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Group Project: Retracing our steps in the analysis of data

The aesthetics of data derivation

To help scientists ensure that data analyses lead to accurate and reproducible results, our team designed DDG Explorer, a Java program that can show a visual representation of data analysis using a Data Derivation Graph, or DDG. When a scientist writes an R script with RDataTracker enabled, DDG Explorer pulls in information about the data manipulations that the user can store, search, or visualize as a DDG. Our software must be easy to employ so that our future users will incorporate it into their routines. To encourage scientists to embrace our software, I focused on refining our user interface. I streamlined the program's existing features by merging DDG Explorer's many windows into a single home window for seamless navigation. I also added a toolbar that lets the user zoom into a graph to check individual variables and their values throughout the execution of a script. Data analysis can become very complex, so I enhanced DDG navigation through an Overview tool, which serves as a map that can quickly reorient a user who has zoomed into a small, specific section of a Data Derivation Graph. By adding and streamlining features in DDG Explorer, I expect the software to be a more intuitive and effective tool for interpreting data analysis. When our team releases DDG Explorer to scientists, we will learn whether our software can truly increase the reproducibility and reliability of scientific discoveries.

