INTERNSHIP REPORT

ULTRACODE

Presented by:
Amalai Rham MACHUNGA
(Analytics Engineer Intern)

Supervised by:
Oluwatoyin IBIYEMI
(Manager & Head of Data)

Data Science and Analytics
Spring 2022

TABLE OF CONTENT

ABSTRACT

Data-driven decision-making should be the core of every company if they intend to stay head of their competitors. Establishing a data team and working hand in hand to deliver insights and recommendations remains the silver bullet any company, business and organization needs to be in the forefront.

I worked remotely with a client of Ultracode based in Brazil on a data analytics project for its E-Commerce store. I was assigned to deliver this data project from January 2024 to July 2024. This internship was the missing link I needed to bridge the gap between academic and professional experience.

My mission within the data team was to carry out end-to-end data cleaning, and data visualisation using M-Language, Data Analysis Expression (DAX), Power BI, Dataflow Gen2, and Data Factory within the Microsoft Fabric environment.

As an Analytics Engineer intern, I worked on this E-commerce ad-hoc project, ingesting data into Microsoft Fabric and carrying out data cleaning using Dataflow Gen2, orchestrating and scheduling data pipelines, and providing insights in Microsoft Power BI through Dashboards, Reports and written recommendations.

Microsoft Fabric is a cloud-based solution that could be utilized for data analytics, data science, data engineering and real-time analytics.

This project involved providing end-to-end data analytics solutions, developing a dashboard, and providing insights and recommendations based on my findings.

This project not only enabled me to put theoretical and practical knowledge acquired during my studies at EPITA but also improved my skills in client management, teamwork, communication, time management, problem-solving, and storytelling which are critical to a successful career as a data analyst.

Engaging with seasoned professionals like my supervisor who has over 10 years of practical experience in the data field and working with real-world datasets exposed me to the nuances of being a seasoned data analyst. This has not only catapulted my technical experience but also catapulted my understanding of the subject. This amazing journey at Ultracode has equipped me with the tools and skills necessary to succeed.

ACKNOWLEDGEMENT

I want to express my profound gratitude to the entire management and members of staff of **ULTRACODE** for according to me this opportunity to carry out a successful six (6) months internship. To my manager and the head of data at Ultracode, **Oluwatoyin IBIYEMI** who was my guiding light throughout my internship, I thank you for believing in me and allowing me to benefit from your wealth of experience in the data field.

My appreciation goes to **PTDF** for selecting me out of the numerous applicants as a beneficiary of its prestigious overseas scholarship scheme (OSS) and for fully funding my educational pursuit.

Special gratitude goes to my beautiful wife, **Isi Amalai MACHUNGA**, and my beautiful daughter **Akilah Amalai MACHUNGA** for believing in and being supportive throughout this journey of obtaining my master's degree.

I appreciate the entire **EPITA** administration for providing the enabling environment for me to succeed in pursuing my master's degree, and the director of the international program **Stéphanie CHATÊLET** for her unrelenting support and encouragement throughout my program.

Special shout-out to my adviser **Alaa BAKHTI** for always availing himself despite his tight schedules, your impeccable advice and support have impacted my life in many ways.

To my colleagues at EPITA, this is just the beginning of greater things to come, and I thank God for allowing our paths to cross. This journey brings with it deep memories that will stick forever. I wish you all the best in your future endeavours.

1. INTRODUCTION

With the massive avalanche of data generated every second, companies, businesses and organizations must make judicious use of the available tools to make sense of this data.

To get ahead in the business world and gain a competitive advantage, companies, businesses and organizations set up data teams that would offer data driven insights that would drive business growth.

At the forefront of this data revolution are data analysts who derive insights using BI tools and offer actionable insights to stakeholders.

My internship at Ultracode exposed me to this challenging, yet interesting field of data. My work at Ultracode involved ad-hoc tasks like data cleaning, preprocessing and deriving insights using Microsoft Power BI within the Microsoft Fabric environment.

Throughout my 6 months of internship experience, I worked remotely with Dafiti a client of Ultracode based in Brazil, where I performed various data analytics tasks.

1.1 Reminder of the subject of the internship and its aims

The subject of the Internship is to develop an end-to-end data E-Commerce analytics solution and to foster a data-driven decision-making culture within the company

The primary aim of this internship is to gain hands-on experience and develop expertise in various aspects of data analytics engineering, including data ingestion, cleaning, preprocessing, semantic modelling, advanced data expressions, M-Language, and data visualization. Through this internship, I aim to enhance my technical skills, particularly in using Microsoft Power BI and Microsoft Fabric, and to contribute to meaningful data-driven insights and solutions for the organization. The specific aims include:

Developing Data Pipelines:

- Learn to create efficient data ingestion pipelines using copy activity to ingest data into a lakehouse.
- Perform data transformations within Dataflow Gen2 and store the processed data back into the lakehouse.

Mastering Data Cleaning and Preprocessing:

- Understand the importance of data cleaning in ensuring accurate analysis.
- Utilize Dataflow Gen2 to identify and rectify errors, inconsistencies, and missing values in datasets.
- Conduct data preprocessing, including feature engineering and outlier detection, to prepare refined data for analysis.

Building Semantic Models:

- Gain proficiency in creating logical data models within Microsoft Fabric.
- Structure and relate data tables to form a cohesive data model for generating reports and visualizations.

Utilizing M-Language and DAX for Advanced Calculations:

- Employ DAX (Data Analysis Expressions) to create custom calculations and aggregations within data models.
- Use M-Language in Power Query Editor for data transformation and preparation, ensuring clean and analyzable data.

Designing Dashboards and Reports:

- Create insightful reports.
- Develop interactive dashboards.
- Share and collaborate on dashboards with stakeholders, making data-driven recommendations based on analysis.

By achieving these objectives, I aim to develop a comprehensive understanding of the data analytics lifecycle, from data ingestion and cleaning to modelling and visualization, ultimately enhancing my capability to deliver actionable insights and recommendations.

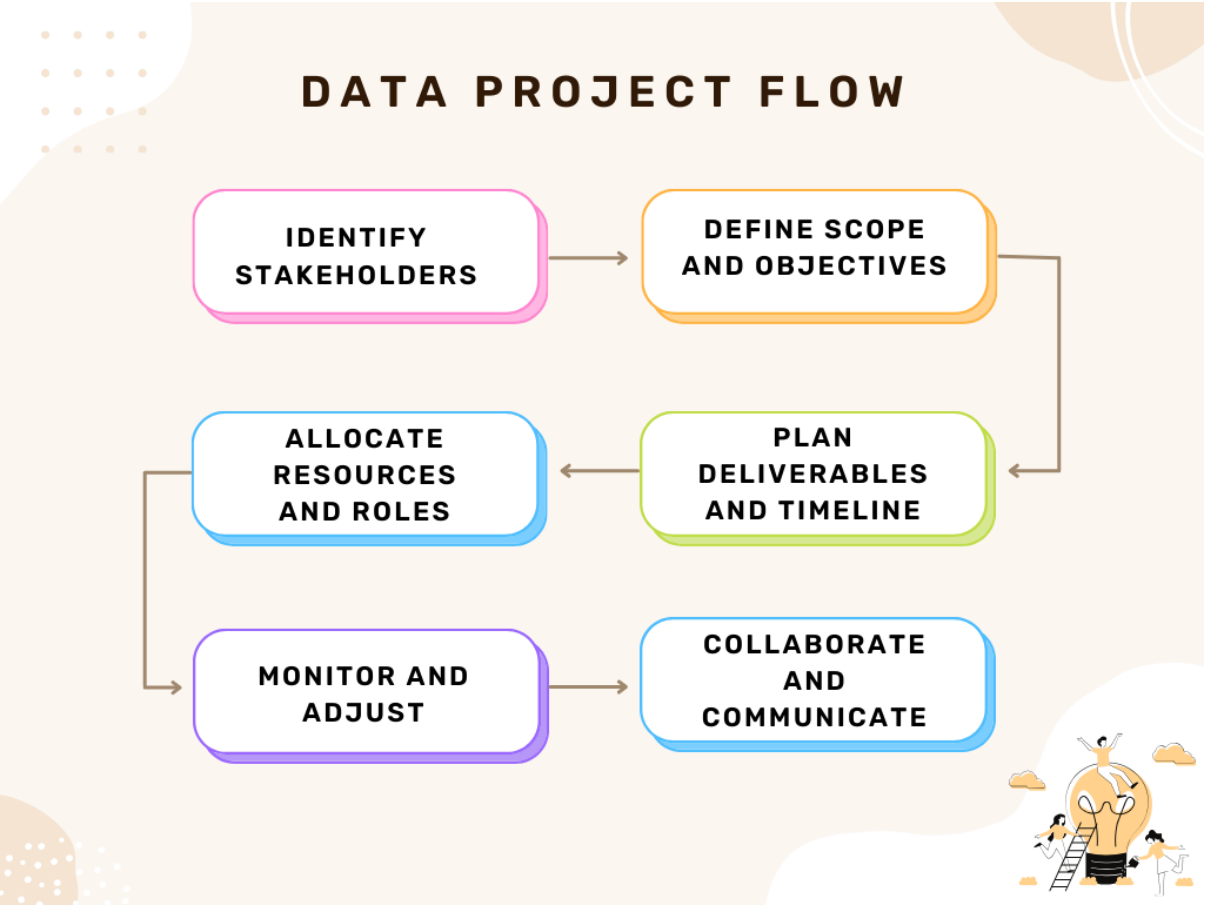

Fig: Data Project Flow.

The data project flow we used for the various projects at Ultracode to ensure successful delivery and ensure that the project is delivered on time and within budget, the steps are:

- **Identify Stakeholders:**

The first step is to identify the stakeholders of each data project. Stakeholders can be internal or external, and they could be colleagues, clients, managers, users or partners. Their roles, expectations, needs and preferences as well as how the data project could benefit them.

