

ADVANCE PRACTICE

MODULE CODE: **CIS4006**

REFLECTIVE REPORT

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ACKNOWLEDGEMENT

Thank you for the opportunity to intern with Francis Brown in the Teesside University. I am grateful for the experience and the knowledge I have gained while working with a team. I have learned a great deal and am grateful for the support and guidance provided by my team members and supervisors Mr. Mansha Nawaz and Mr. David Gourley. I am grateful for the trust and confidence you have placed in me, and I will do my best to continue to learn and grow as a professional. Thank you again for this amazing opportunity.

INTRODUCTION

My career goal is to become a **Data Analyst** in an esteemed organization in the UK. During my first year of my Master's, I have cleared six of the modules where three in distinction and three in merit and gathered necessary knowledge to become a Data Analyst. Power BI is the most important part in the **Data Analytics** journey so, I was wanted to do an internship in **SQL, Excel, Power BI, Machine Learning**. By the time I entered my second year of the degree Advance Practice module helped me very much to improve my skills in Power BI and got to be a part of Francis Brown and a chance to work on their industry data. **Francis Brown** is an esteemed organization who has been acting as a leading global provider of end-to-end fabrication and engineering services to their clients and they have been in the industry for almost 115 years. In this internship, as a team of five we built Power BI dashboards for the company showing the KPI's for **Work Orders, Sales Orders, Stock issue** etc for their customers in the years **2021 & 2022**.



During this internship, in every week took good insights for understanding the data from the current Data Analyst of the company and my industry supervisor **Mr. David Gourley** which was very helpful for completing this project. It was also very fun and informatic being a part of **Mr. Mansha Nawaz's** group who always tried to show a path towards career development. Also assisted first year students choosing their open data sets and provided information how the work should be done for their **Big Data and Business intelligence** ICA project (Power BI).

Using Power BI and Excel



Power BI is a business analytics tool that helps big industries and companies analyse, visualize, and share data. It is an application from Microsoft where the user can create interactive dashboards and charts using different data sources like SQL, Excel, and other cloud services etc. Power BI allows the users to share their insights with others within the organizations by publishing the reports. Now Power BI is used by huge number of organizations all around the world and there is a huge demand for the Data Analysts who expertise in Power BI. This always boost up me to learn and become an expert in Power BI and to become a Data Analyst. In this project also used Excel for data analysis and pre-processing and excel is also acted as a data source for the Power BI.

ACTIVITIES UNDERTAKEN

There were many activities taken place during the period of internship and as a team we were involved in

- Learning about the Francis Brown organization and its operations.
- Observing and assisting team members.
- Participating in team meetings.
- Assisting first year students with their Big Data and Business Intelligence ICA and many more.

Below described activities in every week:

Week 1:

Introduction to the module. ICA brief and specifications was given and explained by the Academic Supervisor Mr. **Mansha Nawaz**. Academic supervisor got to know the students and their area of interests. I chose to work with excel and power BI and we were asked to form into teams.

Our team members are:

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Manoj Kumar Gugulothu	W9529787@live.tees.ac.uk
Gowthami Nagappan	B1326237@live.tees.ac.uk
Tomcy Thomas	W9532837@live.tees.ac.uk
Deepika Guvala	W9497107@live.tees.ac.uk

Week 2:

Team planning and getting to know the team members and what are the areas that they excel in. Initial impressions to the real time industry data.

Week 3:

As work orders, sales order and customers of Francis Brown data is giving to us. Tried to understand the columns of different tables in the data in excel and imported the data to the Power BI. Also started writing the **progress review 1 report**.

Week 4:

Created the first draft dashboard based on work orders and sales orders and gave a basic presentation in power BI to our group and have got feedback from the academic supervisor. At the end of the week also submitted the progress review 1 report.

Week 5:

New data from Francis Brown was given and built a data model in power BI combining the old and new data together. Held team meetings and discuss few KPI's and suitable graphs that can go into the dashboard. In the lab, supervisor gave few tips towards career development.

