



Agile development processes in IT support work

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Abstract

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The thesis investigates the implementation of Agile development processes within IT support work, particularly focusing on best practices for development teams providing support services. The study observes a development team responsible for stock features and a second-line support team, examining why Agile methods are not uniformly adopted across both teams. The research spans over eight weeks, with diary entries documenting the work in both teams.

The project involved the development and maintenance of a cloud-based veterinary practice management software, Provet Cloud. The author transitioned between roles in the stock team, following Scrum methodologies, and the second line support team, dealing with various technical support tasks. Key skills required for these roles include fast learning, adaptability, and problem-solving. The observation aimed to compare workflows and identify improvements.

Results indicated significant differences in work tempo and practices between the two teams. The stock team adhered to structured Agile processes, while the support team operated more reactively. Challenges included integration issues, workflow synchronization, and the necessity for rapid problem resolution. The study highlights the importance of tailored Agile approaches for support teams, suggesting a hybrid Agile method combining Scrum and Kanban to balance structured planning with flexibility.

The thesis concludes that improving communication, defining clear priority guidelines, and fostering a blend of investigative and interpersonal skills are essential for enhancing IT support team efficiency. These insights contribute to maintaining product integrity and customer satisfaction in a dynamic work environment.

Keywords

Agile development, IT support, Scrum, workflow optimization, technical support.

Contents

1 Introduction	4
2 Description of the initial situation	6
2.1 Analysis of your current work	6
2.2 Stakeholders	6
2.3 Interaction situations	7
3 Diary entries	8
3.1 Observation week 1	8
3.2 Observation week 2	13
3.3 Observation week 3	16
3.4 Observation week 4	19
3.5 Observation week 5	22
3.6 Observation week 6	26
3.7 Observation week 7	30
3.8 Observation week 8	33
4 Discussion	37
Sources	39

1 Introduction

This thesis's main goal is to determine the best practices that could or should be used in development teams focused on providing support services. During the observation time, I will be a part of a development team responsible for stock features within our company. As they are using the common agile development processes, the idea is to later compare and reason why those are not in use in the second line support development team that I am a part of.

My diary entries over 8 weeks will be divided into two parts: first part where I will be working as a developer of a stock team, and the second one is when I will be working as a developer of a second line support team. The start date of the diary entries is 13th February, and the end date is planned to be 7th of April.

The project I am working on is a cloud-based veterinary practice management software. I was employed as a web developer of a second line support team where my duties include customer technical support and full-stack development of a Django-python based patient management system Provet Cloud, mostly focused on bug fixing and minor development. On the 15th of February, I will be temporarily moved to the stock team.

As a support worker, the main skills that are required are fast-learning and adaptation skills. This is due to the pace and kind of work being done as a support developer. It is often so that a new integration is developed, and it is important to learn about it and be able to provide development support to clients. Moreover, you are not focused on working on a single ticket or developing one new feature, but rather usually you would have several active tickets you are working on, so you must be able to adapt between all issues in your list as they are always different and tricky in their own way. Also, good outside the box thinking in solving issues is an important skill as the solutions are usually not by the book and require a lot of investigating job and coming up with often what is called a patchy solution due to the necessity of a fast solution to an urgent bug.

The goal of the team is to provide the fastest code and database support for the customer. Tasks handled by the team may vary but usually it is kept that issues that fall team responsibility should not take longer than one day of work. However, it is important to take into the account that the 2nd line usually does not handle code level issues which is not what is happening here, 2nd line in this company is a team of engineers/developers that do on daily basis read the codebase to be able to solve issues as well as code when fixing faulty system behaviors which often results in the time required to solve the ticket exceeding the expected amount.

The reason behind the transfer to the stock team is the new micro service development that is taking place. The micro service which is called and to which I will further refer as “Wholesaler Gateway” or “WholesalerGW” has a purpose of enabling easier connection for the veterinary clinics around the world to the commonly used wholesalers and make the ordering of the foods, supplies, medicines, and procedures as simple as a one mouse click. For example, one of the world-known suppliers is “Royal Canin” that has its products in almost in every veterinary clinic at least around the Europe and the microservice would benefit the clinic stock handlers by decreasing time spent on ordering.