- **Define the scope and objectives:**

The scope defines what data sources, variables, methods, and outputs are included or excluded from the project. The objectives define what questions hypotheses or goals that would be answered or achieved with the data analysis. Here, we collaborate with the stakeholders to

agree on the scope and objectives and to make sure that they are clear, specific, measurable, achievable, relevant and time bound.

- **Plan deliverables and timeline:**

For each project, we define the deliverables which are the products and services that we provide to the stakeholder, such as reports, dashboards, models, or recommendations. We also consider dependencies, milestones, and feedback loops that might be a hindrance to the delivery of the project.

- **Allocate resources and roles:**

The resources here are the assets or inputs that we use or consume for the project such as data, tools, software, hardware, or budget. The roles are the responsibilities or tasks that are being performed for the project such as data collection, cleaning, analysis, visualizations, or presentation.

- **Monitor and Adjust:**

Monitoring has to do with the process of tracking and measuring the performance and quality of the project at hand against the scope, objectives, and roles. Adjusting has to do with the process of making changes or improvements to the project based on the feedback, results or issues encountered.

- **Collaborate and Communicate:**

Collaboration is working with stakeholders to achieve the goals and purpose previously agreed on. Communication is the act of exchanging information ideas and feedback with stakeholders.

Tools and Platforms Used

During my internship, I used quite a variety of tools and platforms for my work, some of them include:

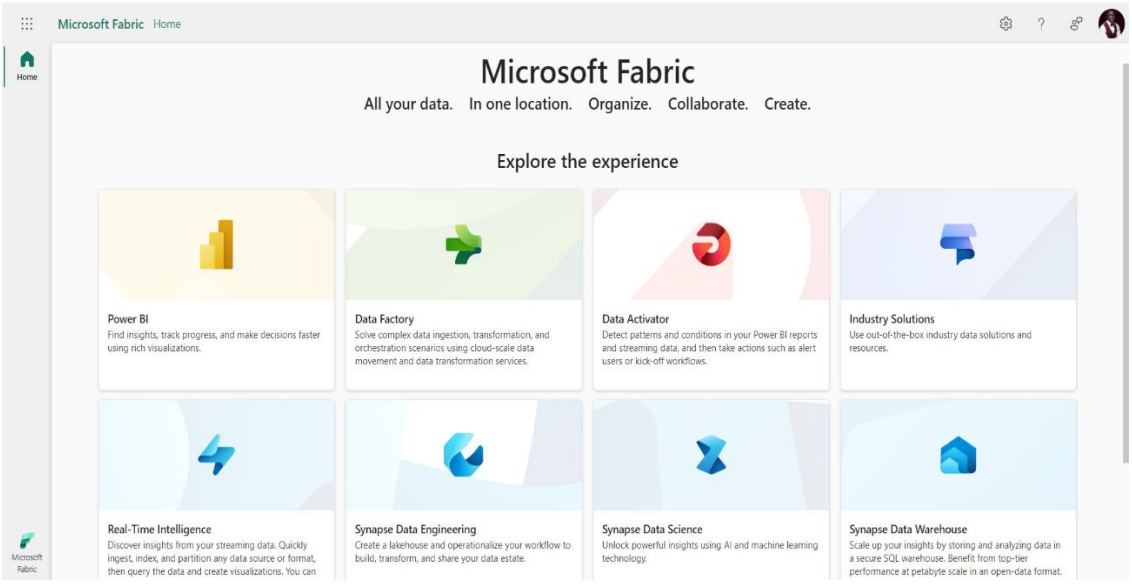

Fig: Microsoft Fabric User Interface

Microsoft Fabric is built on a foundation of software as a service (SaaS) which combines both the old and new components from Power BI, Azure Synapse Analytics, Azure Data Factory, and more services into a unified environment.

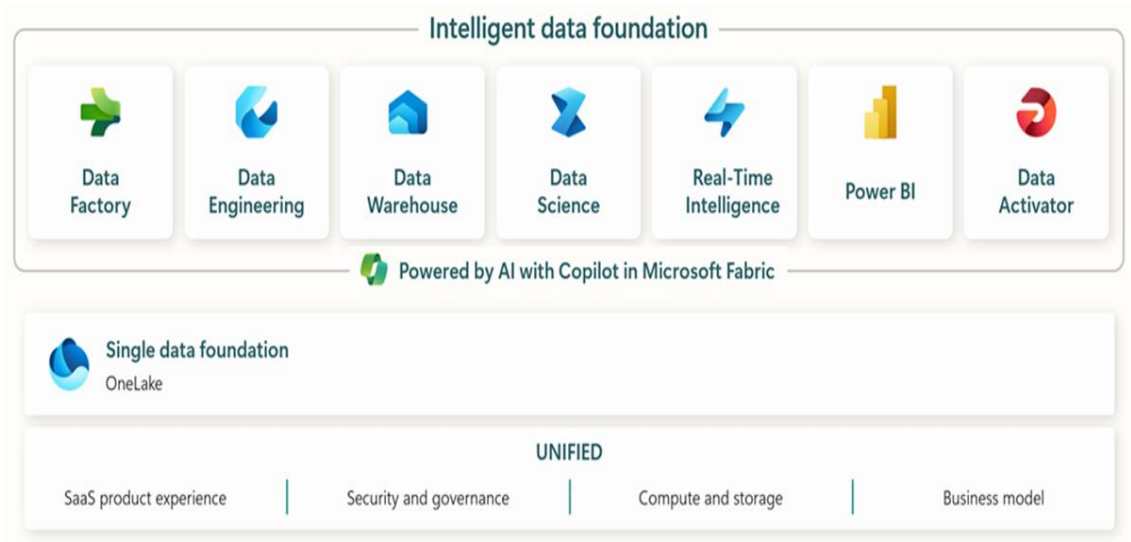

Fig: workloads in Microsoft Fabric

Fabric flawlessly integrates data and services, enabling unified management, governance, and discovery. It ensures the security of items, data and row-level access. Core enterprise activities can be centrally configured, permissions can be automatically applied across all the underlying services. Data sensitivity labels are automatically inherited across the items in the suite. Governance is powered by Purview which is built into Fabric.

Some of the Analytics experiences are:

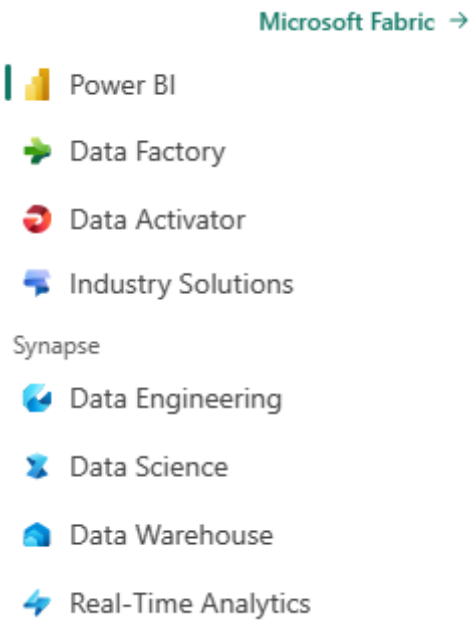

Fig: Microsoft Fabric Experiences

- **Power BI:** You can connect easily to your data sources, visualize and discover what's important and share your findings.
- **Data Factory:** Data Factory provides a modern data integration experience to ingest, prepare and transform data from a rich set of data sources. The simplicity of Power Query is incorporated into Data Factory. You can use more than 200 native connectors to connect to data sources on-premises and in the cloud.
- **Data Activator:** This is a no-code experience in Fabric that allows you to specify actions like email notifications and Power Automate workflows. To launch when it detects specific patterns or conditions in your changing data. It could monitor data in Power BI reports and event streams when the data hits certain thresholds or matches certain patterns.

- **Industry Solutions:** Fabric provides industry-specific data solutions that address unique industry needs and challenges, and include data management, analytics, and decision-making.
- **Real-Time Intelligence:** This is an end-to-end solution for event-driven scenarios, streaming data, and data logs. Enabling the extraction of insights, visualizations and action on the data in motion by handling data ingestion, transformation, storage, analytics, visualization, tracking, AI, and real-time actions
- **Synapse Data Engineering:** This provides a Spark platform with great authoring experiences. It enables you to create, manage and optimize infrastructures for collecting, storing, processing and analyzing vast amounts of data. Fabric Spark's integration with Data Factory allows you to schedule and orchestrate notebooks and Spark Jobs.
- **Synapse Data Science:** This enables you to build, deploy and operationalize machine learning models from Fabric. It integrates with Azure Machine Learning to provide built-in experiment tracking and model registry.
- **Synapse Data Warehouse:** This provides industry-leading SQL performance and scale. It natively stores data in the open Delta Lake format.

These tools were instrumental to the success of my internship. I mastered the efficiency and technicalities of these tools to provide actionable insights to stakeholders.

1.2 Presentation of Ultracode

Ultracode Global Ventures Limited is a leading technology company comprising teams of Full-Stack developers, DevOps, Cloud Engineers, AI/ML Engineers, Data Analysts, Data Engineers and Data Scientists, with development-ready skills and experience in designing a variety of IT applications that enhance productivity, improve visibility, facilitate clearer communication, improve data-driven decision making and increase the efficiency of organisations in which our solutions are deployed.

The company was founded in 2008 and has a pool of more than 10 freelancers and interns working on various local and global projects.

Ultracode has completed over 100 projects for small, medium and large companies, and governmental, individual, and corporate bodies locally and internationally.

Ultracode is an offshore outsourcing IT company with experts working with world-class and cutting-edge methodologies and techniques.

Ultracode's business model is based on client relationships driven by value and shared goals. They act as a partner in transforming IT to align with the client's business. The company understands how important it is to choose a trustworthy partner that understands the problem and knows how to amicably solve them.

The Mission

- To develop world-class critical-mission enterprise software, based on new information technologies and communications.
- Reducing the time and cost of projects.
- Increasing customer effectiveness and competitiveness.

The Vision

- To earn respect as an IT outsourcer, by building long-lasting relationships with people and technology and delivering functional applications and excellent services.