Week 6:

Spent a week more of understanding the data and pre-processing it. Took some insights from **Mr. David Gourley** and looked at his work within the organization. Started improving the CV to a maximum impact and learned more how to build connections on LinkedIn.

Week 7:

Started the reflective writing of report and updated the activities up to week 7. Also gathered some information regarding reflective writing from a video Student & Library Services team, as part of the Student Futures.

Week 8:

Based on the completed data model two informative dashboards are build on stock issues from August 2022 and work orders of 2021 and 2022. Got some insights and feedback from Mr. David Gourley and improved few KPI's by the end of the week. Also started writing progress review report 2.

Week 9:

New up to date data was forwarded from the client Francis Brown which consists of daily employee timesheets, Work order operations, inventory data etc. By this as a team got an overview of how exactly the operations in the company. By the end of the week submitted the Progress Review Report 2 and got feedback from the supervisor.

Week 10:

In this week, designed the dashboards as the suggestions given by the industry supervisor last week. We presented updated dashboards to the industry supervisor and got valuable feedback again. Academic Supervisor provided us with 2 samples reflective reports for reference.

Week 11:

Began to write the reflective report with the given sample references and preparing a CV to submit before Christmas. Also updated all the work in '**Trello**' as a final project. Got feedback from the Academic Supervisor and Industry Supervisor. Final changes will be done if any required.

Week 12:

Finalized everything regarding the reflective report and all KPI dashboards and are ready to be submitted in the given assessment area.

Note: We have used Trello for manage the project, workflow and tracing the tasks. The activity log kept the team up to date.

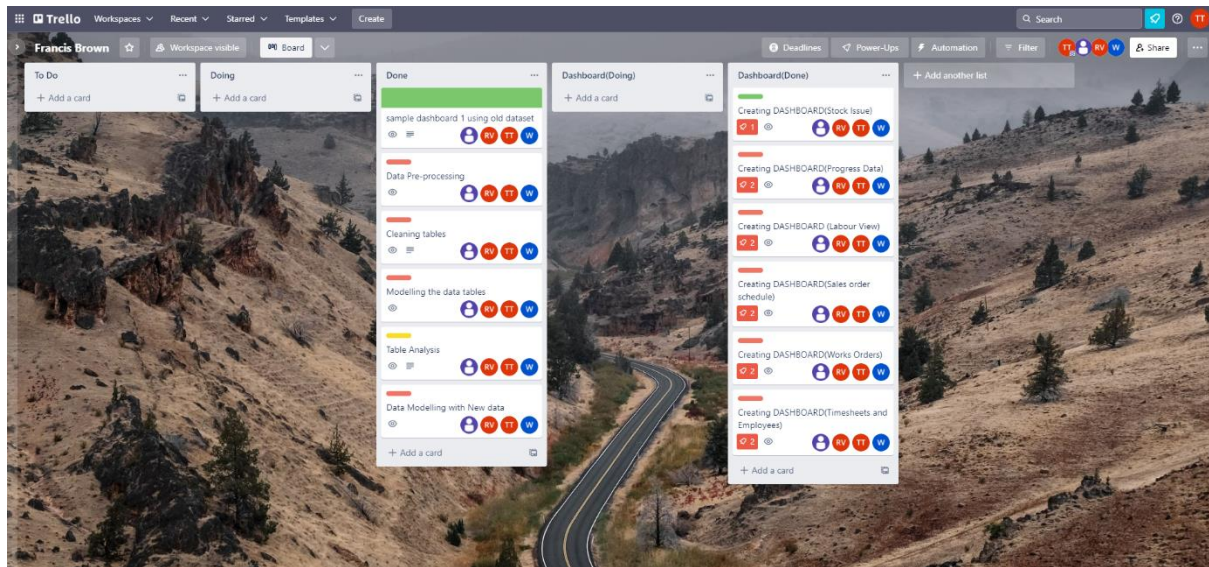


Fig 1: Screenshot of Trello dashboard.

CONTRIBUTIONS TO THE ORGANIZATION

Francis Brown is a company who provides engineering and fabrication services for different client companies and when there is this type of company there will be so much data to be handled by the technicians, analysts, engineers working there. When Teesside university have given me opportunity to part of it by this internal internship and contribute to some level to prepare some dashboards, I thought this will be another step in my career to succeed in the field of Data Science and Data Analytics.

