3. CODE REVIEW: Mime Parser [Team D]

Method of analysis

Lack of comments in the code rendered it difficult to navigate and understand the behavior completely. Even though the code is well compartmentalized and well written, absence of comments made its understanding time taking. We started with manual code review and execution of code with some malformed arguments. Then we tested the code statically and dynamically through CppCheck, Valgrind, PREfast, and Coverity scan.

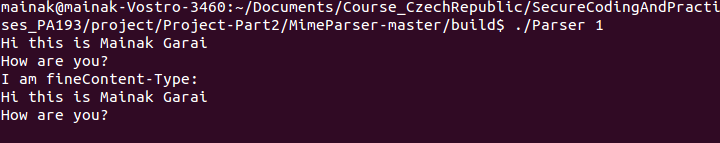
Results:

Manual Analysis:

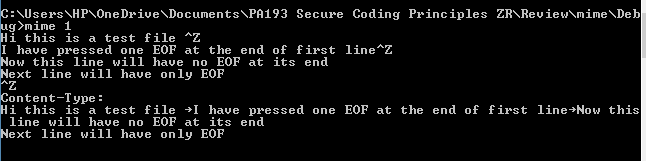
1. Input validation: No flag or message for a non mime file. Non mime file is parsed by the program and printed on output stream. This behavior is not documented anywhere in the project.

2. Input validation: Last line of the file or input coming from stream is handled improperly. The behavior varies in linux and windows but is not fool proof in any of them.

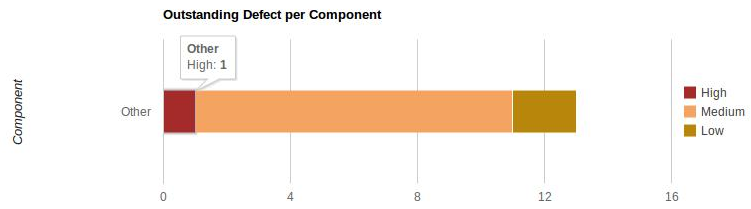
On linux: When supplying input using iStream, last line of the file is not processed by the parser.



On windows: While using iStream for data input, EOF character (CTRL Z) is read properly only when supplied in new line. It is ignored if there are other characters before it. When input comes from file stream, the line containing EOF is processed as containing only EOF. The parsed output does not include this last line. This can be checked by ensuring proper placing of EOF character in the input. This restriction is not communicated to the user. It may cause compatibility issues and other failures when working in a big system.



Coverity scan: We uploaded the source code for coverity scan. Coverity scan resulted in 13 probable defects. A snap shot of the scan results is as follows:



The scan detected 1 Resource leak, 9 Error handling issues, 1 concurrent data access violations and other 2 low impact defects.

Cppcheck: No warnings/errors

PREfast: No warnings/errors

Valgrind: No warnings/errors

# Conclusion:

Code is well written and concise. But lack of comments and documentation makes it difficult to understand. Author has provided with the readme.txt to compile the source code in Linux and Windows, which is appreciated.

The parser parses the MIME files well, but outputs the non-MIME files as they are. This behavior is not intuitively expected. Improper handling of EOF in input can also cause trouble with some files and ignorant users. Coverity scan has shown some possible problems, which should be looked into.