This week we learned all about vectors. We learned how vectors can be thought of differently depending on who observes them. Computer Science students view a vector differently than a mathematician and physics students. Vectors are usually rooted at the origin or (0, 0). When a vector is shown as a list of numbers in these [ ] it goes from top to bottom x, y, z axes. These numbers show how far and in which direction to move on a graph. Vectors have direction and magnitude. For a vector to be the same as another vector it needs to have the same direction and magnitude. You can add vectors together but have to be the same type of vector. To add vectors mathematically you add the x-axis of the second to the first. You do that for every axis. To add it graphically you take the tail of the second vector and move it so it touches the tip of the first vector, you will then draw an arrow from the tail of the first to the tip of the second.

There is also something called a scalar. A scalar is a singular number that can multiply a vector. You take that scalar and multiply each number in the vector to make a new vector. The dot product is something completely different. The dot product is very different than a scalar. You have to times the corresponding axes from both vectors and add the products of all of the axes. When you are done it should be a singular number. There are many other things you can do to a vector. You can normalize it by dividing each axis by the magnitude of the vector. When you normalize a vector the new magnitude will be 1. To find the magnitude of a vector you square all axes and add them together then you square root them.

This week was all based on vectors. I had a little trouble at first trying to figure out how to use them in coding. I had to search for how to do all of these changes to vectors. After figuring out how to do all of this I found this subject fun to do with coding. It was interesting to learn all of this about vectors but I now am having fun with this.

My partner Alex and I talked about the functions. We tried to solve some of them but we couldn't at first. We then talked it out and found out the answers to some of the functions.

I did not get help from the TA or professor this week because this lesson was very straightforward. If I had questions I would ask my partner or I would look it up to try and find the answer. I know in the future I will have to go to office hours because this wasn't an actual graphics week it was more about the base of graphics.

https://chat.openai.com/share/6cc56ca0-b4ec-4fd1-a41e-95834b22895e