I am hoping that will bring value to the organization through the work I have done within my role in this internship. I had a strong work ethic and willingness to learn to complete effectively and efficiently. I have interacted well with my team members well throughout the period of internship which can have a positive impact on the company in the eye of business world.

Some of the contributions the ICA project/organization are:

- I studied and understood the data from Francis Brown and as part of the team explained others which are the columns that are required for making the charts.
- I was one of the **decision-maker** in the team to make which suits the best for the dashboards.
- I have analysed the data in the excel and lead the team to decide what is data we require to present on to the dash boards.
- Created a constructive data model where the data flows **bi-directional** between different tables to make a best possible interactivity in the charts.
- Created intermediate level calculated columns and measures using **DAX**.
- Created different type of charts in Power BI in the form of visualized story telling through dashboards.

- Overall, for the client Francis Brown me individually or as a team exactly showed from the given data the statistics of daily operations of different sales orders, work orders, stock issues, inventory, time sheets, Labour cost and hours, efficiency etc.
- Based on the dashboards that are created, hoping the client could understanding our potential in terms of data analysis, creating charts in power BI as per the intern students.

Overall, I think I have put some new ideas, fresh perspectives, and a willingness to learn and hard work to the team. I am also hoping that I contributed to the organization to achieve its goals and objectives and it can also provide valuable experience and skills for my own future.

Below are the screenshots for the Power BI dashboards that we have developed for Francis Brown:

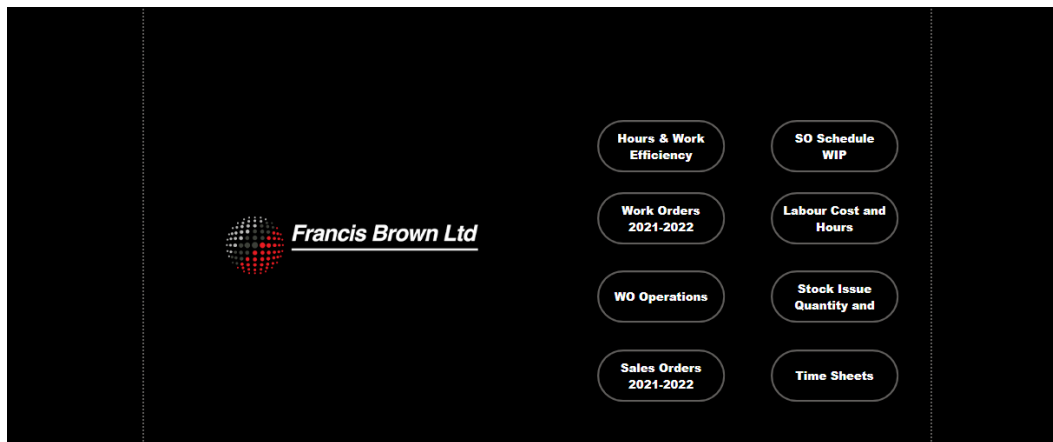


Fig 2: Screenshot of the Home Page.

Home page for total project where we can navigate through different pages in Power BI file.

