**Challenges and Enhancements:**

Understanding the Requirements: The first step was to carefully read and understand the requirements outlined in the assignment, which involved gathering information about Canoo, its industry, competitors, market trends, and financial performance.

Identifying Python Libraries: I identified the necessary Python libraries required to accomplish the task, such as `Codegen Playwright` for web scraping, finding the suitable open-source model ,`pandas` for data manipulation, and `csv` for handling CSV files.

Web Scraping Logic: I developed the logic for web scraping by inspecting the structure of the websites where relevant information could be found. This involved identifying HTML elements containing the desired data and using `Codegen Playwright` to extract it.

Data Processing: Once the data was scraped, I processed it to extract relevant information such as industry insights, competitor analysis, market trends, and financial performance.

CSV File Handling: I used the `csv` module to handle the writing of the scraped data into a structured tabular format in a CSV file.

Finding Relevant Data: One challenge was identifying the relevant data on the websites and structuring the scraping logic accordingly. This required careful examination of the HTML structure and sometimes dealing with dynamic content loaded via JavaScript.

Handling Dynamic Content: Some websites use dynamic content loading techniques, making it challenging to scrape using traditional methods. To overcome this, I used techniques like waiting for JavaScript to render or employing headless browsers.

Data Cleaning: Another potential challenge is cleaning the scraped data, as it might contain HTML tags, unnecessary whitespace, or other artifacts. This was addressed by implementing data cleaning techniques using Python string manipulation functions or regular expressions.

Time constraints: Another major difficulty I faced is that I need to submit the project within a limited period in which I need to also decide which model I need to use, find the relevant information, with different webpages and also scrap it from the web.

**Enhancements:**

In this assignment, more enhancement we can make by making a bot like when we type a query it directly searches the web and gives us the relevant information without hardcoded scrapped data also it will increase the time of giving the output but at least we do not need to hardcode the web scraping part.

**Overall, the task involved a combination of understanding the requirements, developing effective web scraping logic, and handling data efficiently to fulfill the objectives outlined in the assignment.**

**But at last I would like to heartly thank LizMotors team for giving me an opportunity to showcase my skills at such a reputed organization which helped me to learn a lot like I gained more practical knowledge of vector database, RAG models for custom data generation, I also came to know that sometimes instead of fine-tuning we can also create a RAG model which simplifies our task and gives us more accurate results.**