

Reflection on First Software Testing

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1. In my case inspection identified more bugs than testing. I found 3 bugs in the main function where it had inappropriate string initialization. And also, after testing, it is through inspecting the code that I got to know which line was causing the issues. Through testing, I found out that the prefix function can not handle strings with a size of over 24. The software immediately crashed and exited with an error code. And I also found out that the prefix tries to match even if the prefix word is longer than the original string itself whereas it should give out an error message stating that the prefix can not be longer than the original string itself. I found the same issue with the suffix function. It also tried to work even though the string in the suffix was longer than the original string itself. Testing and inspecting come hand in hand. Inspecting (or inspection) refers to a formal process of reviewing code, designs, or documentation to identify defects, errors, or areas of improvement. Unlike testing, which involves executing the software, inspecting focuses on static analysis by examining the software artifacts directly. Testing reveals that there is a bug, and inspecting reveals that bug. I can inspect without testing based on some basic knowledge but if I don't inspect after testing, I will not find out where the bug is. Through inspection, I also found out that both the prefix and suffix functions were using the strcmp function to compare the substrings which is less efficient and may cause performance issues as the program grows larger. So to fix it, I used strncmp instead, which directly compares the end of the string, in turn simplifying and improving the function. Searching for the bugs through inspection was a bit less efficient because of some gaps in my knowledge that I will try to fill along with the advancement of this semester. Other than that, Identifying and fixing the bugs was easy enough as this is a very small and simple program.
2. I did not find it much difficult to find the bugs in this assignment. Because, most of them were imminent. And I caught them after just 4 or 5 tests. And also when I saw the code (it had buf[25] restriction in the prefix function) I immediately knew that it would cause major bugs if the user decided to put longer strings for comparison in the prefix string. After some more trials, I found out that both of the functions didn't have any contingency if the user decided to put strings in the prefix and/or suffix function which were longer than the original comparison string (s1[]) itself. The functions went fine with it and said that ... does not start/end with There were other bugs that would be causing performance and efficiency bugs which I found out through exploration. And the main function had inappropriate string initializations which I discovered through observation. So, through running some tests and some basic observations, I believe that I have discovered most of the bugs and fixed them as well. (But not all!) as it is proven that no code/software is bug free.