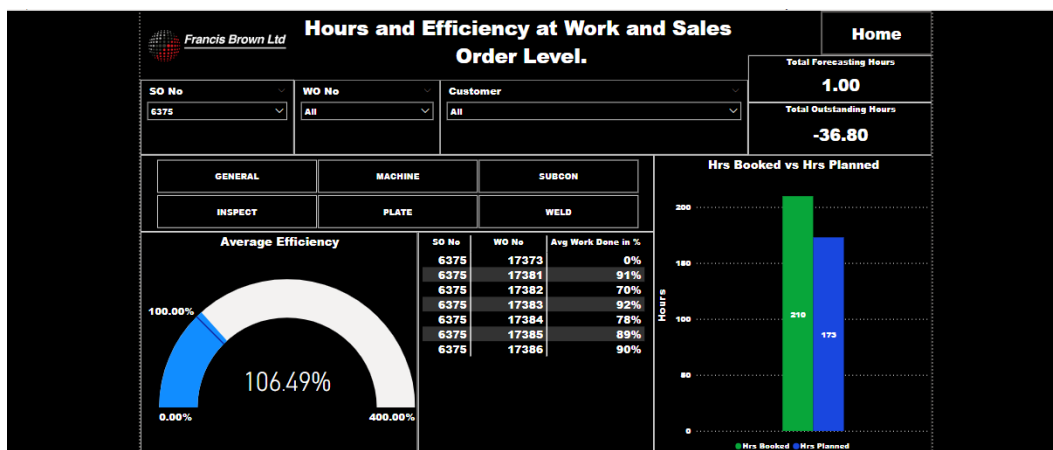


Fig 3: Screenshot of Hours and Efficiency at Work order level and Sales order level dashboard.

The above dashboard shows the information of hours planned and hours booked at sales order and work order level for each customer in the year 2021 and 2022. It also shows the information average

efficiency of different sales and work orders. It also has slicers of WC (Work type), customers, Work Order number and Sales Order numbers for interactivity with different charts.

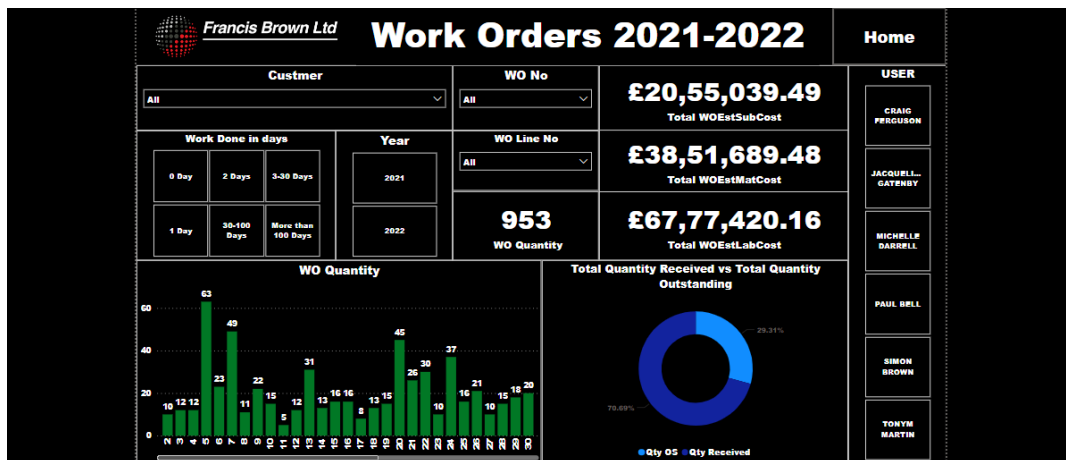


Fig 4: Screenshot of Work Orders 2021-2022 dashboard

The above dashboard shows the total work order details like quantity by year, quarter, month, week and day, work done in day group slicer, total work order sub-contract cost, material cost, labour cost for the year 2021-2022. Different slicers for user, Line number were kept for interactivity.

