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** Description: This document includes a reflection on my experience with creating a project plan for assignment 3a.

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Understanding: What did you learn about the problem as you went? Why or how did you learn it?

Creating a project plan for assignment 3a helped me fully understand what the program should do before I entered a single line of code. Specifically, I was able to recognize while completing my pseudocode design that each of the integers entered by the user does not need to be saved to a variable. Rather, only the minimum and maximum values needed to be saved. If I had not created a project plan before I started coding, I may have spent time and effort trying to figure out how to save each input integer into its own variable.

Testing plan: What tests didn't work out the way you expected? What alterations did you have to make to your program due to failed tests? How could your planned tests have been more complete?

Once I got my program to run correctly, all of my test cases worked on the first try. I believed that I had enough variety in my input cases, so this gave me confidence that my solution to the problem was correct. Creating a test plan gave me a much higher level of confidence in my solution than if I had just entered a few random test cases off the top of my head.

Design: What was missing or needed to be altered from your initial design, and why?

One alteration I made from my pseudocode design in my final solution involved my loop counter variable. I had initially planned to initialize this variable as the number of integers the user wanted to enter – 1 (as the first integer is entered outside of the loop). While coding my solution, I recognized that I could simply run my "for" loop $n - 1$ times, where n is the number of integers the user will enter. I believe this approach makes the source code easier to understand.

Implementation: What problems did you encounter during implementation? How were you able to solve those problems? What outside sources (sites, books, or other materials) did you find helpful?

When I first compiled and ran my program, my "for" loop did not seem to be working correctly. Regardless of how many integers I said I wanted to input, the program would exit after only 2 integers were entered. I was able to recognize that the header of my "for" loop was commented out. After correcting this error, I realized the syntax of my "for" loop was incorrect – I had used commas to separate the parts of my loop header rather than semicolons. I consulted the textbook to determine the correct syntax and updated my code accordingly.

Improvement: How can you generalize any parts of your problem solving experience in a way that might help you on future assignments?

This exercise helped me recognize how valuable it is to develop a testing plan and a pseudocode/flowchart design prior to implementing a solution. This approach helped me ensure that I

understood the problem fully and had a clear plan for how to solve it. My pseudocode design helped me to break my solution into discreet parts that were easy to implement one by one. As the programming problems I encounter become more complex, it will be increasingly important for me to use the principles I learned in this exercise.