The Mandates

- Commitment to client partnerships.
- Adoption and continuous improvising upon its IT development practices and processes and knowing how to turn client's goals into reality.

The Core Values

- Proven project management skills and technological expertise needed for the successful completion of any project.

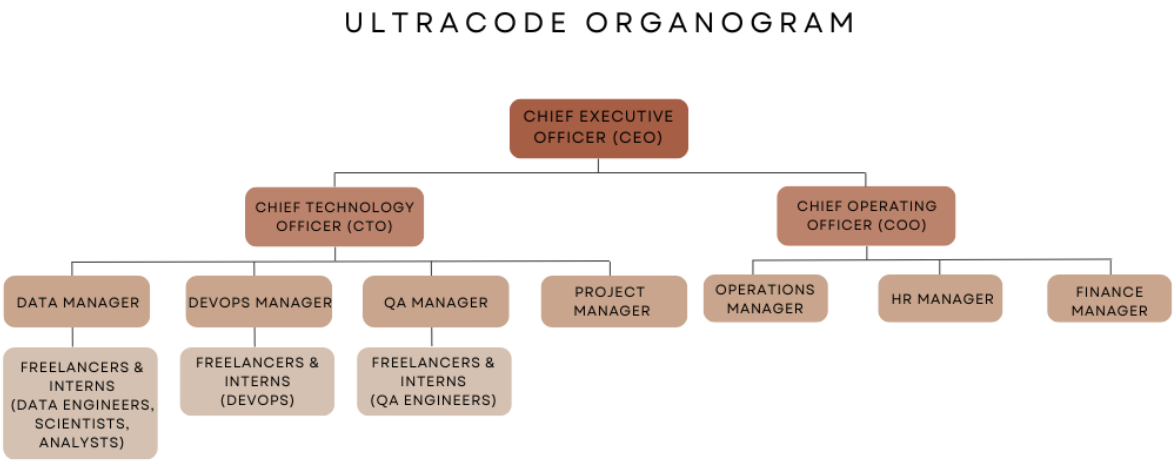

Fig: Ultracode Organogram

- **Chief Executive Officer (CEO):** Decides the overall direction of the company's overall leadership.
- **Chief Technology Officer (CTO):** Oversees technology development and IT infrastructure.
- **Chief Operating Officer (COO):** Manages the day-to-day operations and oversees the project execution.
- **Data Manager:** Oversees all the data projects and manages the freelancers and interns.
- **DevOps Manager:** Oversees the maintenance of stable and scalable infrastructure, automating processes, and enhancing overall productivity.
- **QA Manager:** Leads the interns and freelancers QA engineers and ensures comprehensive testing and quality assurance.
- **Project Manager:** Manages project execution, timelines, and client communications. Coordinates various teams to deliver projects successfully.
- **Freelancers and Interns:** Employed in various roles, working under the guidance of managers to complete projects for third-party companies.

Work Culture at Ultracode

Ultracode Global Ventures Limited prides itself on fostering a dynamic and inclusive work culture that emphasizes collaboration, innovation, and continuous growth. As a leading solution provider for third-party companies locally and internationally, there is a deep reliance on a diverse team of full-time employees, freelancers and interns to deliver exceptional results. A deeper look at the work culture includes:

- **Collaboration and Teamwork:**
  - **Cross-functional Teams:** At UC, the power of diverse perspectives is harnessed. The team consists of professionals from various disciplines working collectively to solve complex problems and deliver exceptional and innovative solutions.
  - **Open Communication:** Everyone's ideas and opinions are valued, hence the open-door policy. Across Ultracode, we hold regular meetings, stand-ups, brainstorming sessions, and collaborative tools to ensure that communication is well-maintained and flows freely across all levels.
- **Innovation and Continuous Improvement:**
  - **Encouraging Creativity:** At UC, employees, freelancers and Interns are encouraged to think outside the box and explore new ideas fostering a culture of creativity.
  - **Learning and Development:** Continuous learning is the cornerstone at Ultracode, providing opportunities for professional growth and development through training programs. Being a Microsoft Learn partner, we enjoy access to premium learning content and certification discounts.
- **Flexibility and Work-Life Balance:**
  - **Remote Work Friendly:** Even though I worked remotely during my six-months internship, I still enjoyed an amazing work-life balance. Remote work is heavily supported, providing all the necessary tools for seamless collaboration.
  - **Flexible Hours:** Flexible work hours are put into consideration because we all work in different time zones, the company accommodates different lifestyles and personal commitments, ensuring that the team can perform at their best without compromising their personal lives.

- **Transparency and Trust:**
  - **Open Leadership:** The leadership team at Ultracode practices transparency and regularly shares company goals, performance metrics, and strategic decisions with all employees which fosters a sense of trust and shared purpose.
  - **Employee Feedback:** Feedback is highly encouraged at Ultracode from team members and actively seek it through surveys, suggestion boxes, and open forums which helps the company to improve and adapt its work environment.
- **Recognition and Rewards:**
  - **Acknowledging Achievements:** Accomplishments and contributions of team members are regularly celebrated at Ultracode, and recognition programs and rewards have been designed at UC to highlight individual and team success.
  - **Career Advancement:** Ultracode is dedicated to career growth and an integral part of the company culture is setting clear career paths, mentorship programs and internal promotion opportunities.
- **Social Responsibility and Community:**
  - **Giving Back:** Encouraging team members to engage in community service and support various social causes is encouraged at Ultracode. The Corporate Social Responsibility (CSR) of Ultracode reflects its commitment to making a positive impact on society.
  - **Sustainable Practices:** Ultracode is conscious of its environmental footprints, and it strives to implement sustainable practices in its operations.

1.3 Maturity of the company on the theme of the internship

Ultracode stands at the pinnacle of Technology companies that seek to provide outstanding services to their pool of clientele. The data team comprises a nexus of freelancers and interns bent on delivering world-class services.

Since its inception in 2008, providing technology-based solutions has been the key activity within Ultracode, nurturing talents from across the globe to deliver on its core vision to be a respectable IT outsourcer. The company has delivered over 100 jobs locally and internationally, earning a reputation for delivering exceptional projects on time and within budget.

For every project, each contributor to the project has clear cut tasks and responsibilities which are usually defined at the beginning of the project. Weekly meetings, standups and feedback sessions are organized to track the progress of the project at hand.

Ultracode Global Ventures has used Microsoft-based products and services for the past 10 years. Projects are performed end-to-end using Microsoft-based products and services across each team within the company. This internship experience exposed me to various Microsoft-based products and services I never knew existed.

Within the data team, we used Microsoft Fabric which is a cloud-based end-to-end analytics and data platform which offers a wide range of services including Data Engineering, Data Factory, Data Science, Real-Time Analytics, Data Warehouse and Databases.

Within the Microsoft Fabric solution is the Microsoft Power BI which I used for data cleaning, Dashboarding and producing insightful reports. Microsoft Power BI houses the Microsoft Power Query which is used for data pre-processing.

1.4 State of Knowledge on the Subject to the Trainee

As a master's student of Data Science and Analytics, the knowledge I acquired from my coursework at EPITA in courses such as Business Intelligence, Foundations of Statistical Analysis and Machine Learning. These courses provided me with the prerequisite knowledge needed to successfully complete my internship at Ultracode Global Venture Limited.

Also, I acquired some knowledge and certifications outside the confines of EPITA which were instrumental during my internship experience. Microsoft Power BI associate, and Google Data Analytics Professional Certifications as well as several other courses which I took online were also instrumental to the success of my internship.

Before my internship, I also carried out some personal projects to demonstrate my skills using tools like Microsoft Power BI, Power Query, SQL, Excel and Python.

Working with these tools and using real-world data had a different feel to it, despite the challenges encountered during each of the projects I was a part of, I easily surmounted them thanks to my supervisor and supportive team members.

1.5 Motivation for this internship

During my studies at EPITA, one of the courses I found interesting was 'Business Intelligence'. The course exposed us to Tableau, Talend, and MySQL Workbench which I found fascinating. That was the foundation I needed for the Microsoft Fabric tool I used throughout my internship at Ultracode.

Using this amazing business intelligence tool to draw insights through dashboards and Reports not only solidified my analytics skills but also solidified my knowledge in business understanding.

Before securing my internship at Ultracode, I took certifications that exposed me to Business Intelligence tools like Microsoft Power BI and Tableau. I produced several dashboards and reports which I included in my portfolio.

Ultracode has a vast pool of clientele, and we worked on various ad-hoc projects continuously. This exposure further enhanced my data analytics skills and improved my confidence.

When I was presented with this internship that would require me to make use of these tools, I took it without a second thought because I enjoy using these BI tools, plus the flexibility and versatility they offer.

This was also an opportunity to work on real-world data as opposed to what I was used to in the past. This internship experience exposed me to the nuances of teamwork, open communication, storytelling and remote work.

1.5 Specific Work Context

I was assigned to work on an end-to-end data analytics dashboard for an E-commerce startup company in Brazil.

For this task, I worked with the relevant stakeholders who provided me with the necessary support required to complete my tasks.

I worked closely with my internship supervisor who has over 10 years of data experience in delivering this project, interfacing with both internal and external stakeholders, setting deadlines and achieving project goals.

I had the opportunity to use the knowledge acquired from EPITA as well as my previous technical knowledge.

I used Microsoft Fabric to provide this end-to-end analytics project, from data ingestion to final dashboard design.

Microsoft Fabric is an end-to-end Software as a Service (SaaS) platform that encompasses several services and synapses, ranging from Data Engineering, Data Science, Data Analytics, Data warehousing and orchestration tools.

2. ORGANIZATIONAL ASPECT

I carried out my internship remotely from France which is my first experience working remotely for a company. Throughout my six (6) months internship I communicated with the team online through Microsoft Teams and I would say it was a pleasant experience.

The team was always supportive and available to answer any questions or concerns that I may have. Even though not being physically present there meant I needed to communicate clearly and concisely.