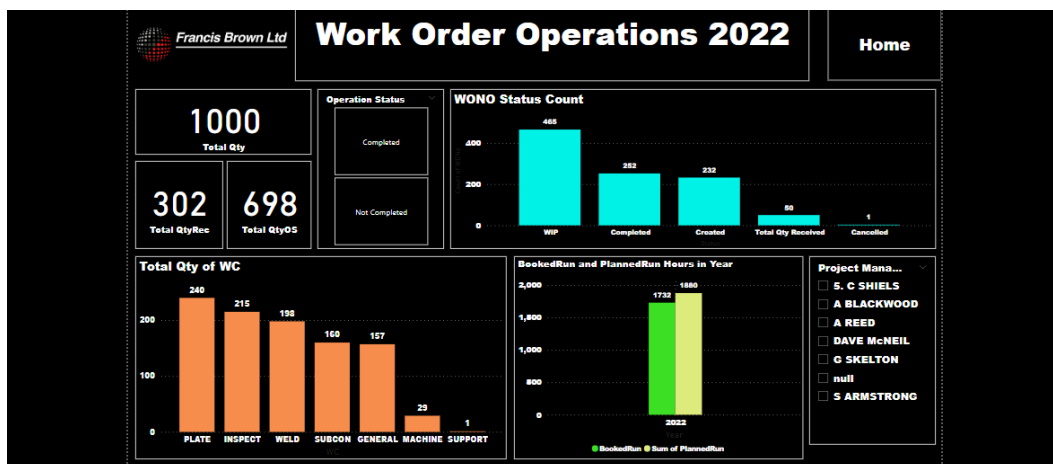


Fig 5: Screenshot of Work Order Operations 2022 dashboard.

This dashboard is for work order operations for the year 2022 where it is viewed by WC, Work order status count. Project managers are also projected with a slicer for interactivity with the charts.

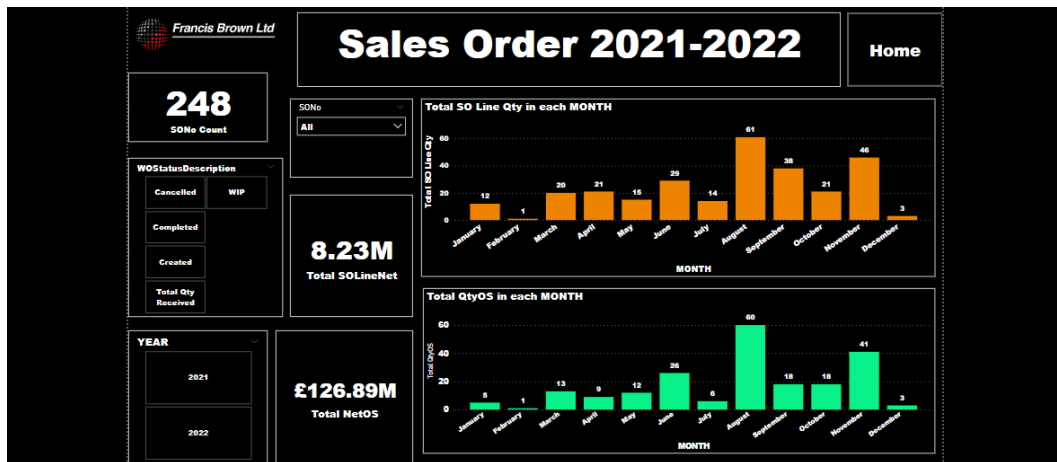


Fig 6: Screenshot of Sales Order 2021-2022 dashboard.

The above dashboard is the entire details of Sales orders in the year 2021-2022 where it shows information of order quantity, line quantity, sales orders count with the slicers like SO no and status.

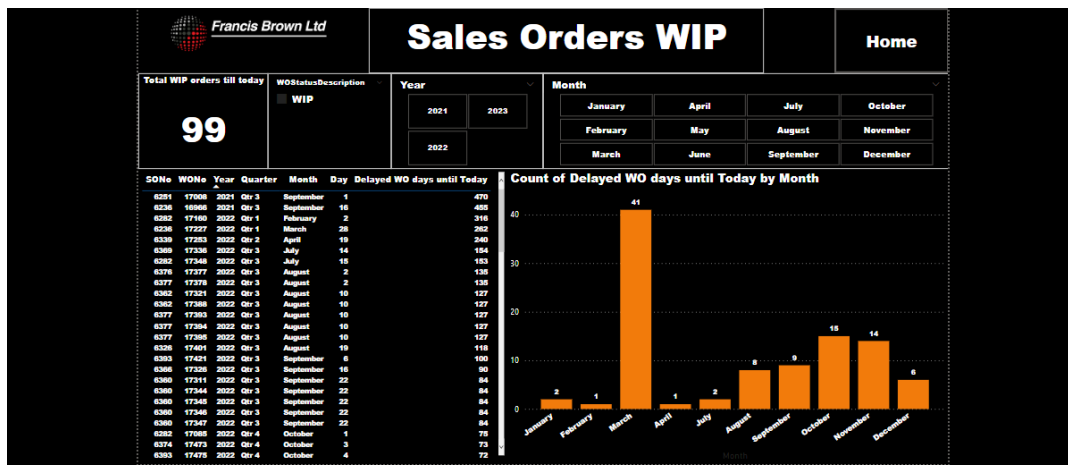


Fig 7: Screenshot of Sales Order WIP dashboard

The above dashboard shows the information of sales order where the status is WIP (work in progress).

