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Project Testing

The DrawDial and DrawGnomon class were tested using values calculated by a sundial calculation program. To handle all possible variations, most calculators on the internet will avoid the corrections and give the basic sundial angle hours for the given latitude. In order to create a more accurate sundial, more values were required from specific longitude and latitude values.

The MathModule was tested through each phase of calculations, starting with the basic calculation for the hour angles and comparing it to sundial calculators on the internet. The second phase, which added in longitude correction, tested and compared values to charts of corrected longitude angles. The final phase implemented the equation of time correction, which could be tested and compared against a graph with a range of values for each day of year. Testing this module uncovered a large bug which was not converting radians, resulting in consistently wrong hour angles. After that major bug was patched, further testing only optimized code by reducing redundant calculations and creating a clearer structure of variables.

Testing the GUI aspect of the software was similar to the prototyping assignment. By employing one of the testers used in that assignment with constant checking of the required input and outputs listed in the specification, the final form of the GUI was developed and refined. A bug was discovered in the input type checking, namely allowing letters to be passed to the MathModule, but this has since been patched.

Unfortunately we were not able to do a test of our system on a different time zone and latitude, since most of us did not know many people out of the state with knowledge of programming. There were a couple of possibilities, but they were not able to either get in contact with someone after finishing our sundial system, or get the system to work in conditions possible for testing (he lives in Portland, no sun).