I had weekly standup meetings with my colleagues to explain the state of the project as well as roadblocks, this created a sense of accountability and teamwork.

I took personal training that would put me up to speed on Microsoft Fabric because this was the first time I used this amazing SaaS tool to execute any project, even though I have previous experience using Microsoft Power BI including a certification from Microsoft.

I was proactive in my learning as I dedicated time to learning on Microsoft Learn and participating in a Fabrics Analytics Engineer challenge, completing the modules within 30 days. I was awarded a 50% voucher for accomplishing this feat. This experience gave me the confidence to tackle this remote project head-on.

2.1 Internship Breakdown

While working on a project, each task must be monitored closely to ensure the project is on schedule. During my experience as an intern at Ultracode and working remotely with an E-commerce client, I ensured meticulous tracking of time and deliverables for the project. Here is a Gantt chart breaking down my internship and project tasks at Ultracode.

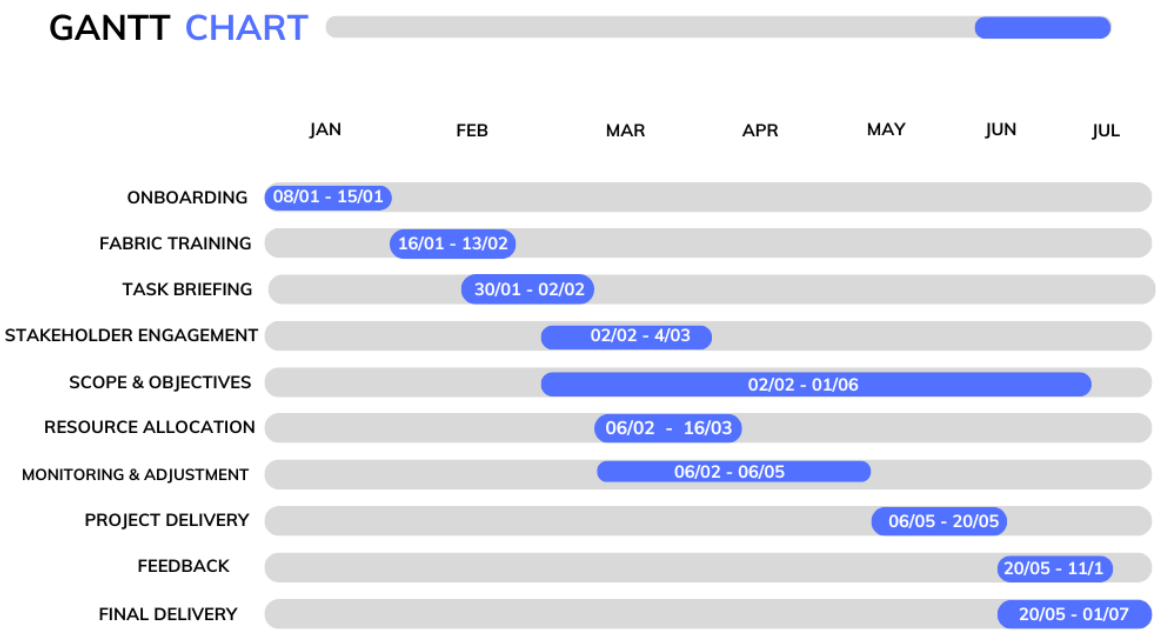

Fig: Gantt Chart of activities.

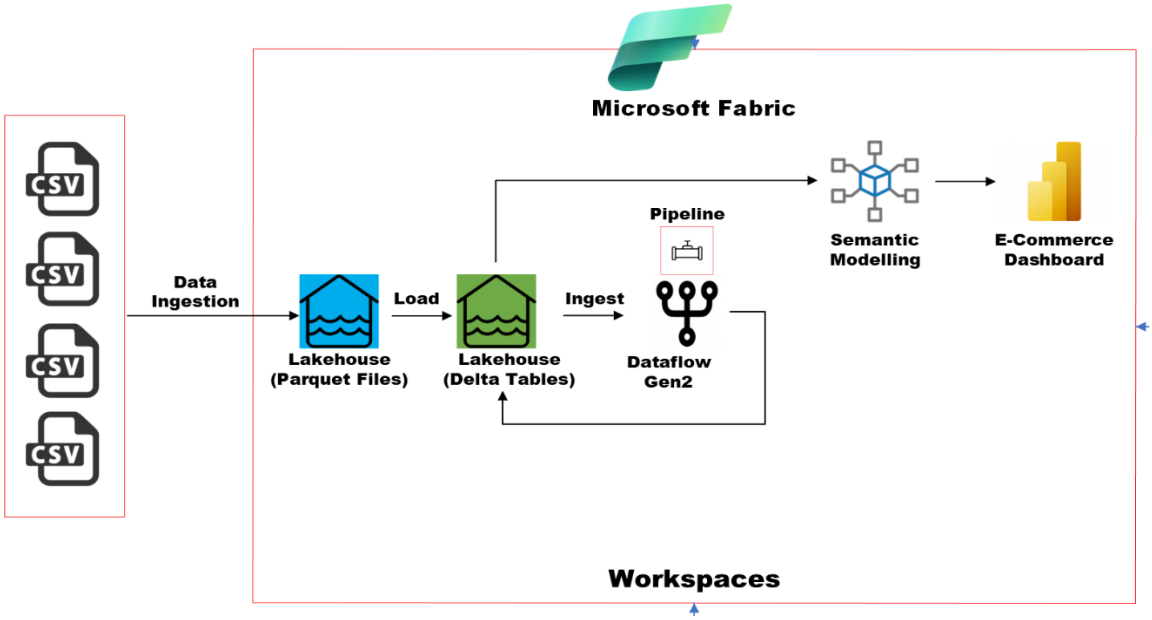

Fig: Project Architecture

The tasks I performed specifically using Microsoft Fabric on this project are outlined below, with accompanying screenshots.

- ❖ Creation of the workspace in Microsoft Fabric where I can collaborate with colleagues to create collections of items like lakehouses, warehouses, reports, and task flows.

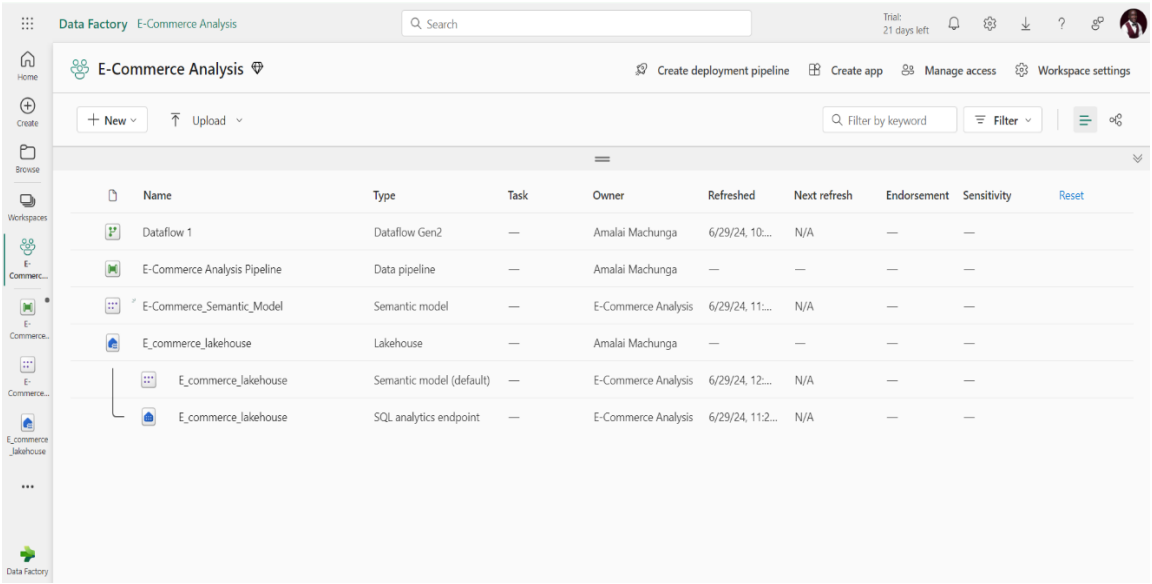

Fig: Project Workspace.

❖ Lakehouse Creation on Microsoft Fabric to accommodate the datasets within the workspace earlier created.

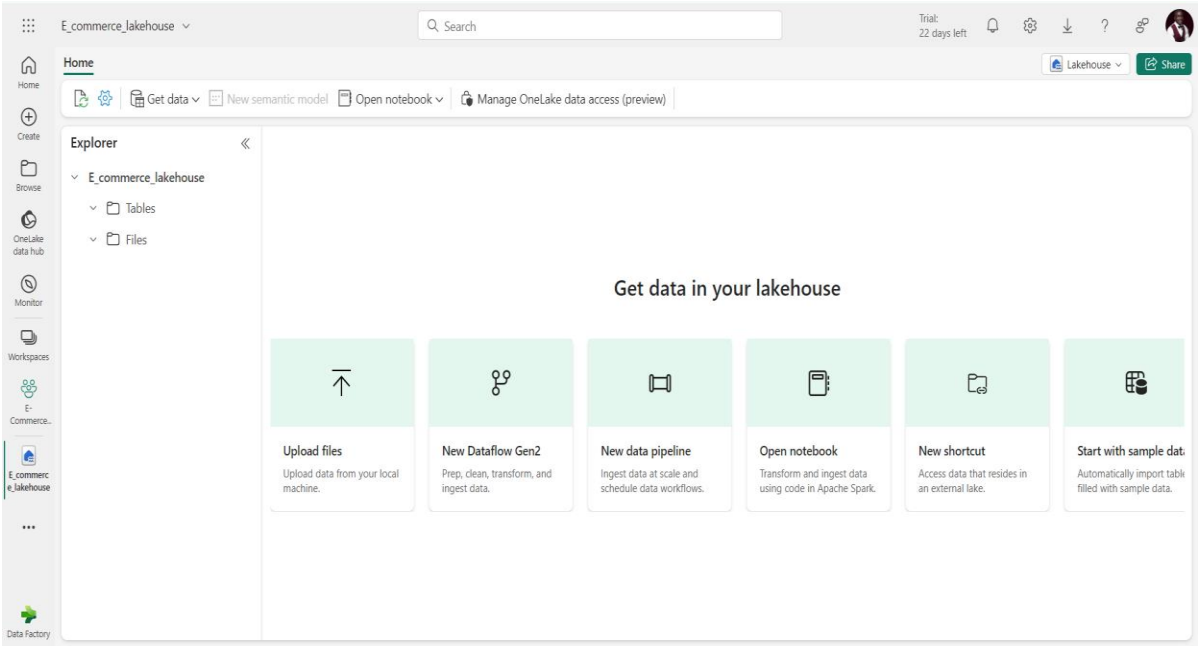

Fig: Lakehouse Creation.