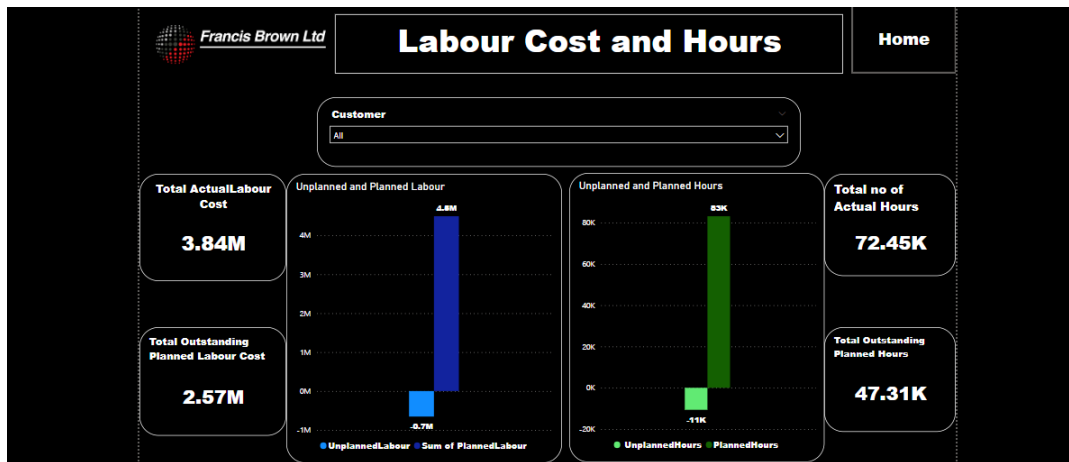


Fig 8: Screenshot of Labour Cost and Hours dashboard.

The above dashboard screenshot shows us the information of labour cost and hours (planned and unplanned hours) with a customer slice for interactivity.

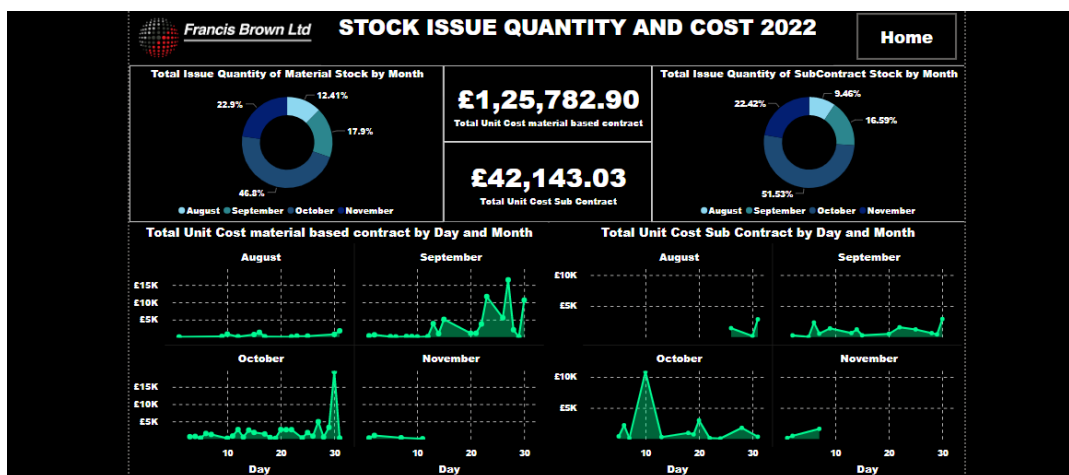


Fig 9: Screenshot of Stock Issue Quantity and Cost 2022 dashboard.