2 Description of the initial situation

2.1 Analysis of work responsibilities

As was stated earlier, the issues being tackled in the support team can vary, but I would group them into database manipulation, new development, API issues, code changes/bugs and investigation tasks. Meanwhile in the stock team, a different workflow is in use. They follow the agile development methodology known as Scrum where during the initial scrum meeting new developments and issues to be made are selected from the backlog to be tackled over the development cycle or a sprint.

The job requires a deep understanding of the python-based framework Django as well as knowledge about databases, general coding skills, people skills, fast-learning and adaptation skills, and the mentality of an investigative developer. As the product is growing, it is often so that there are certain features or parts of the software that you can be unaware of and how to use them. In those cases, it is common to ask the developer from a feature team that could provide further explanation of the feature and provide knowledge support when tackling that issue, or more globally features have training sessions with a purpose to make developers familiar with a certain know-how.

As of now, I am on the line between more “senior” junior developer and low mid-level developer. Main reason for that is lack of experience and deeper knowledge about the product. To grow and invest into the future, it was stated during my evaluation in the company that I would have to keep being open minded, ready for new challenges, keep learning and deepen my knowledge within some feature of the software (e.g., stock, financial, clinical etc.). Short summary of the feedback of my Team Lead over my work time:” He has shown creditable growth and promising skills within software development, with good knowledge and a positive mindset to the work in hand as well sharing insight and working well within a team.”

2.2 Stakeholders

It is quite hard to determine all the stakeholders that would be involved in my every-day work; however, I would list them as follows:

- Clients

Clients for us are all the active and potential clinics that use or want to use our software. The main goal of a support team developer is to keep the clients happy with the product by providing fast

paced development and advice support.

- Technical support Team Lead

Satisfying the requirements and needs set by the Team Lead of technical support team. Currently, it is set to a certain number of tickets/issues being addressed by a developer over a quarter.

- Stock Team Lead

Satisfying the requirements and needs set by the Stock Team Lead, good performance is required to display personal skills and growth within the company. In this case a well working prototype of the microservice that is built over the course of that time could be considered a goal.

2.3 Interaction situations

Within the technical support team, developers interact with each other daily. Apart from 2 daily meetings (one in the morning and another one in the evening as developers from America are starting their working day at the time we finish), it is often that one would ask another for advice on the issue, collaborative problem solving is often applied. One developer might have worked on a similar issue earlier so asking him for some advice on what could be the reason for another similar issue is advised to be done in our team as it often helps decrease our response time.

The stock team is usually working on the same project just different parts/functions of it so the communication there also happens daily. In contrast to the second line though it is often that one development is required to be completed before the other feature can be developed/tested/pushed and those are usually established under the ticket as “requires completion” so the communication between developers regarding their progress on some tickets is often done within the development teams.

All communication between workers in our company is done via corporate Slack channels. However, asking for an opinion or a review from the Team Lead of another team or a product owner is quite problematic. It is often the case that Team Leads of feature teams and Product Owners are busy and might miss the message or not have the time to review the code changes/look at the issue and it would slow the completion time of the issue. We are advised in those cases to remind them about the messages or ask for an update if they mentioned the need for longer time to process the final decision.

3 Diary entries

3.1 Observation week 1

– Monday 13th, February 2023

In preparation for the impending transfer to the stock team, the day commenced with a focus on cleaning and organizing my own TODO list. Investigative tasks took precedence, particularly addressing an insurance claim issue where the status was not updated on the API request followed by database manipulation requests from the clients. Additionally, efforts were directed towards resolving a bug related to the visibility of the Health Plan (a feature similar to monthly/yearly subscription within the software) used on consultations.

The day included a pivotal "Meet Shop-Stewards" meeting, discussing updates on the company TES and Workers Union changes. The second-line daily meeting in the afternoon and the weekly meeting in the morning provided opportunities for collaboration work related information exchange as well as personal such as weekend activities for the team.

The outcome for the day was positive with a total of three tickets completed and two set for requested review, indicating the need for additional information from the client. This accomplishment exceeded the average of two tickets processed per day, reflecting a smooth and complication-free day.

– Tuesday 14th, February 2023

As the transition to the stock team approached, the day was dedicated to finalizing the TODO list and ensuring the seamless transfer of unfinalized tickets to fellow co-workers. The focus of the day was on task duty, encompassing the completion of a total of six tasks. The majority of these tasks demanded a thorough investigation into the financial aspects of the cloud, addressing issues such as "incorrect due date," "invoice not possible to be finalized," "incorrect due sum of the invoice," and "client appearing in debtors report while all invoices are fully paid."

