GIS Analyses with Free and Open-Source Software

Group Project

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Formal requirements

Please submit your project reports **until April 15th** via Moodle.

- The following items have to be handed in:

Items to hand in	Format
Report (english or german) 3000-5000 words	PDF
Presentation (english)	PDF
Model/script to perform the analysis	.model3, .py, .R, .gxm
Final results of the analysis	GeoPackage, .tif or shapefile

- You may write your project report in English or German.
- Bonus for English and/or if you use LateX.

Outline for project report

Answer the questions in the previous slide.

Roughly follow the basic outline of a scientific paper:

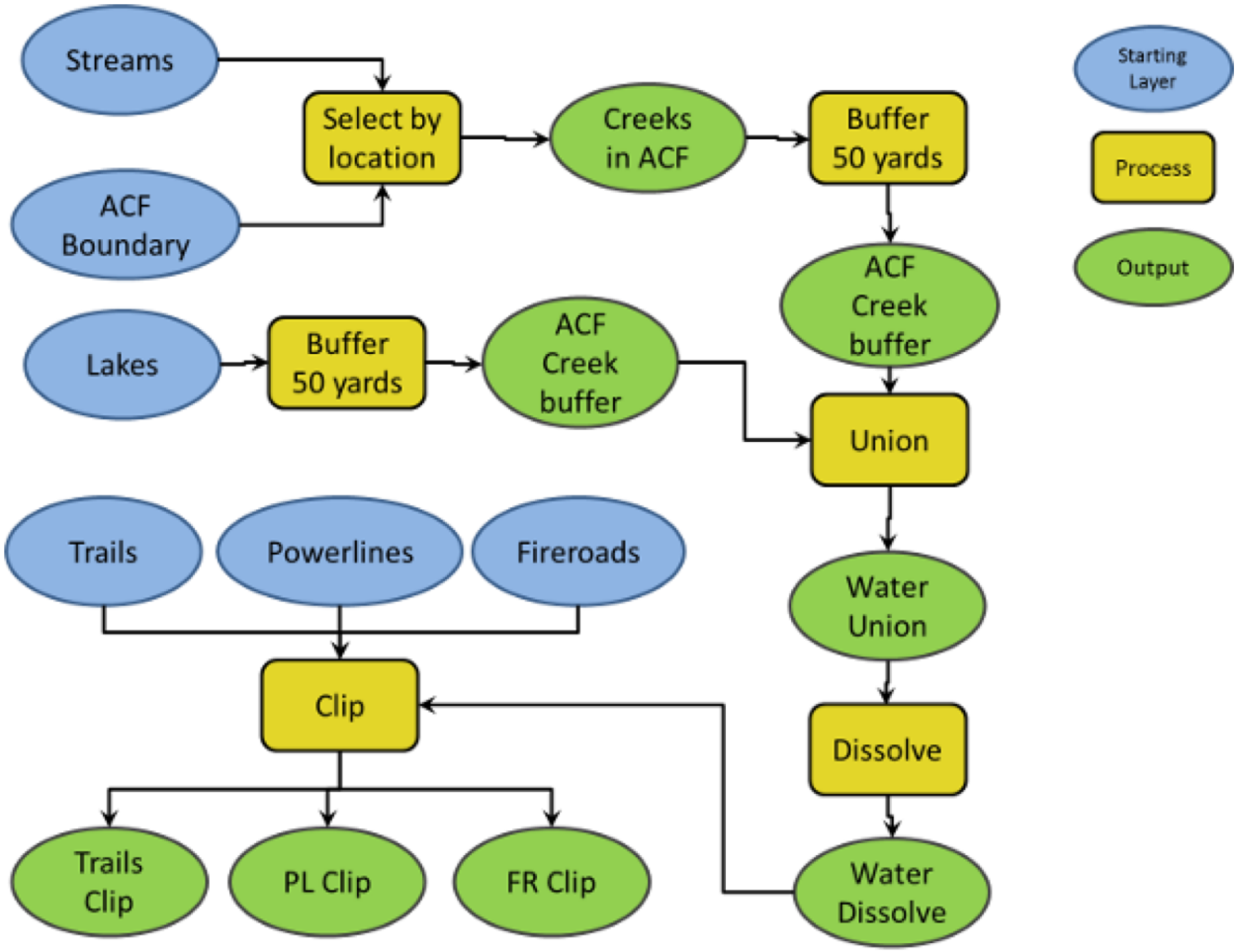
- **Introduction**: Give some background info, briefly describe similar studies and books, describe the (research) question
- **Data and Methods**: describe the study site, the data sets and the methods / workflow you used
- **Results**: Describe your results
- **Discussion**: Discuss your results. How reliable are the results? What are the limits of your analysis? What should be done better next time or in a future study?
- **Conclusion**: What is the answer to your question?

