

Today was my seventh day of internship at Surfboard Payments. The day was filled with valuable learning experiences, especially in computing and SQL queries. Additionally, solving Python problems on Edabit greatly helped improve my programming and problem-solving skills. By working through different challenges, I became more confident in writing efficient code and understanding various programming concepts. One of the key topics I explored today was the Eulerian cycle. This is a fundamental concept in graph theory that helps solve specific types of problems. An Eulerian cycle is a path in a graph that traverses every edge exactly once and returns to the starting point. Understanding this concept is useful for problems that require visiting all paths efficiently. Eulerian cycles have applications in network design, circuit design, and even puzzle solving. Studying these cycles allowed me to appreciate how mathematics and computer science work together to solve real-world problems. During my learning, I came across different types of problems and their solutions. The first type includes problems that have only one correct solution. These problems follow strict rules and have clear answers. The second type consists of problems that have multiple possible solutions. In these cases, different approaches can be used to arrive at a correct result, depending on various constraints. The third type involves problems that require trial and error, where solutions are found through testing and experimentation instead of a fixed method. These problems often require creativity and persistence to solve. Apart from Eulerian cycles and problem-solving techniques, I also learned about the basic working of computers. Computers process information in a structured way: Input -> Memory + Process -> Output. This means that data is first received as input, stored temporarily in memory, processed by the CPU, and then an output is produced. Understanding this flow helps in designing better software and optimizing computational processes.

A key aspect of computing is the use of binary language. Computers understand everything in binary form, which consists of only 0s and 1s. These numbers represent electrical signals, where 1 means high voltage (5V) and 0 means no voltage (0V). All types of data, including text, images, and code, are eventually converted into this binary language so that the computer can process them efficiently. Learning about binary representation gave me insights into how computers interpret and store information. In addition to theoretical learning, I spent time working with SQL queries. SQL (Structured Query Language) is used to manage and manipulate databases. I practiced writing different types of queries to retrieve, insert, update, and delete data from a database. Understanding SQL is crucial for managing data effectively, especially in applications that require handling large amounts of information. Writing queries helped me develop a structured approach to data management and improve my logical thinking. One of the most interesting exercises today was solving Python problems on Edabit. These problems ranged from beginner to advanced levels, covering different programming concepts such as loops, conditionals, and data structures. Solving these challenges allowed me to apply my knowledge in real coding scenarios, improving my ability to debug and optimize code. It also enhanced my problem-solving skills, which are essential for programming and software development.

Additionally, I learned about different programming problem types. Some problems require exact

solutions, while others allow for multiple approaches. Trial-and-error problems, in particular, require testing different methods before finding the best solution. Understanding these distinctions is important for improving problem-solving efficiency and adaptability. Each problem type requires a different mindset and strategy, which I practiced during my problem-solving sessions. Throughout the day, I also gained a deeper understanding of how computers function at a low level. Computers operate using logic gates, which perform basic logical operations using binary values. These gates form the foundation of all computing processes. Learning about how these components work together to execute complex instructions was fascinating and helped me appreciate the underlying mechanics of modern computing. As my internship progresses, I am gaining confidence in my ability to work with different technologies and programming concepts. Every day presents new challenges and learning opportunities, which help me grow as a developer. The practical exercises, combined with theoretical learning, are shaping my understanding of computing, databases, and programming. Moving forward, I plan to explore more advanced SQL queries and work on optimizing database performance. Additionally, I want to deepen my knowledge of machine learning and artificial intelligence, as these fields are becoming increasingly important in the tech industry. I also aim to continue solving coding challenges to further enhance my problem-solving abilities.

Overall, today was a productive and insightful day at my internship. I learned important computing concepts, practiced SQL queries, and improved my Python skills through problem-solving exercises. Understanding topics such as Eulerian cycles, binary representation, and database management has strengthened my foundation in computer science. I am excited to continue learning and applying my knowledge in real-world projects.