Two second-line daily meetings were held, one in the morning and another in the afternoon, facilitating effective communication and collaboration within the team. The midday Valentine's Day afternoon tea organized by the company added a delightful and festive touch to the day keeping the positive mindset for the workers in the company.

The noteworthy achievement of processing seven tickets over the day was attributed to the simplicity of the tasks at hand. The straightforward nature of the problems and the clarity surrounding the required solutions minimized the time and effort typically associated with ticket

processing. This occurrence, while rare in the context of daily work, underscored the efficiency gained when dealing with tasks that don't necessitate extensive investigations.

– Wednesday 15th, February 2023

The transition to the stock team marked the beginning of a dynamic day, commencing with a comprehensive 2-hour Sprint planning meeting. This session established the expected story points for the week per developer, incorporated new tickets from the backlog into the sprint list, and involved planning poker for effective ticket estimation. The team also strategically divided tickets and developers, considering concurrent projects such as the ongoing development of the Implemented Laboratory gateway and the initiation of the new Wholesaler gateway, which predominantly falls under my responsibility.

The day unfolded with the commencement of work on the set tickets, focusing on the creation of the WholesalerGWBackend. Throughout the day, inquiries related to second-line responsibilities were directed my way, leveraging my expertise from previous experiences to investigate and address issues, particularly those related to SMS tool challenges. The midday Stock Grooming meeting, spanning an hour, provided an opportunity for collaborative discussions and planning.

A single ticket was successfully closed during this period, underscoring the impact of transitioning to development-oriented tasks on the closure rate. It's crucial to acknowledge that as the team shifts towards development, the nature of tickets changes, leading to increased complexity and time requirements for coding, testing, and reviewing.

Adapting to the new role brought about challenges, including the influx of support work and the introduction of different meeting structures. Despite these hurdles, the warm welcome from the developers has facilitated a smoother integration into their workflows, showcasing the value of a supportive team environment during periods of change.

– Thursday 16th, February 2023

The day was marked by the continued focus on second-line tickets and a client meeting. The meeting addressed a prepayment issue, with a collaborative effort to understand and resolve the complexities involved. This included a session with a financial team developer seeking assistance on a ticket, leading to successful problem resolution through database manipulation. Reports were

run to validate the rectification of faulty payments, ensuring accuracy in financial records for the client.

The stock achievements and goals meeting provided a platform to reflect on accomplishments and goals set for the team. Completion of the Backend skeleton for the project, creation of a Merge Request, involving the necessary steps of pushing changes and providing comprehensive information on the associated ticket. Simultaneously, the initiation of work on the Handshake process with the new WholesalerGW added a dynamic element to the day.

Two tickets were successfully closed during this period. The complexity of the prepayment ticket stemmed from a bug that had been previously discovered and fixed, introducing challenges in navigating through the client's attempted fixes and addressing legal constraints in financial transactions. On a positive note, crafting the initial skeleton for the microservice was facilitated by leveraging the Laboratory microservice as a template, streamlining the learning process from our own project codebase. This experience underscored the benefits of modular design and code reuse in enhancing development efficiency and maintaining code quality.

– Friday 17th, February 2023

Continuing the development of the Handshake process with the new WholesalerGW was the main focus of the day, accompanied by the routine stock daily meeting. Seeking clarification regarding the token system used for API connections within the company as well as raising inquiries about the required request parameters to be established by the handshake process and saved in the organization's settings. To address these questions effectively, communication with the Product Owner (PO) was initiated, with responses anticipated for the upcoming Monday. A small meeting with the Team Lead ensued, where no further work was planned, and a new task emerged: creating a flag check function within the class to confirm the availability of the microservice.

Despite actively engaging with tickets, none were closed, as one ticket was processed and set on hold pending the PO's response. The most notable challenge of the day revolved around understanding the intricacies of the token system embedded in our codebase. The lack of meticulous planning and design for the new microservice posed additional hurdles, impacting the efficiency of my development work. This highlighted the importance of a well-defined roadmap and design considerations in expediting the development process and ensuring smooth testing and integration phases.

