13th Day Report – Surfboard Payments Internship

Morning Session: PostgreSQL Commands and Database Access

In the morning session, I focused on learning PostgreSQL commands and understanding how to access PostgreSQL databases using Visual Studio Code. Our mentor guided us through the process, teaching us how to connect to the database, run queries, and manage data efficiently.

First, I learned the basic PostgreSQL commands used to interact with databases. These included:

- Creating a database

- Accessing an existing database

- Creating tables and inserting data

- Retrieving data using SELECT queries

- Filtering data with WHERE conditions

- Updating and deleting records

After understanding these concepts, I moved on to working on actual queries assigned by my mentor. These queries helped me apply the knowledge I had gained and understand how databases handle large amounts of data.

One of the key learnings from this session was accessing a huge database. I learned how to efficiently query large datasets without slowing down the system. This included using indexing, optimizing queries, and understanding how PostgreSQL processes data.

By the end of the session, I had completed all the queries assigned by my mentor and gained confidence in using PostgreSQL with Visual Studio Code. This hands-on experience was valuable in improving my database management skills.

In the afternoon session, our senior, Koushik Anna, returned after his leave. Before starting the class, he gave us a task related to our language creation project. He asked us to present our work as a team, showcasing our progress so far.

However, after reviewing our work, he pointed out that most of us were focusing too much on typography rather than truly creating a new language. He explained that simply modifying the existing 26 English letters and assigning different meanings to them was not the correct way to develop a new language. Instead, a unique language should have its own set of symbols or letters that hold distinct meanings. This feedback made us rethink our approach and encouraged us to develop a completely new language system rather than just modifying English characters.

After this discussion, we moved on to a revision session, where we revisited key topics covered since the beginning of the internship. Some of the important concepts we reviewed included:

- Problem-solving skills

- Teamwork and collaboration

- Compounding (building knowledge step by step)

- Mathematical thinking

- Language theory

We also went over technical topics such as:

- Git and version control

- Compilers and their working principles

- Problem classification (how to categorize coding problems based on complexity and approach

The next part of the session focused on compiler concepts, where we reviewed the stages of compilation:

1. Tokenization – Breaking down code into meaningful units.

2. Syntax Analysis – Checking the structure of the code.

3. Semantic Analysis – Ensuring the meaning of the code is correct.

After revisiting compiler concepts, we moved on to the topic of data and its significance. We learned that data is everything around us, consisting of unorganized facts. It is categorized into two types:

-Variable data – Words or values that can have different meanings (e.g., "space" referring to the universe vs. "space" as punctuation).

- Constant data – Words whose meanings do not change.

Next, we discussed programming languages and their components:

- Symbols – Mathematical operators, letters (a-z), numbers, etc.

- Tokens – Combinations of symbols (e.g., "hello", "100").

- Expressions – Combinations of tokens (e.g., `a + b = 10`, where `10` is a token).

- Keywords – Reserved words in programming (e.g., `let`, `for`, `if`, `var`), which have fixed meanings and cannot be changed.

Following this, we explored data types, understanding that each piece of data has a specific type. These are categorized into:

- Primitive data types– String, Boolean, Integer, Number, Float.

- Complex data type – Arrays, Maps, Objects.

We also discussed variables , which store data. For example, in `value = true;`, `value` is a variable that holds a Boolean value (`true`).

With this, the session concluded for the day.

Conclusion

The 13th day of my internship at Surfboard Payments was filled with valuable learning experiences. The morning session strengthened my understanding of PostgreSQL commands and database access, while the afternoon session helped me rethink language creation and reinforced key concepts like data types, programming fundamentals, and compiler functions. The feedback on our language project was an eye-opener, pushing us to develop something truly unique instead of modifying existing alphabets.