

Proposal and Paper Mockup: JKnit GUI

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Background

A few years ago, I was in “methods of applied mathematics 2” with Dr. Gustafson in the CMU math department. In that class we used R markdown (`rmd`), which is a beautiful language regrettably embedded in one of my least favorite pieces of software (`rstudio`). At the time I was using a computer with 16gb of storage, which `rstudio` took up a large portion of. Out of frustration I wrote `jknit`, a ~150kb CLI FOSS system for knitting `jmd` (a superset of `rmd`) documents. Dr. Gustafson suggested that a cross-platform GUI version would be a good option for usage in the class.

Motivation and Users

This program is aimed at mathematicians and computer scientists who want to create documents with running code in them (as per Knuth’s idea of “literate programming”) without being limited by bloated closed-source software. This differs from the use case of jupyter notebooks, which usually aims to run interactively: The goal of `jknit` is to compile to static documentation. The GUI aims to be lightweight and intuitive, specifically targeting those who do not have CLI experience (EG math students).

Customers

The “customers” of this software would be universities. These would be the institutions installing the software, even if no money is changing hands. For the sake of IT, the GUI should aim to be dependency-light, easily-managed, and minimally-invasive.

Bias

As a computer scientist, I will almost certainly overestimate the average math student’s understanding of CS operations (EG using the command line). Thus, rigorous documentation and testing, as well as intuitive design will be necessary.