Internship Report – Day 8

What I Learned Today

Today was my eighth day at Surfboard Payments, and it was filled with interesting lessons. I focused on two main topics. The first was how to give clear instructions to a machine, and the second was fundamental JavaScript concepts such as variables, objects, functions, the `return` statement, and generating random numbers. These topics may seem different, but they are closely related because both require clear and precise instructions to get the desired outcome.

The day started with an activity where we had to instruct a machine to perform a simple task "taking a black marker and writing Surfboard Internship" on a whiteboard. At first, this seemed like a very easy task, but when we tried to break it down step by step, we realized how many details we had overlooked. We did not specify where to find the marker, how to pick it up, how to position it for writing, or even where on the whiteboard to start. This led to many mistakes because we assumed the machine would automatically understand the missing steps. However, machines do not think like humans. They follow only the exact instructions given to them. If a step is missing, they will either not complete the task correctly or not do it at all.

This exercise made me understand why programmers must be very detailed when writing code. Just like how a machine needs clear instructions to perform a task, a computer program needs precise and structured commands to function properly. Any missing or unclear step can cause errors or unexpected results. This lesson gave me a new perspective on programming. I realized that writing code is not just about knowing the syntax but also about thinking logically and ensuring that every instruction is clear and complete.

After this exercise, I spent the rest of the day learning JavaScript basics. The first concept I studied was variables. In JavaScript, variables are used to store values, such as numbers, text, or objects. I learned that there are three main ways to declare a variable: 'var', 'let', and 'const'. Each of these works slightly differently. The 'var' keyword was used in older versions of JavaScript, but it has some issues, such as allowing the same variable to be declared multiple times, which can cause confusion and errors in large programs. The 'let' keyword is more commonly used because it ensures that a variable is only declared once within a specific block

of code. The 'const' keyword is used when a variable should not be changed after being assigned a value. I realized that using 'let' and 'const' instead of 'var' helps avoid common mistakes and makes the code more reliable.

Next, I learned about objects. Objects are used to store data in a structured way. Instead of keeping multiple variables for different pieces of related information, we can store everything inside a single object. For example, an object representing a person can contain their name, age, and other details. Objects make it easier to organize and access data efficiently. One important thing I learned about objects is that they can be modified even after they are created. This makes them flexible, but it also means that changes must be made carefully to avoid unexpected issues.

Another important concept I explored was functions. Functions are reusable blocks of code that perform specific tasks. Instead of writing the same instructions multiple times, we can define a function once and call it whenever needed. Functions can also take inputs, called parameters, and return outputs using the return statement. This makes them very powerful because they allow us to build flexible and reusable code. Functions are especially useful in large programs because they help keep the code organized and reduce repetition.

One of the most exciting topics I learned today was generating random numbers in JavaScript. Random numbers are useful in many applications, such as games, security systems, and simulations. JavaScript provides a built-in function to generate random numbers, but by applying mathematical operations, we can control the range of numbers generated. This was interesting because it showed how small changes in code can lead to big differences in the results.

As I reflected on today’s learning, I realized that both topics giving instructions to a machine and learning JavaScript are connected. Just like how a machine needs precise step-by-step instructions to perform a task, JavaScript also requires well-structured and detailed commands to function properly. If a step is missed, whether in writing code or giving instructions, the output can be completely different from what was intended. This made me more aware of the importance of logical thinking and careful planning when coding.

Today’s session was a valuable learning experience. It helped me see the importance of being precise when writing instructions, whether for a machine or in a programming language like JavaScript. Moving forward, I plan to apply these lessons by practicing more structured coding and breaking down problems into smaller steps. This will not only improve my programming skills but also help me think more logically and clearly when solving problems.