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CSC 205 1/30/15

HW2B

1. A. When the program does the calculation 18! (lines 11-20) the resulting number is too big to be stored in the integer for the numerator therefore it overflows then begins to mess up after that. The problem occurs from N=18 to N=30 and everything in between.

   B. i. A precision error would occur because float can only represent specific numbers and once the range in between the numbers gets too big then the chance of precision error is greater.

   ii. At N=25 you would begin to lose confidence in the results because at N=25 the result is not an exact number rather a number with a half (5200300.5).

   C. For this case if the programmer is trying to show exactly where the fall off is and then alert the user, the data type long seems most suitable. For finding a cure to Ebola it seems that the long data type would also be useful because then you would be able to see exactly where the fall off is and then fix any necessary problems to come closer to a cure. But if you are trying to accurately see how long the series of numbers on then double would be a better data type. For wolframalpha I believe they would use a double data type to represent the decimals that would be input into the system and a user of wolframalpha won't be putting in huge numbers to overflow the system.