– Week analysis 1

In this inaugural week, diary entries have provided valuable insights into the dynamic nature of daily tasks within the context of IT support and Stock development. The week's observations and daily entries have highlighted the need for an effective task management strategy to accommodate the variability and complexity of the responsibilities at hand as it is most likely that with the temporary shift to the stock team my duty will not be fully moved under stock responsibility but will include support tasks on weekly basis. It is crucial to establish a well-grounded workflow that can strike a harmonious balance between managing support tasks and project development efficiently.

Clearly the tempo and kind of work that is being done between stock and second line teams is very different. What was hard for me personally this week is getting in sync with the new team. My first interaction and meeting with them was at Sprint Planning. I am well aware of the Scrum methodology, however, knowing the theory and basis from the books and lessons and actually participating in them is very different. I would say that I did a good job as further meeting within the stock team I didn't feel as "lost" and got the hang of it with the team. Also, it is essential to point out that it would not be possible if the team members weren't so welcoming and offering their help if necessary.

As for the technical aspect of the work this week, starting a new development on the micro service was quite a new challenge. Firstly, as I have never developed a similar service before I had to read a few pages of documentation on the token systems and how they are all handling the savings of the tokens and data in our system. Thankfully, the LaboratoryGW that I mentioned before that was developed by the developers of the stock team uses similar processes and it was possible to base my solution on the already existing code for Laboratory gateway micro service.

The daily entries underscore the need to address both structured development work and unpredictable support tasks. In this context, a hybrid Agile approach, combining elements of Agile Scrum and Kanban, emerges as the most suitable strategy. This approach offers structured planning for development tasks and the flexibility required for managing support tasks.

Given the diverse nature of daily tasks, a hybrid approach combining Agile Scrum and Kanban effectively addresses the unique challenges. This approach recognizes the dynamism of tasks, combining structured planning with flexible task management. This accommodates the specific nature of IT support and development roles (Leffingwell, 2010; Kniberg, 2010). It is also important to note that we are assuming that there will not be a shift of focus into one area and the Hybrid approach will help us process both support and new developments most effectively.

With that in mind, we can determine the development areas that might be beneficial to develop based on this week's results are: Technical Skills Enhancement, Adaptation to new roles and Collaboration and communication. Here is what I could do to improve in those areas:

1. **Skill-Building Workshops and Courses:** Enroll in skill-building workshops or online courses that focus on the technical aspects of your job, such as database management, API requests, and financial data handling. These courses can enhance your proficiency in these critical areas (Bremer & Harrell, 2014).
2. **Effective Communication and Collaboration Training:** Participate in communication and collaboration training, which may include soft skills workshops, team dynamics courses, and effective meeting management seminars. These programs can help you communicate better with your team and stakeholders (Switzler et al., 2011).
3. **Personal Knowledge Repository and Documentation Practices:** Invest time in developing a personal knowledge repository and documentation practices. Regularly document your experiences, solutions, and insights, creating a centralized knowledge hub (Russell, 2014).

All the listed options would help me develop in the areas I need, however, unfortunately option 2 is really time sensitive as seminars for that would not be held at weekends and it would take quite a lot of time whilst most likely it should be done prior to the transfer to the new team for example. Option 3 is also not fitting as the issue is that I am lacking the knowledge in the first place, but I will continue on it during the following weeks. Thus, for personal growth this weekend I studied the article about token systems (TechTarget, 2021) and token coding done in our project as that should in turn make the development process easier for me next week. Unfortunately, the gateway for further testing (such as connection testing, request handling etc.) requires the test environment up and running which is not yet set up. I was told by the Team Lead of the stock team that it is set to be created next week.

My expectation for the next week would be to face more challenges with the new development tasks that I will be assigned. I would assume after the grooming sessions and discussions with the Team Lead that the next steps would be implementing creation and editing modals for the gateway in the UI, however, as of now my definite task will be including the data provided by the PO in the response of the registration function and then testing the "upgrade to the Wholesaler GW" button when the testing environment for the gateway is established.

So far, I believe I established a good ground for the project as was required and which was the goal set by my supervisor for myself for this week.

