

Unit Two Project Paper

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When I was considering who my client was, my first thoughts were classmates and teachers. I decided to use my Quest teacher as my client because I see my Quest teacher often and she can help me in each subject. I emailed my Quest teacher in order to contact her. During one of my sessions, I was able to interview her and we realized I could create a program about vector calculations. This worked out for me because it was something I can code, vector calculations can be tedious, and my Quest teacher could use that to help future students with vectors.

Designing a solution involved creating certain functions attached to conditional statements that allows the user to choose which function they would like to use. I began with brainstorming and designing the various functions that would be used, since some involve messy or complex calculations that would be hard to code. I decided on four vector functions: resultant vectors, area of a triangle based on three points in space, the angle between two lines, and the distance from point to line. I had to especially be careful with designing how to calculate the cross product because the cross product formula is messy. I also had to recall what the inputs and outputs of each function are. My textbook helped me code the equations for specific functions and then I would have the program plug in the user inputs. To take in the inputs, I had the program ask the user specific information that was essential to conducting the calculation. Then, I had the inputs run through the calculations and then returned the desired output to the user. Lastly, to make sure the user is able to select their desired function, I had the program tell the user what number to type in the terminal depending on what function they want to use. I used if statements to direct the user's response to the appropriate function.

Creating the prototype was simply using my flowchart and pseudocode as a guide. I was able to code the function smoothly while doing tests on it to make sure the outputs were accurate. My client, who is my Quest teacher, was impressed with my work and that the answers were accurate. She was also impressed with the features my program had. However, she wanted color to be added to the text of my program. She thought that color would make the text more readable and not dull to look at. I did some research on how to add color to my text. I was not able to color the actual text, but I learned how to highlight it. I added the highlighted color to important parts of the text in my program and it looked much better. I highlighted specific keys to type in red and highlighted important inputs for the user in blue and green. With that completed, I have my final solution.