❖ CSV files uploaded to Lakehouse so that the data is globally available for data cleaning, preprocessing and further analysis.

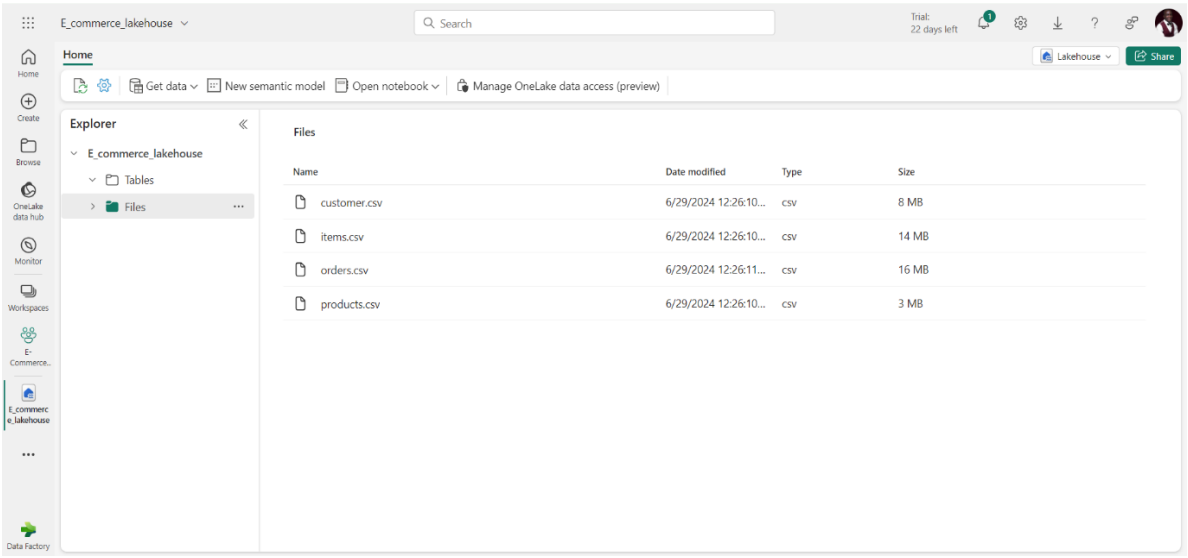

Fig: CSV files upload

❖ Loaded files as delta tables in Lakehouse to optimize data access, performance and save compute time.

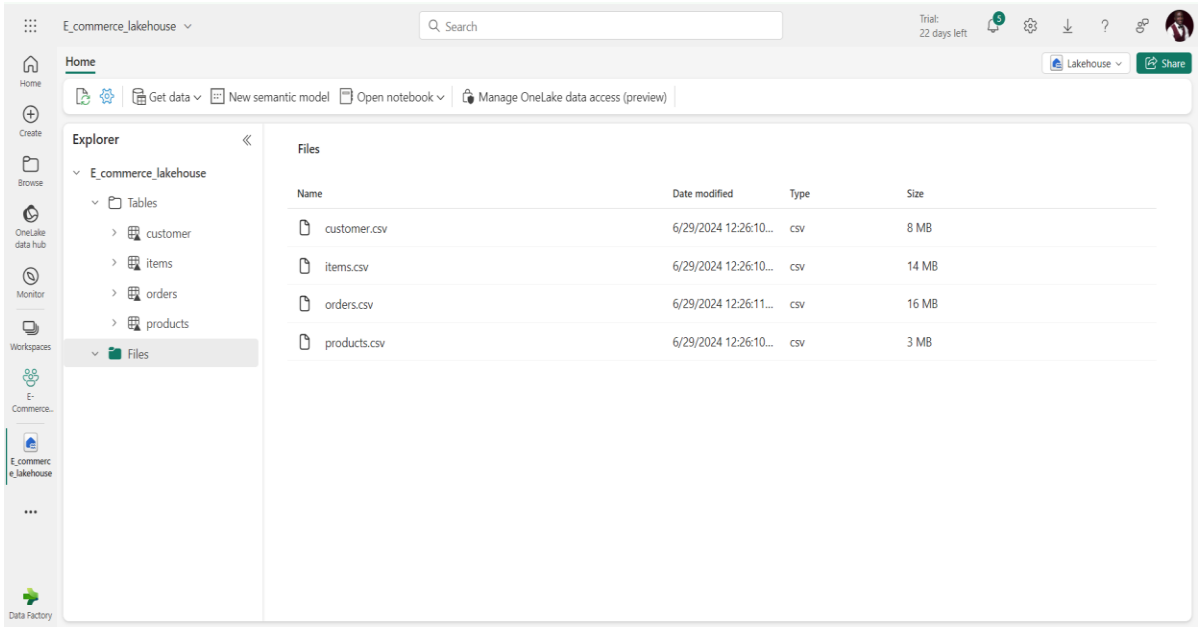

Fig: Files to Delta Tables

❖ Data Cleaning using Dataflow Gen2 and M-Language, where I removed columns, removed duplicates and promoted headers.

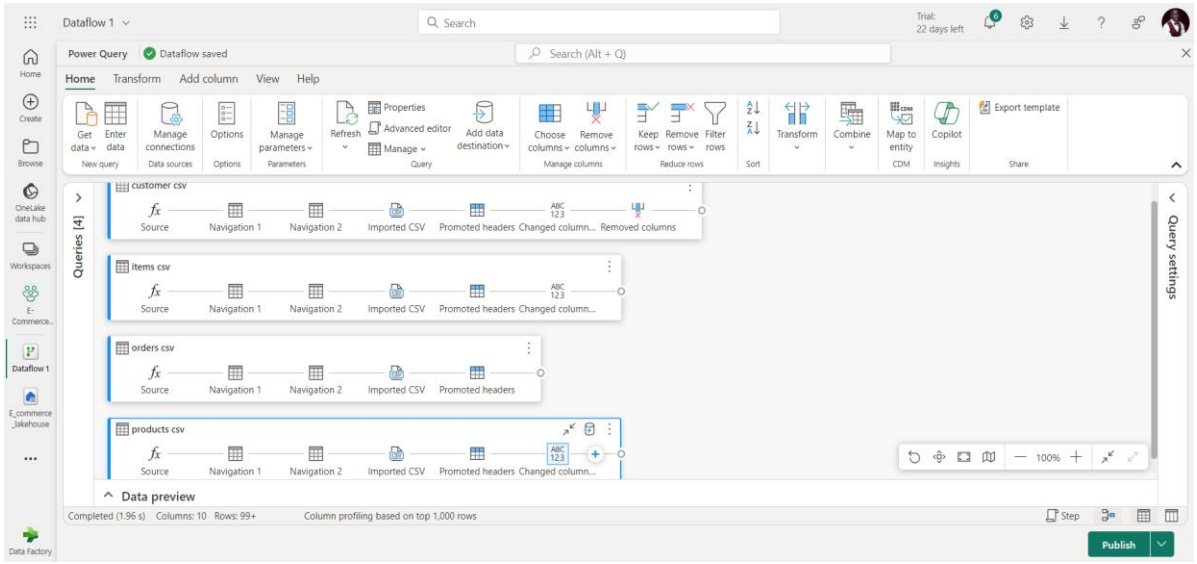

Fig: Dataflow Gen2 interface

Fig: M-language Advanced editor

- Creating Semantic Models of the tables and establishing relationships between them.

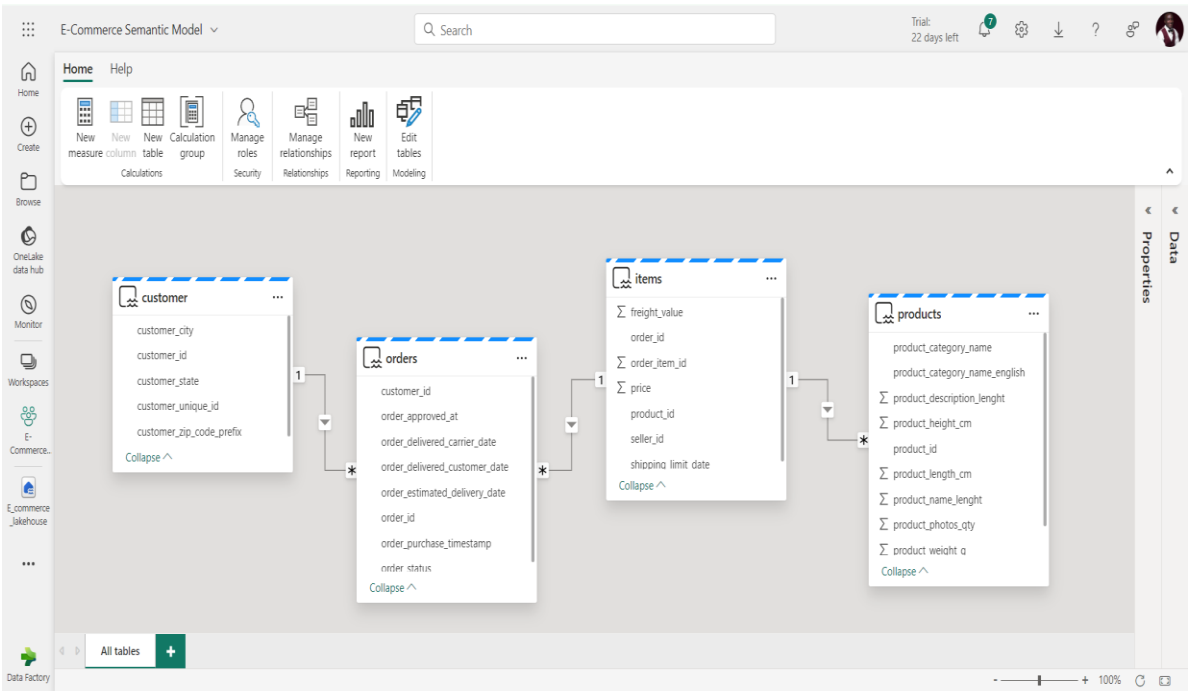

Fig: Semantic Models of the Tables.