3.2 Observation week 2

– Monday 20th, February 2023

The successful completion of the handshake processes for WholesalerGW marked a significant achievement on this particular day. This involved not only establishing unit test scenarios but also creating the tests themselves, a crucial step in ensuring the robustness of the microservice. The day was characterized by an intensive communication load, notably featuring a stock grooming meeting at midday and an extended Wholesaler GW workshop lasting two hours. These sessions involved active participation from stock team developers and integration team members, collectively contributing to the delineation of desired workflows, potential developments, and essential demands. However, this day's challenges primarily revolved around understanding the system's processes, assimilating critical information from the meetings for use in development, and actively participating in the workshop. Notably, challenges with understanding API integration and configuration.

– Tuesday 21st, February 2023

Commencing the integration of WholesalerGW into the Wholesaler modal view with a 5-story point ticket. The initial steps involved modifying the modal view to fetch essential data from the API for displaying in the UI, including the deprecation of old fields associated with the previous gateway. Simultaneously, the development of a new dynamic form for API response fields was initiated. This substantial task raised a noteworthy concern, emphasizing the absence of a testing environment for evaluating API responses. This critical issue prompted a query on the appropriate approach to navigate the development processes for API requests in the absence of a dedicated testing environment. This predicament underscores the importance of robust testing infrastructure in ensuring the seamless integration and functionality of developed features.

– Wednesday 22nd, February 2023

Progress persisted on the designated ticket, featuring refinements to the credential-saving functionality and comprehensive testing of the dynamic fields using mock data. This phase introduced an exploration of validation processes and error rendering mechanisms. The utilization of mock data, although instrumental in evaluating the visual aspects on our end, exposed a limitation in fully testing the API functionality.

The experience garnered from participation in grooming sessions and Planning Poker showcased an evolving proficiency in understanding of resources needed for performing development tasks which allowed active participation in those today.

Past encounters with forms during support work as well as higher education courses provided familiarity with the specifics of form development which facilitated a smooth progression without encountering significant issues in this phase of the project today.

– Thursday 23rd, February 2023

Ongoing development with a particular focus on addressing challenges associated with testing data submission and validation. The intricate process of testing the submission functionality and evaluating passed data surfaced issues, revealing gaps in understanding regarding the data sent to the API. Despite possessing a clear grasp of the validation criteria for mock data on our end, discrepancies arose in missing keys, request URLs, and other essential elements crucial for API communication. To navigate these challenges, a discussion initiated with the Team Lead, set to continue with the PO in the coming week. This highlighted the intricate coordination required in the development process, emphasizing the importance of effective communication and collaboration in overcoming hurdles.

– Friday 24th, February 2023

Continuation of the development and testing of a pivotal ticket. Simultaneously, a request surfaced to craft a merge script for a second-line task, necessitating a detailed discussion on the task's requirements and initiation of script development. This addition to the workload presented a considerable challenge, as merge scripts are inherently complex and time-consuming. These custom scripts, often commissioned by clients, require meticulous construction from the ground up. Despite the inherent stress associated with such endeavors, past experience in script development proved invaluable, ensuring successful completion of the assigned task. Amidst these challenges, one ticket was successfully closed.

This experience underscored the intricate nature of script development and the need for adaptability in addressing diverse and demanding client requests, contributing to the ongoing refinement of technical skills and problem-solving abilities.

– Week analysis 2

During Week 2, I actively engaged in the development of the WholesalerGW microservice, with a particular emphasis on testing and quality assurance. The absence of a dedicated testing environment underscored the necessity for specific strategies to address this limitation. To further develop my testing skills and overcome this challenge, I considered the following ideas:

- 1. Test Data Simulation:** Given the constraints of not having a dedicated testing environment, the concept of test data simulation becomes pertinent. This approach involves simulating test data and scenarios to assess the functionality of the microservice (Veenendaal & Vries, 2012). By creating realistic test data, I can evaluate the microservice's behavior in various conditions, even in the absence of a complete testing infrastructure.
- 2. Exploratory Testing:** Exploratory testing is a valuable technique, particularly when resources for formal testing are limited (Bach, 2003). In exploratory testing, the tester actively and dynamically explores the software application, rather than following predefined test cases. This method relies on the tester's domain knowledge, creativity, and intuition to uncover defects, usability issues, and unexpected behaviors in the software.

