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Assignment 5

Contributions

Benjamin designed the faults and did the write-up, Michael designed and implemented the test cases.

Project Link

https://github.com/bwenzel2/CS437

Writeup

The test set contains 11 test cases. The first checks that inputing the same day returns a result of 0 days. The second checks that inputting the same month of January with days 5 and 30 returns 25 days. The third checks the calculation with different months. The fourth checks the calculation with different months over February during leap year. The fifth checks the calculation with the first and last months of the year, providing insight into the correctness of the implementation across a broad span of time. The sixth is the same as the fifth, but checks the implementation during a leap year. The seventh checks that an ArrayIndexOutOfBounds exception is thrown when the user inputs a month value above the allowed range. The eighth testcase checks that the code replaces an invalid day with day 1 the user inputs a day that is above the allowed range. The ninth is similar to the seventh in that it checks that the month is replaced with month 1 when the user enters a bad month, but it uses different test input values to provide more thorough coverage. The tenth is identical to the eighth, but uses different input values to provide better coverage. The eleventh testcase tests that inputting a bad year defaults to year 1.

A possible fault that the test set does not find is if the programmer mistakenly wrote "int m4 = year % 5;" on line 32 rather than "int m4 = year % 4;" which would change the leap year.

A possible fault that the testcases would find is if the programmer changed the comparison operator on line 42 from "i <= month2-1" to "i < month2-1", which would cause 8 of the tests in the test set to fail.

Test running results:

```
Introvert:quotes Ben$ java -cp junit.jar:. CalTests
JUnit version 4.12
...........
Time: 0.005

OK (11 tests)
```