❖ Saving the cleaned and preprocessed data into the lakehouse for further analysis.

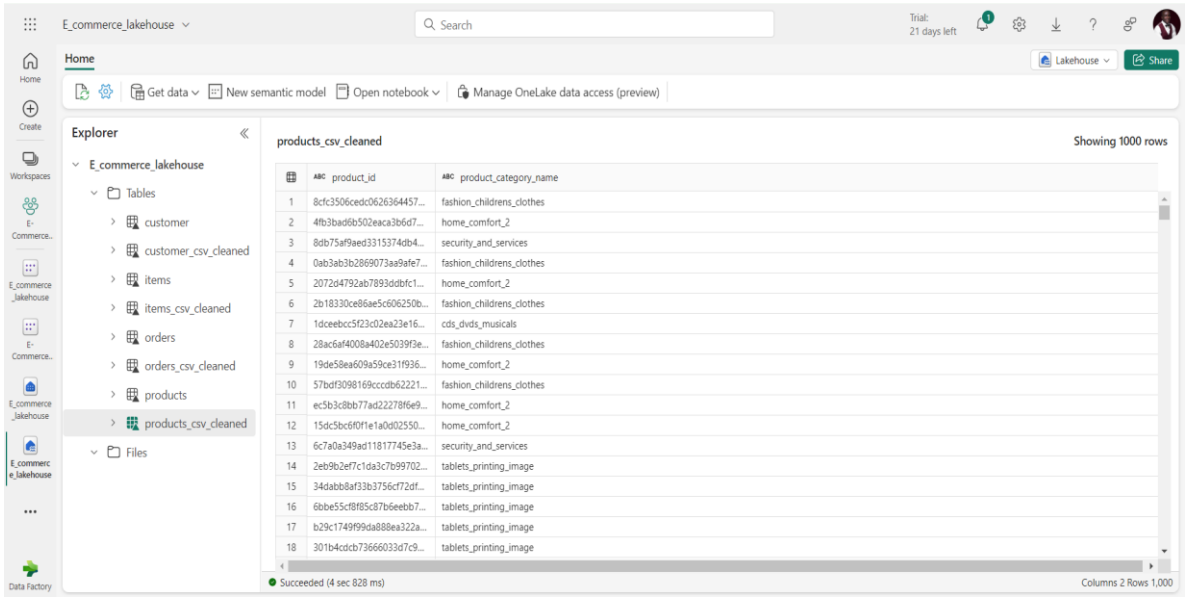

Fig: Saving cleaned data into the lakehouse.

❖ Using Data Analytics Expressions (DAX) to create new measures for my analysis.

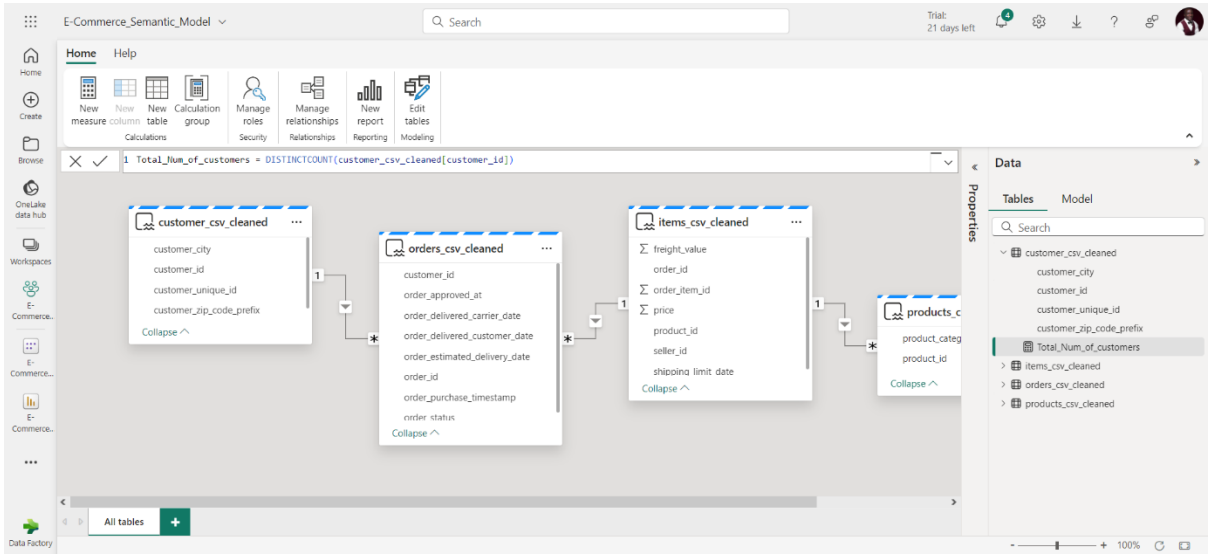

Fig: DAX to calculate the total number of customers.