The above dashboard shows the information of stock quantity and its cost issued in 2022 but only had the data for months August, September, October, and November.

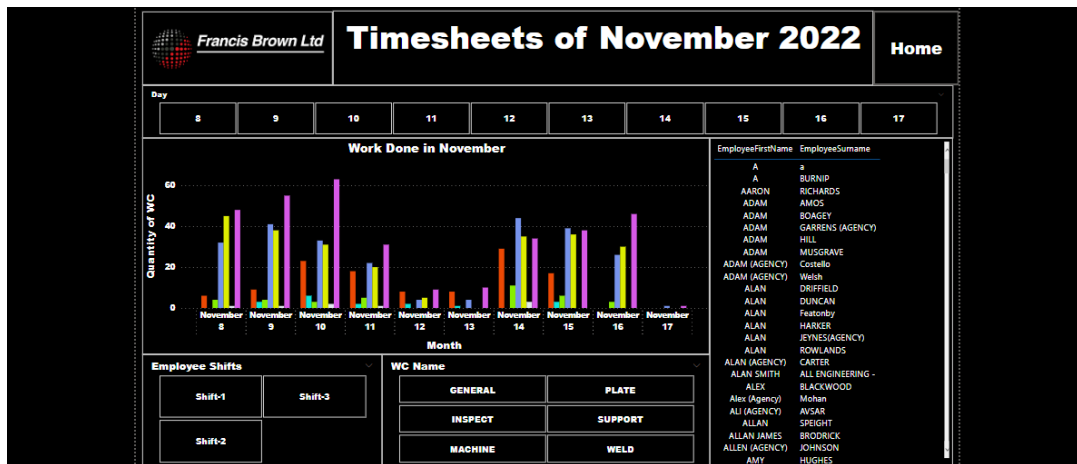


Fig 10: Screenshot of Timesheet of November 2022 dashboard.

The last dashboard shows the information of time sheets of work happened from 8th November to 17th November 2022 in which shifts are divided into 2. It also gives the employees name who worked in that shift.

REFLECTION

My internship at **Teesside University** helped me to recall all the concepts of the Power BI that were taught during my year. Also explored new concepts and skills in Power BI which I was unable to during my Big Data and Business Intelligence ICA. Special thanks to our academic supervisor Mr. Mansha Nawaz and the university who bought Francis Brown as a client and made us to be a tiny part of them.

During the starting stages of the internship the thing that I learned is that there is so much data in just this organization. What a role Data Analytics or Data Science is going to play in the future with this abundance of data all around the world? This is good sign that there will be large number of jobs in the future all over the world or at least in the UK there is shortage of Data Analysts, Data Engineers, and Data Scientists in different industries. I have personally learned that to score a entry level Data Analyst job, I must be good at Excel, SQL, Power BI, Machine Learning and also other visualization applications like Tableau. Accessing the data through excel and manipulating and pre-processing it was a huge take away from this internship. When first time data was introduced to us, there were lot of null, blank values, and dependencies in the data, but later by the time gone discussed with the client and came to a decision where it can be worked out.

This internship gave us the opportunity to work in a team and this is one of the biggest takeaways for me personally. Got assigned to a good team of five who never worked with a real industrial data where we made good plans and steps to pre-process the data in Excel and Power BI. While working in the team we gained better insights from one another and understood both positives and negatives of the project. This internship helped me improve my communication skills. Sometimes whenever we lost the track, we discussed things out to make that everyone in the group were on the same page. We may have achieved more or less than expected in this team, but this experience has taught a lot.

In between the internship, I have got a chance to become a lab assistant for Big Data and Business Intelligence lab for a short period of time. In this opportunity, I have helped the first-year master's students to choose a dataset for their In-Course assessment. Although this is for very short period, this improved the transferable skills in me.

I developed a strong understanding of principles and practices in this project. I learned how to analyse the data, how to develop and implement strategies, and how to communicate with the team members.

Additionally, my internship gave me insightful knowledge about the difficulties and possibilities facing the sector. I was able to see how industry works and operate and moreover, to keep up with the newest trends and advancements in my industry. This gave me a better understanding of the landscape in which I will be working and helped me to identify potential areas for growth and development.

