**CS 447 Project**

**Part 2B – Report**

During our code analysis with Coverity a total of 5 potential bugs were uncovered, as shown in the Coverity Results document. This report will discuss errors 2-4 from that report.

The second error (CID 10282) was of the type “Dm: Dubious method used (FB.DM\_DEFAULT\_ENCODING).” This error is given by Coverity when handling a string without declaring what text encoding is to be used. This causes the system to rely on the default encoding, which could theoretically lead to issues when reading from files that have different encodings. Using the classifications from 2(a), this error was labelled as intentional as we had developed the code in the same environment where we knew testing was to be done. This is fairly bad practice, but was deemed acceptable by the group as we had no concerns about how the text was being handled during our testing.

The third and fourth errors (CID 10281 and 10280) were both of the type “Result is not floating-point (UNINTENDED\_INTEGER\_DIVISION).” This happened in two lines of our code where integer division was performed and the quotient (also an integer) was assigned to a variable of type double, converting the result in the process. This was determined to be a bug because of the loss of precision the conversion caused to be observed. In both lines where the error was observed, the numerator and denominator were both cast as doubles to ensure precision. After testing the new code and a second pass with Coverity (results not included) the error had disappeared and our testing results were observed to be more accurate.