



Internship Assignment

Reflection

**Bachelor's degree in the applied computer
science**

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1 INTRODUCTION

During my internship, I had the opportunity to work on a fascinating project centred around optimizing the production process of rings used in batteries. These rings, made from harsh materials, pose a challenge to the machines involved in their manufacturing. One crucial aspect of the process is the timely adjustment of the machine's press, known as a "rolldown," which needs to be lowered periodically to prevent damage.

The project aimed to address the inefficiencies and costs associated with the manual and inefficient rolldown prediction process. By automating and improving the accuracy of the prediction, the client's organization sought to save significant financial resources annually.

In this reflective analysis, I will delve into the accomplishments achieved during my internship, focusing on the specific contributions made to optimizing the rolldown prediction process. Additionally, I will explore the current status of the project, its implementation, and potential recommendations for the future. Furthermore, I will provide a personal reflection, highlighting the impact of the internship experience on my professional and personal growth.

2 SUBSTANTIVE REFLECTION

2.1 Accomplishments

Throughout my internship, I accomplished several significant milestones that had a positive impact on the client's organization and its users.

Firstly, I successfully cleaned and merged two datasets, which greatly enhanced their usability. This allowed the organization to access accurate and consolidated data, ultimately saving them valuable time and resources.

Additionally, I established a virtual environment that seamlessly connected local and virtual machines, along with a Jupyter server. This setup facilitated data analysis and visualization, enabling us to gain insights into machine behavior and identify crucial factors for predicting the need for rolldown.

These insights were then finalized, providing actionable conclusions for the client's decision-making process.

2.2 Status

While a substantial portion of the project has been completed, there are some remaining tasks to be addressed.

Due to memory and technical limitations, along with time constraints, I was unable to develop the machine learning model as initially planned.

Instead, we decided to prioritize the establishment of the virtual environment, which will continue to serve as a foundation for future work. The implementation of the machine learning model is scheduled for a later phase of the project.

2.3 Implementation

The components I developed during the internship have already been put to use to a great extent.

The cleaned data has been consistently utilized within the project, enhancing the accuracy and reliability of subsequent analyses.

Moreover, the visualizations I created were effectively employed during meetings, aiding in the presentation of key findings and fostering informed discussions.

3 PERSONAL REFLECTION

3.1 Impact

On a personal level, this internship has been an enriching and transformative experience. It has provided me with invaluable opportunities for growth and learning, both professionally and personally.

Being immersed in a professional environment and actively working with data has deepened my understanding of real-world applications and sharpened my analytical skills. It has equipped me with the necessary competencies to navigate complex datasets, perform data cleaning and analysis, and present findings effectively.

3.2 Skills

During my internship, I had the opportunity to acquire a range of valuable skills and knowledge. I learned how to work with large datasets and effectively clean them using Python. This involved applying various data cleaning techniques, such as handling missing values, removing duplicates, and standardizing formats. By working with real-world data, I gained hands-on experience in data pre-processing, ensuring the accuracy and reliability of the subsequent analysis.

In terms of data visualization, I honed my skills using both Power BI and Python. I learned how to create meaningful and impactful visualizations that effectively convey insights to stakeholders. This included selecting appropriate chart types, designing intuitive dashboards, and incorporating interactive elements to enhance user engagement. By mastering data visualization, I developed the ability to communicate complex information in a clear and visually appealing manner.

Additionally, I expanded my proficiency in working with Linux Azure virtual machines and Jupyter servers. I gained experience setting up environments and configuring the necessary tools and dependencies. This involved writing Python scripts to automate the setup process, enabling smoother collaboration and reproducibility of analyses. Through these tasks, I developed a deeper understanding of virtualization technologies and cloud-based computing environments.

3.3 Personal growth

Throughout the internship, I have witnessed substantial personal growth. Working on a long-term project that will be implemented globally has allowed me to gain confidence in my abilities and foster a strong sense of responsibility.

I have honed my problem-solving skills by facing various challenges, not limited to technical issues but also encompassing project management and time constraints. Through proactive communication and adaptability, I have successfully addressed and resolved these challenges, ensuring the project's progress.

I learned a valuable lesson of persistence. Solving technical problems required effective communication to ensure clarity and alignment. I learned to articulate my ideas and findings concisely, adapting my communication style to suit different audiences and repeating messages and problems several times until they're fixed. When faced with technical obstacles, such as memory issues, I persevered and sought solutions, reaching out to relevant experts and exploring alternative approaches.

3.4 Problems

The internship posed various significant challenges, each of which served as valuable opportunities for personal growth.

One of the challenges I encountered was learning how to implement feedback effectively. As the project progressed, I received feedback during meetings, and it was crucial to think through and implement it to continue improving the project and deciding the next steps. This helped me refine my work and enhance the quality of my contributions.

Another problem I faced was realizing the need to ask questions that went beyond the direct scope of the project. To fully understand the context and the larger picture, I had to ask questions that delved into the broader organizational goals and requirements. By seeking clarification and asking insightful questions, I gained a more comprehensive understanding of the project's significance and how my work contributed to the organization's overall objectives.

4 CONCLUSION

In conclusion, my internship experience was marked by notable accomplishments and personal growth. Through my contributions, such as cleaning and merging datasets, establishing a virtual environment, and conducting data analysis and visualization, I made tangible impacts on the client's organization and its users. Despite certain remaining tasks, the implemented components have already been put to use, providing valuable insights and aiding decision-making processes.

On a personal level, this internship has been a transformative experience, allowing me to develop essential competencies in data cleaning, visualization, and virtualization. I expanded my technical skills by working with large datasets, utilizing Python and Power BI, and setting up Linux Azure virtual machines. Moreover, I grew in my ability to communicate effectively, persist in problem-solving, and think long-term.

Throughout the internship, I faced various challenges, including implementing feedback and asking insightful questions beyond the project's scope. However, these challenges provided valuable opportunities for personal and professional growth, and I overcame them through effective communication, persistence, and a proactive approach.

Overall, the internship served as a stepping stone for my future endeavors, equipping me with the knowledge, skills, and confidence to excel in the field of data analysis. The lessons learned and experiences gained will undoubtedly shape my path as I continue to pursue my career aspirations.