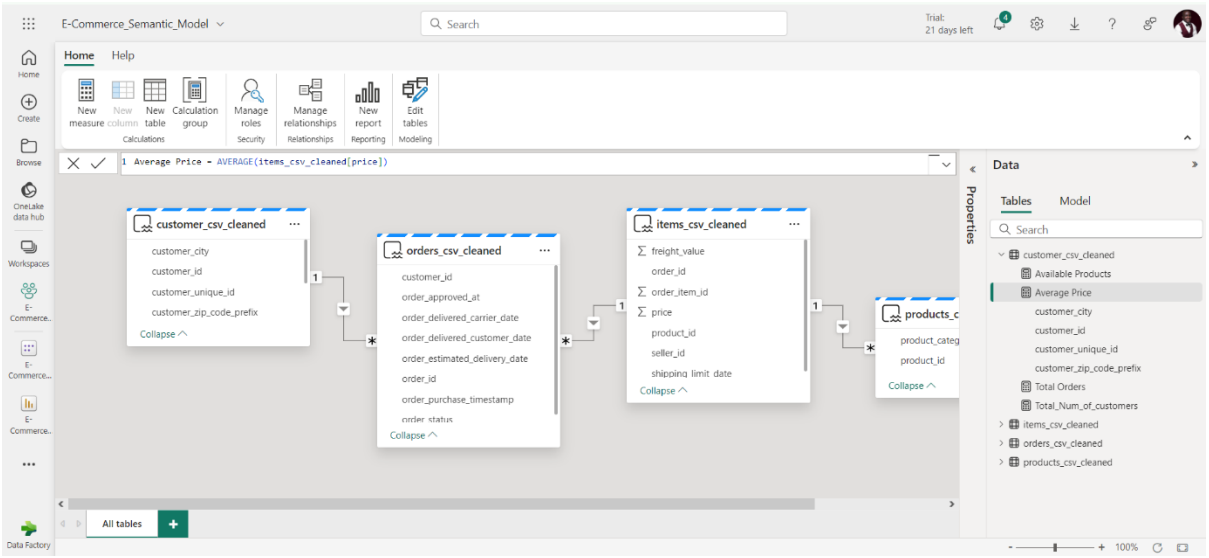

Fig: DAX to calculate the Average Price

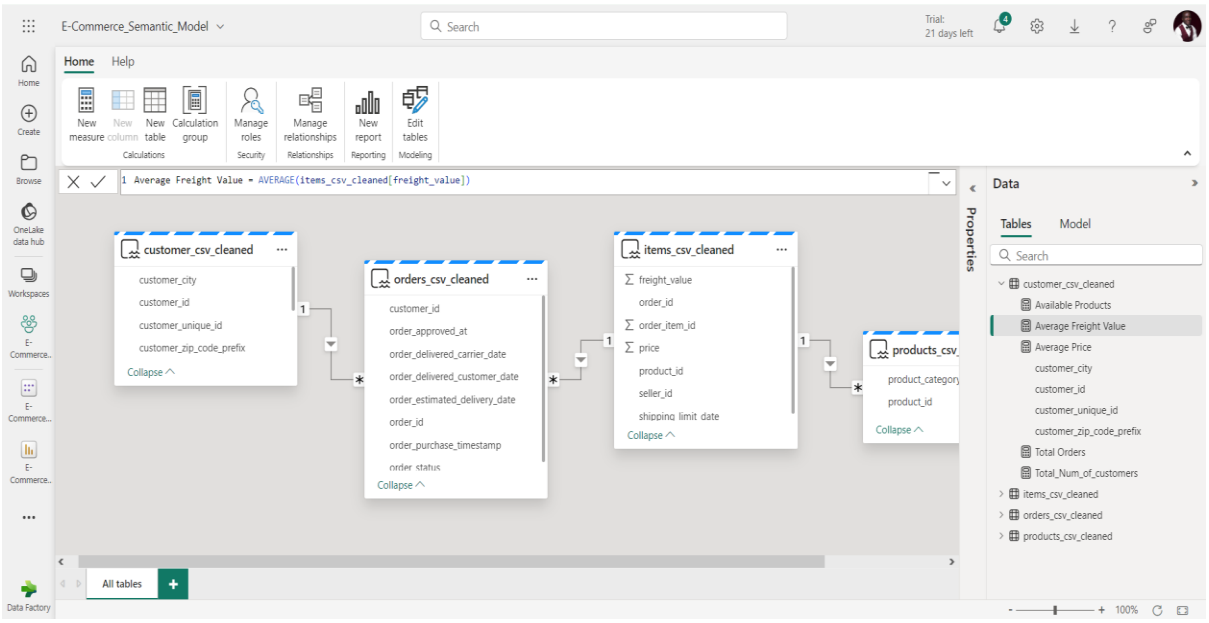

Fig: DAX to calculate the Average Freight Value

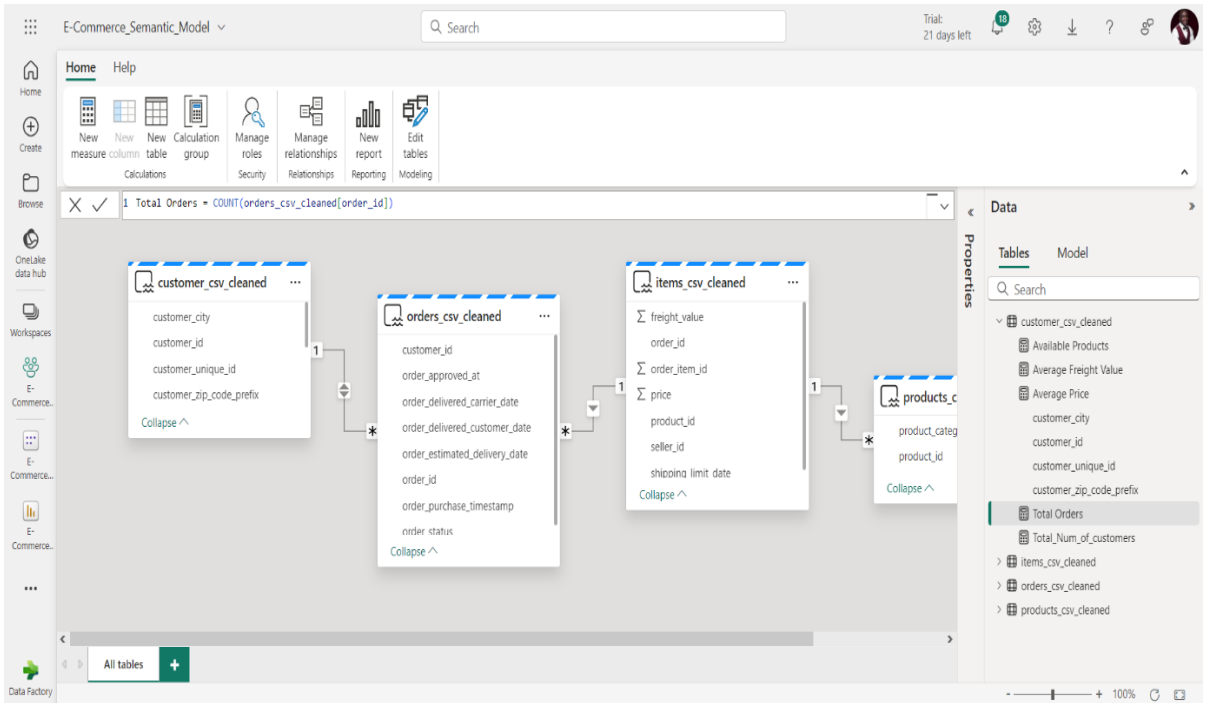

Fig: DAX to calculate the Total Orders

- Creating a data pipeline to automatically trigger the dataflow1 which is the transformed data and save it at regular intervals in the lakehouse by a scheduled refresh.