These development ideas offer practical solutions for improving testing capabilities in an environment with testing constraints. They draw from established testing principles and practices, emphasizing adaptability and automation to address the challenges encountered during the development of the WholesalerGW microservice. Exploratory testing is something new that I have learned about, and it is a very interesting concept as it is flexible and not predefined, however, in our case it is not so fitting as the success of exploratory testing relies heavily on the experience, skills, and domain knowledge of the tester. It is a highly valuable approach for uncovering unforeseen issues and ensuring the robustness of a software application and in our case, we are building something that does not at this stage require that kind of testing. However, exploratory testing can be used in combination with other testing methods, providing a valuable supplement to scripted testing. It is often employed when a deeper understanding of the software's behavior is needed or when the software is evolving, and detailed scripted tests may not be readily available (Bach, 2003) so it can be a beneficial knowledge further into the development. Reading the Certified Tester Foundation Guide (Veenendaal & Vries, 2012) gave me some ideas on how I can use test data simulation for further development and testing.

I also had several discussions with the PO this week regarding the desired solutions and the looks of the micro service. What I could point out here is that it is easier for me to see the desired solution that the users would want to see thanks to the experience in the second line team. It is easier for me to present my ideas to team leaders as optional solutions for the desired fix and for

example, a design of the feature. This happened with the redesigning being suggested for the dynamic fields to be presenting PVC fields on the left and dynamic fields on the right which seemed really weird to me as the amount of PVC fields would be minimized in case of external wholesalers. Due to my comment, it was concluded that it might be more reasonable to show them all inline for now.

I believe this experience is crucial to my personal growth. This project so far allows me to not just complete complex tasks but also allows me to think about the final product and how I want to have it developed, and what I want it to look like. I think this is a positive experience so far and hopefully, the final result will prove me right. What is different in this experience to what I had in second line is that this is more thorough decision that is made with my opinion included, however, in second line it is mostly discovering the problem and before making the conclusion, asking the Team Lead of the team or PO responsible for the section that needs the fix for the desired fix without really any impact on it.

3.3 Observation week 3

– Monday 27th, February 2023

The day was dedicated to the refinement of the WholesalerGW modal editing, addressing challenges associated with the API, and navigating issues related to dynamic fields. Collaborative discussion focusing on devising effective solutions and evaluating the potential addition of new endpoints to the API. The midday stock grooming meeting, spanning one hour, provided a platform for team collaboration and strategic planning. Additionally, to these tasks, a support ticket came in requiring my attention and participation regarding the issue with insurance claims.

One ticket was successfully closed. The ensuing discussion revolved around the reconsideration of existing endpoints, contemplating the removal of redundant ones and the introduction of new, pertinent ones. Recognition of the superfluous nature of certain endpoints, coupled with the absence of critical ones, prompted a collaborative decision-making process. Team Lead endorsement further validated the need for a discussion with the Product Owner (PO) to determine the fate of these endpoints and their alignment with project objectives.

– Tuesday 28th, February 2023

The day commenced with the initiation of the delete process and the continued focus on dynamic fields within the WholesalerGW microservice. Subsequently, a one-hour support meeting addressed the integration of a new payment system into the existing framework. This was followed by a two-hour sprint review meeting at 14:00, where ongoing tasks were evaluated, and plans for the next sprint were outlined. Additionally, a midday one-hour meeting with the new payroll team provided insights into upcoming changes in payment processes in the company.

The Sprint Review meeting that took place today is a meeting the stock team has for finalizing the current ongoing sprint where the discussion about what was done, what is left to do in the next sprint and how much story points will have to be moved to the next sprint is taking place. Meanwhile, the payroll team meeting served as an informative session about impending changes in payment processes, contributing to a broader understanding of the organization's dynamics. Despite the enriching nature of these meetings, the day's heavy meeting schedule resulted in reduced efficiency and dedicated development time.

– Wednesday 1st, March 2023

Commencing the day with a thorough two-hour sprint planning session, focus was allocated to the ongoing development of the editing modal and the refinement of delete processes. A subsequent one-hour midday stock grooming session facilitated team alignment and strategic planning. Additionally, there was a substantial discussion on the workflow of API endpoints, a critical aspect for the WholesalerGW microservice.

The outcome for the day resulted in the closure of only one ticket. The extension of the sprint planning session was necessitated by the urgent grooming of several bug tickets, impacting the overall schedule. Being the sole contributor to the WholesalerGW, I bear the responsibility for all associated tickets. This dual responsibility, while presenting challenges, also serves as a valuable learning experience. Despite lacking prior experience in developing such features, this situation provides a unique opportunity for practical learning and skill enhancement. The day, although intense, significantly contributes to my comprehension and management of the intricacies of the WholesalerGW microservice.

