knowledge you have about your project that isn't contained in the data. In the example with electrical stations you might include limitations of the datasets (eg: "it's likely that the heat data overestimates the threat, so the actual risk may be lower") or context from current events (eg: "the city council responsible for 1/3 of inland stations recently approved a modernization project to help deal with reliability and disaster threats. This project may substantially change the numbers in this analysis."). You can include anything else that helps the reader to understand your results, or that might change the results, or puts it better into the context of the world. Include at least one paragraph for analysis, but you can include more if you feel the topic warrants it.

What you'll submit

You will submit the following for grading:

1. **A zip file of results:** Make sure your final results are in an appropriate format (FGDB, shapefile, raster formats, tables, etc). If you make other spreadsheets for further analysis of your data, you can include these as well. You do **not** need to include intermediate data that was part of your analysis - only the final results. You do not need to make any maps yet (that's for the next milestone). This is **just** your data. Make your data into a zip file. If your data is too large to upload for submission, you can include just a subset of your data - do your best to make it a respresentative result of your analysis though. Final data products should have appropriate metadata attached to them.
2. **Your summary of results**
3. **Your Executive Summary**

Resources

If you haven't done technical writing before, this page from Stanford's Jennifer Widom is an excellent guide to quickly make your writing stronger: https://cs.stanford.edu/people/widom/paper-writing.html