Questions that should be answered in your report

- **What is your question or task**?
- **What study area** did you choose and **why**?
- **What factors are important** to answer your question and **why**? (e.g. population density, distance to next fire station)
- **Which data sets did you choose** to represent those factors and **why**? Are they sufficient? (e.g. is building density derived from OSM enough as a proxy for population density?)
- **Which method** did you choose and **why**?
- **What parameters did you choose** for the methods and **why**? (e.g. if you perform a suitability, how did you weight the factors?)
- What are the **limits of your analysis**? How could it be improved or continued later on? Which questions arise after your analysis?

Document your workflow

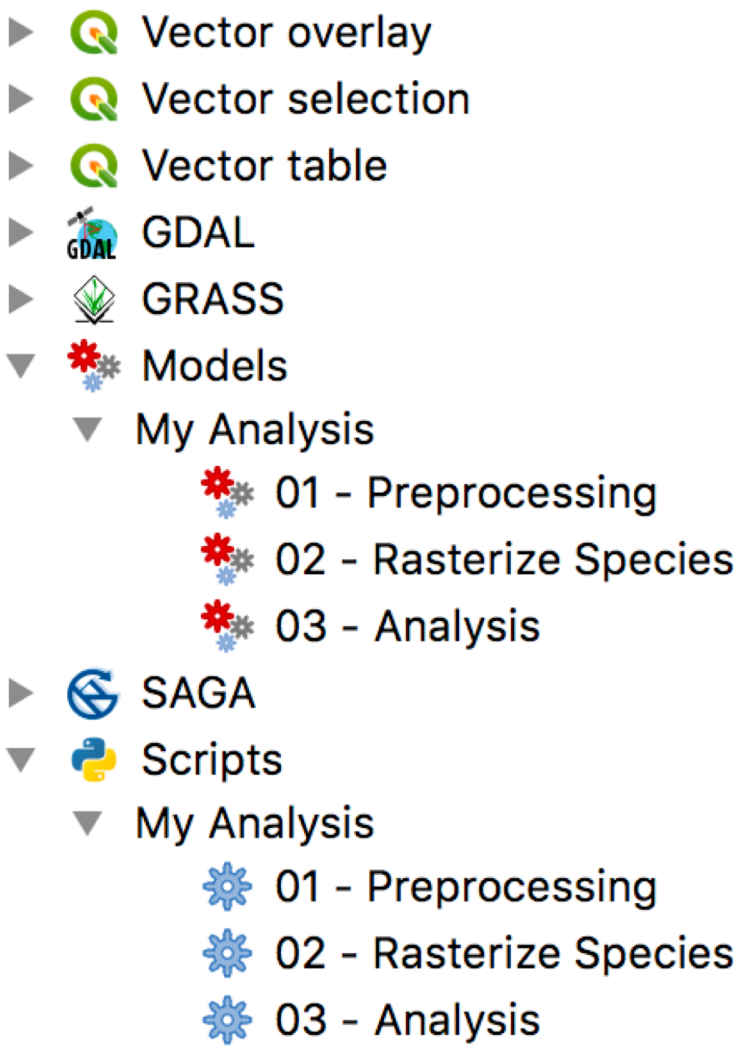
Document your workflow graphically as a flow chart. See for example these instructions)



Structure of your workflow

Maintain a clear structure of your workflow:

- **Split and enumerate your workflow** into parts and implement them as separate models or scripts.
- Group your models and scripts
- Explain which parts you implemented using which software tools and why.



Technical requirements

- Implement your analysis **as one or several workflows** using:
  - QGIS model or script
  - GRASS GIS model or script
  - Python/R script
- Your workflow must be **documented and executable** in such a way that someone else can use it. Provide installation instructions if necessary (e.g. for python environments)
- Provide a **list with dependencies** including version that are needed to execute your workflow e.g. GRASS GIS 7.2, QGIS plugins, …