Fig: JSON code for Pipeline orchestration

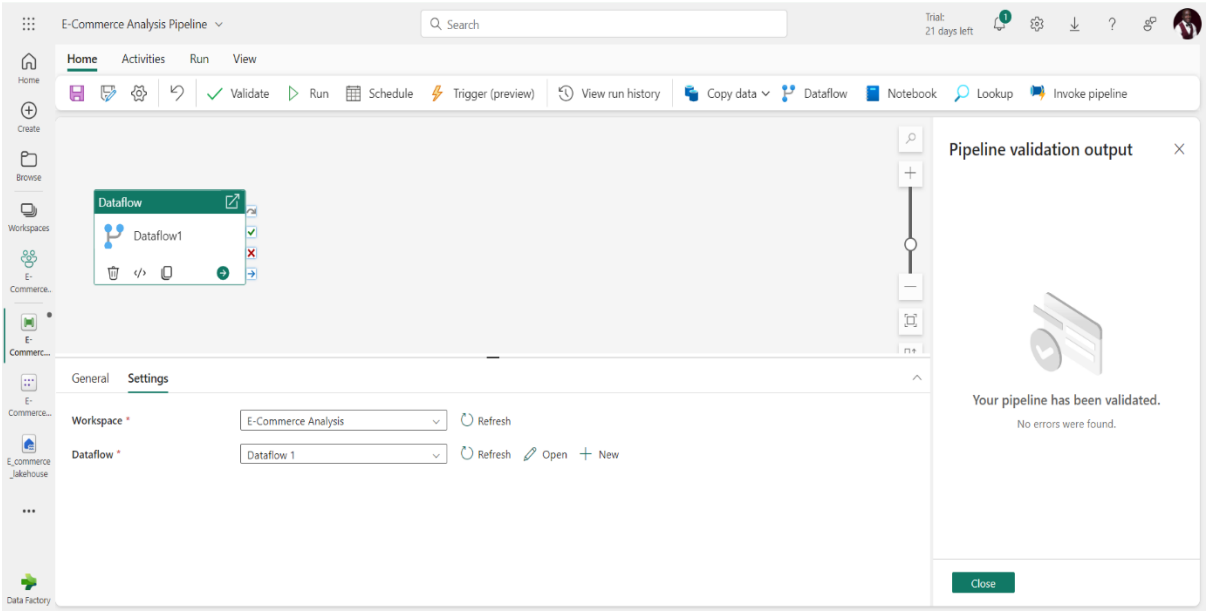

Fig: Pipeline Orchestration

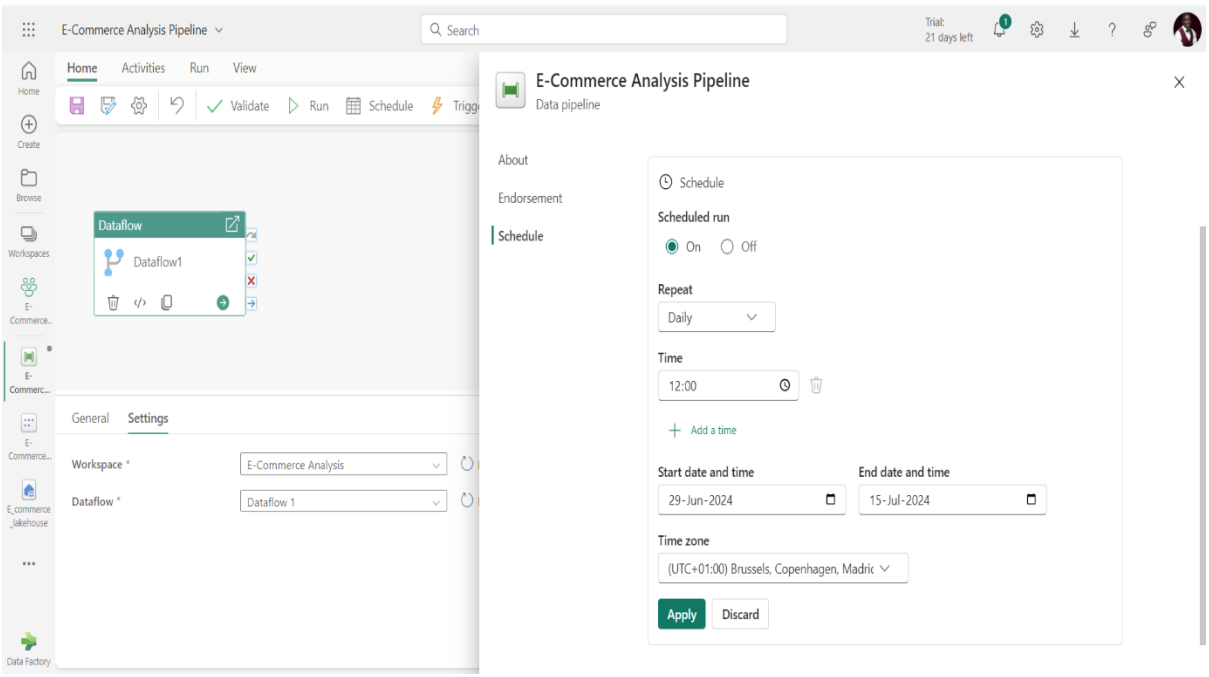

Fig: Pipeline Scheduling

❖ Dashboard creation as defined in the objective of the project

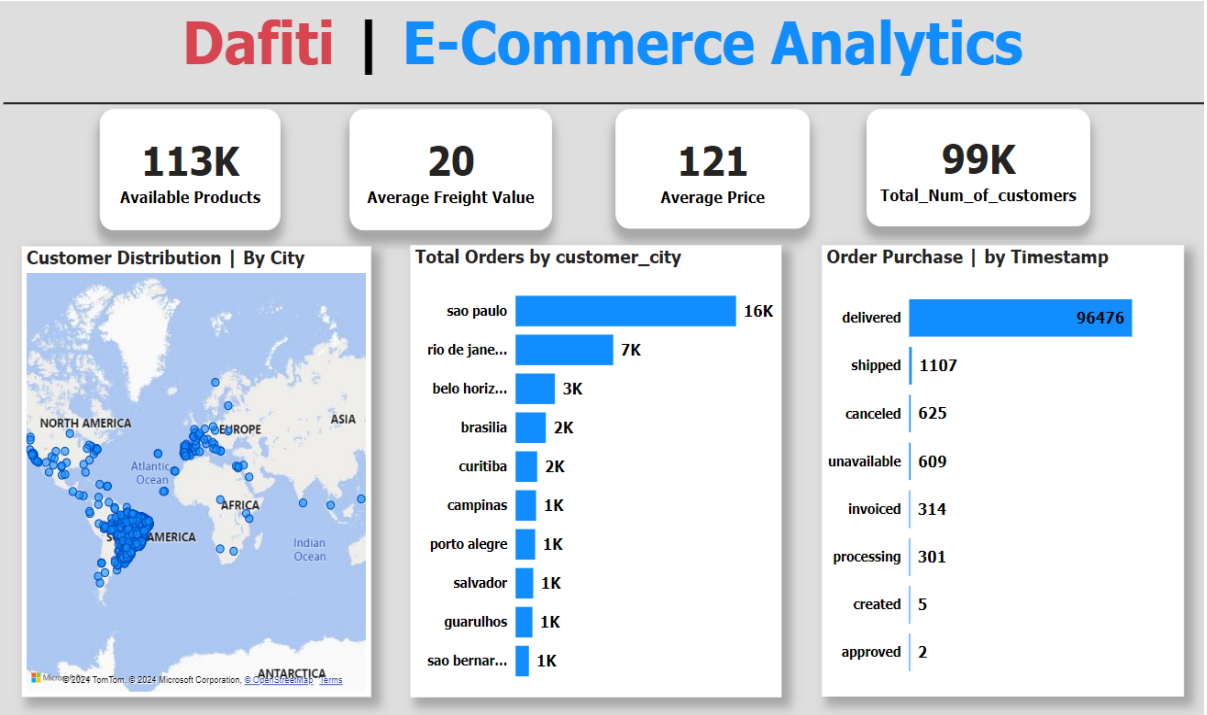

Fig: E-Commerce Analytics Dashboard.

2.2 Respect for Deadlines and Criticisms

The project had deadlines that must be adhered to, these deadlines were set at the beginning of this project and agreed to by all the stakeholders involved in the project. Regular meetings were scheduled to bring everyone up to speed on the project, and the roadblocks and to forge a way forward.

I adhered to all the laid-down deadlines as I had it in my mind that it could cost the company more resources than earlier budgeted. I ensured thorough planning and time consciousness to ensure that each task and milestone was met when due.

Despite operating under different time zones and working remotely, I consistently made the effort to meet timelines, and not only met them but exceeded them.

2.3 Nature and Frequency of Internal Checkpoints

Internal checkpoints were put in place at Ultracode, which played an important role in ensuring we delivered on the project at hand.

By clearly defining goals, deliverables and milestones and ensuring that all stakeholders have a shared understanding of the project scope ensuring that the project was a success.

Ensuring that the right people with the right skills were assigned to various projects ensured that projects were not delayed because of incompetence or lack of sufficient knowledge of a task or project.

We also conducted milestone reviews at every point to assess the progress against the plan and then make the necessary to the project plan based on the milestone reviews.

At Ultracode, we implemented regular status reporting to stakeholders to keep everyone informed about the progress and any changes to the project will be noted and incorporated. When necessary, we used dashboards and visual aids to communicate project status. We also ensured that all changes to the project were documented, reviewed and approved by stakeholders.

Lastly, we used feedback mechanisms to collect feedback from team members and stakeholders on the project process and we used this feedback to refine and improve internal processes.

2.4 Management of crises related to technical or budgetary problems, and political and relational issues.

Throughout, my internship supervisor played a crucial role by providing continuous guidance and helping to re-align our goals with the available resources and to ensure that the project was delivered on time and within budget.

My colleagues were also instrumental in problem-solving; their collaborative efforts and expertise in specific areas allowed us to overcome several obstacles and maintain project momentum.

In the event of an overshoot of deadlines, we managed these aspects by first carrying out a root cause analysis which could include an unexpected increase in project scope and limited availability of key resources. To address this issue, we re-prioritized tasks and communicated with stakeholders to reset expectations.

Despite the delays, I was able to achieve some of our key objectives by focusing on the most critical deliverables and finding efficiencies in our processes.

3. Methodological, Scientific and Technical Aspects

The main objective of this internship at Ultracode is to provide end-to-end data analytics for clients' data using Microsoft Fabric. By performing cleaning and Pre-processing, semantic modelling using M-Language and DAX (Data Analytics Expressions) and producing dashboards and reports.

During my internship at Ultracode, I encountered some challenging technical issues that once surmounted led to in-depth domain knowledge. Some technical challenges were solved individually or independently which proves that I can work independently or as part of a team.

3.1 Possible Technical Choices

Despite the various tools available, **Microsoft Fabric** stands out as an all-encompassing analytics solution tailor-made for enterprises. Its primary aim is Simplification, providing an end-to-end solution platform which covers everything from data Engineering to data science, real-time analytics, and business intelligence. Microsoft Fabric stands out from other SaaS tools because it simplifies the complex landscape of enterprise analytics. This holistic approach ensures that users don’t juggle multiple services from different vendors which also ensures greater security and accessibility to all kinds of users within an organization.

Microsoft has developed an all-in-one enterprise data solution, Microsoft Fabric, to compete with various vendors. **Synapse Analytics rivals Snowflake**, **Power BI competes with Tableau**, and **Azure Data Factory offers similar functionality to Talent ETL** with better

integration with Azure services. By providing a comprehensive ecosystem at a lower cost, Microsoft aims to eliminate the need for businesses to piece together multiple products.

In summary, the overall value proposition and reasons for choosing Microsoft Fabric is:

Integrated Ecosystem:

- Provides a comprehensive suite of tools for data analytics, data science, and data engineering within a single platform.
- Seamless integration with other Microsoft products and Azure services.

Cost Efficiency:

- Offers a lower-cost solution compared to assembling multiple products from different vendors.
- Reduces the need for additional expenditures on integrating disparate systems.

Simplified Implementation:

- Streamlines the process of setting up and maintaining an enterprise data solution.
- Minimizes complexity by offering an all-in-one-place solution.

Competitive Tools:

- Includes powerful tools like Synapse Analytics, which competes with Snowflake.
- Features Power BI, a strong competitor to Tableau, Looker and Qlik Sense.
- Azure Data Factory, comparable to Talent ETL but with better integration.

Resource Optimization:

- Saves time, money, and resources for businesses by reducing the need to manage multiple vendor relationships and integration processes.

Scalability and Flexibility:

- Designed to scale with the needs of an enterprise.
- Flexible enough to handle a wide range of data analytics and engineering tasks.

Enhanced Performance:

- Optimized for performance with deep integration across the Microsoft ecosystem.
- Ensures high efficiency and reliability in data processing and analytics.

Robust Security:

- Offers advanced security features to protect data and maintain compliance with industry standards.
- Leverages Microsoft's extensive security infrastructure, including threat detection, data encryption, and access controls.
- Provides consistent security policies across the entire data ecosystem, reducing vulnerabilities and enhancing data protection.

4. Initial Assessment

4.1 Value of the Internship / Evaluation of Contribution Made

My internship at Ultracode was evident in my remarkable contributions which had enormous impact in the company. The company had a shortfall of interns who had significant experience in data analytics. My certification as a Microsoft Certified Power BI associate set me apart and put me on the pedestal of making a significant impact at Ultracode through its clients.

Before long, I worked on projects with minimal supervision which meant freer time for others who would have spent time supervising me to do other more important tasks.

My contribution has helped drive a data-driven decision-making culture for Ultracode's clients, which I am proud of. Through the work I have delivered, Ultracode has maintained its high

level of reputation in the eyes of its clients thereby setting it apart as one of the best IT outsourcers.

I am convinced without a doubt that my contributions to the team left an indelible mark which would stand the test of time.

4.2 Personal Interest

This internship experience has shaped me professionally from the viewpoint of my soft skills, I have improved in the areas of communication, organizational skills and teamwork. My combination of academic and practical experiences further enriched my expertise, gearing me up for more complex challenges in the field of data.

From the viewpoint of my technical skills, I have improved in the areas of

Data Analytics: Carrying out end-to-end analytics using Microsoft Fabric holds a deep exposure for me. Despite performing various data analytics tasks using Microsoft Power BI and Tableau, this experience offered me a whole new vista of analysis possibilities.

Data Engineering: Carrying out data ingestion in Microsoft Fabric from various sources has enhanced my skills and competence. I am now more confident in my technical abilities in data ingestion.

Data Pipeline: Using Microsoft Fabric to orchestrate various data pipelines has enhanced my technical knowledge and I am more confident as I look forward to carrying out future personal projects using Microsoft Fabric.

4.3 Conclusion and Feedback on the Internship: Areas of Improvement in Hindsight

My internship journey at Ultracode and my assignment with an E-commerce company in Brazil have been an exciting experience, my skills, knowledge and understanding of the subject matter have improved astronomically.

My experience with various teams has helped me improve in communication, stakeholder engagement, time management, project management and storytelling.

My ability to document technical processes and to explain technical jargon to non-technical stakeholders has greatly improved.

This experience has offered me the opportunity to apply the theoretical concepts and rigorous training from my studies at EPITA to real world applications, bridging the gap between theory and practice.

5. Bibliography – Glossary – Index

- https://www.ultracodeltd.com.ng/index.php
- https://learn.microsoft.com/en-us/fabric/get-started/microsoft-fabric-overview
- https://learn.microsoft.com/en-us/powerquery-m/power-query-m-function-reference
- https://techcommunity.microsoft.com/t5/fasttrack-for-azure/microsoft-fabric-for-multitenant-saas/ba-p/4068757#:~:text=The%20big%20value%20proposition%20of,service%20that%20simplifies%20your%20analytics.
- https://learn.microsoft.com/en-us/fabric/security/security-overview
- https://blog.fabric.microsoft.com/en-us/blog/microsoft-fabric-explained-for-existing-synapse-users/