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Reflection

**Objective:** The main goal of this lab was to create a program to calculate population growth or loss over a set number of years. The task required taking input values like the current population, birth rates, death rates, immigration rates, and projecting population changes based on these inputs.

**Procedure:** We followed a clear process to complete the lab. First, we had to use excel to form test cases, for different scenarios regarding births, deaths, and immigration, to test if there would be an increase or decrease in population. Next, we created our algorithm, to figure out the steps we would need to take, in order to complete our task of projecting population increase or decrease. Finally, when we were done with our algorithm, which Harry had led us in, I took the lead regarding programming the actual code.

**Results:** The program worked as expected. The population projection changed based on the birth, death, and immigration rates. The program correctly calculated whether the population would rise or fall depending on the input. We tested several scenarios, including extreme cases where birth rates were very high or very low. The program handled each case well, and the logic for population change worked under all conditions.

**Reflection:** One of the biggest challenges was understanding the input for the time between births, deaths, and immigration events. At first, I thought these were rates instead of time intervals. This caused some problems with the calculations. After rereading the instructions, I realized the mistake and adjusted the code. Once I did that, the rest of the lab went smoothly.

I followed the basic rules of programming to solve the issues I faced. First, I made sure I fully understood the problem after realizing my error. Then, I planned out the steps before writing the code, which helped avoid mistakes. Lastly, I kept the program simple by breaking it into smaller tasks, and then making sure to test.

Working with my lab partner, Harry, was a great experience. He wrote most of the algorithm and helped a lot with testing. While I wrote the code, Harry tested it with different inputs to make sure it worked. He found a few issues that we fixed together. Our teamwork helped us finish the lab on time and accurately.

**Key Takeaways:** This lab taught me the importance of understanding how input data works in calculations. Misreading the data led to wrong results at first. Testing different scenarios is also important to ensure the program is correct. Planning ahead saved time and helped avoid mistakes.