Overall, my internship has been a valuable learning experience and has contributed significantly to my knowledge and understanding of the project. I feel confident that I will succeed in Data Analytics field, and I am very much excited to learn more in future.

PERSONAL BENEFITS

My internship has provided me wide range of personal benefits which I think will be particularly helpful with my career in Data Analytics industry and they are

Applying knowledge and skills to Industrial data

Applying my previous Data Analytics, Excel, Power BI skills and Knowledge to the real-world industrial data helped me deepen my understanding to see how theories and concepts are put in a teamwork. It gave me confidence that I can succeed in this field.

Developing personal and professional skills

This internship provided me an opportunity to work on various tasks in Power BI, to interact with a diverse range of people and to adapt to the different adjustments made by the client. By participating in all of these I gave developed problem-solving, communication, teamwork, and leadership skills. We even had a difficult team member to tackle where they never showed up to the meetings and group calls but me and other team members tackled it in a very professional way. This bought me personally more confidence that I can handle these in the future as well.

Networking

Another personal benefit of this internship is the opportunity to make connections with professionals at the university. Building connections with others could be very valuable and beneficial in future. I was taught to networking to the personal face to face with my supervisor and as well as on LinkedIn. Hoping this will help improve my contacts and also succeed in the future.

Enhancing CV

This internship provides valuable experience and skills which can be highlighted in the CV which increases the chances the employability after graduation. This internship allowed me to gain

practical work experience in real world work environment, which I think will attract the potential employers. Overall, enhancing the CV will attract the employers after graduation by providing skills and connections.

Applying previous Knowledge

Working in a team helped me apply and build upon what I have learned in the past. I used the knowledge and skills I have gained in the first year of my course Data Science to lead and organize the project. By applying previous knowledge helped me deepen the understanding and mastery of the subject matter.

Fulfilling course requirements

This internship provided me with opportunity to apply their knowledge and skills into real world, while also earning college credit towards our degree program. This also helped me with time management. Overall, obtaining college credit through this internship can be a beneficial approach for me to complete course requirements for academic programmes while gaining real-world experience.

PROFESSIONAL VALUES AND BEHAVIOUR

As an intern, it is important to demonstrate few professional values and behaviour to gain trust from the teammates, academic supervisor, and industry supervisor. By demonstrating these I was able to showcase my abilities in this project. Some examples of professional values and behaviour that is demonstrated in this internship include:

1. **Integrity:** Being transparent, trustworthy, and honest in all decisions and interactions in the team. I have learned a lot about being responsible. Completed tasks without taking any shortcuts. Maintaining integrity helped me build trust and credibility with my team members and my supervisor.
2. **Teamwork:** Before this internship, teamwork for me is just to people coming together to complete a particular but during this internship I have personally learned a lot. I have learned that teamwork is also about active listening and considering the perspectives and ideas of others. In this process, also learned to give and take feedbacks. I have also learned to support other team members in their tasks and objectives. Participating in team meetings was a huge take away from this internship.
3. **Self-Motivation:** Self-motivated employees need very little heads up in the workspace and this means supervisors need not always be at the back. Employers are now interested to hire self-motivated candidates. Previously in life personally there were times where I have lost motivation and stuck and during this internship, I motivated myself when our team is stuck at places many times. This is the big takeaway for me professionally and personally.
4. **Being a great team member:** During the internship I feel I have been a great team member supporting each and everyone in the team. There was a time where we stuck in the project due to the discrepancies in the data and as a good team member with a previous knowledge in Excel and Power BI lead the team forwards.
5. **Discretion and confidentiality:** As we were working with a real industrial data, it contains some sensitive data which should not be shared with outside world. I was ethical towards data protection.

Values and behaviour are very important in any workplace. They can help to create a **positive work environment** and improve **communication** and **productivity**. Taking steps to encourage employees to live the values, hold people accountable to company values, make sure that values are visible in your workplace. Overall, everything is a learning experience and internship will always be useful in my career.

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