– Thursday 2nd, March 2023

Out sick

– Friday 3rd, March 2023

Out sick

– Week analysis 3

Week 3 brought forth a tapestry of challenges, professional evolution, and opportunities for personal development. Rooted in the principles outlined by Mary Poppendieck and Tom Poppendieck in "The Lean Mindset," the week's journey was marked by pivotal moments demanding strategic decisions and effective communication. I have felt more confident in my development skills. I had much more people interaction (also due to the office day for the scrum sprint planning meeting) and I believe it helped developed my people skills further as well. That gives me more and more ground to feel more confident in my skills and become a better development unit in the IT field. I believe this kind of experience often leads to promotions and other benefits as it makes you stand out and makes you more appreciated.

While the week was rich in professional growth, it is crucial to integrate personal development strategies for a holistic approach. Two potential avenues include:

- **Skill-Building Workshops:** Enrolling in workshops or online courses focusing on stress management and work-life balance, aligning with the principles discussed by Mike Bremer and Charles G. Harrell in "Continuous Learning," can contribute to a healthier work-life dynamic.
- **Effective Time Management:** Exploring methodologies from "Getting Things Done" by David Allen can assist in optimizing time management. This approach, emphasizing capturing, organizing, and prioritizing tasks, aligns with the challenges faced during high meeting density.

Considering the nature of challenges faced, effective time management emerges as the most fitting personal development focus. "Getting Things Done" by David Allen offers practical insights into managing workload efficiently, allowing for a more structured approach amid the complexities of project discussions and evolving responsibilities. Incorporating the principles of effective time management could enhance both professional and personal facets, fostering a more balanced and productive work environment. All things considered it is also quite a beneficial skill given that this week I got sick, and it still would impact the workload and how to be efficient starting next week.

3.4 Observation week 4

– Monday 6th, March 2023

Today, my primary tasks revolved around refining the delete functionality and ensuring smooth credential validation. We had a crucial discussion about API issues that proved to be insightful. The midday stock grooming meeting, lasting for an hour, provided a platform for comprehensive planning and coordination.

The focus was more on addressing and understanding API intricacies rather than completing immediate tasks. The API meeting with the PO and my Team Lead shed light on unnecessary endpoints, and I gained valuable insights into the purposes of others. Moreover, I received various return data examples, which, despite the ongoing development of the GW for the development environment, will serve as essential mock data for future development.

While today might not have been particularly productive in terms of tangible development progress, it was incredibly educational. The new information gained about the development process and the purpose of different API endpoints contributes significantly to my professional growth, aligning with my broader goal of understanding the intricacies of the WholesalerGW microservice.

– Tuesday 7th, March 2023

Today, my main focus was on refining the dynamic fields and ensuring credential validation runs smoothly. We had our regular midday stock meeting, where we discussed ongoing tasks for around 30 minutes. The exciting part was having actual data return examples, which allowed me to dive into the development of some modal use cases that hadn't been considered before and weren't testable until now.

One interesting scenario I tackled involved dealing with a JSON containing dynamic fields returned from the API. The challenge was to simulate a situation where someone tries to submit this JSON, but the password for the wholesaler isn't correct. In this case, the API should dynamically attach the error to the right field and display it in the UI to fail the validation.

This intricate process not only adds complexity to the credential validation but also aligns with my broader professional goals of enhancing my technical skills and contributing to the robust functionality of the WholesalerGW microservice.

– Wednesday 8th, March 2023

Engaging in the ongoing development of dynamic fields took precedence on this day, with a specific focus on addressing challenges related to their logic. The modification required for the rendering of dynamic fields in the UI form was necessitated as an issue arose where revalidation in the API, following the initial validation, disrupted the code logic, resulting in the UI form rendering without the initial values and dynamic fields.

Participation in the stock grooming session at 13:00, lasting for an hour, provided an opportunity to discuss and collaborate on the backlog progress and challenges estimating required workload per ticket. This day's work reflects a commitment to resolving intricacies in the development process, ensuring the smooth functioning of dynamic fields within the system.

– Thursday 9th, March 2023

Dedicating time to the refinement of credential validation for WholesalerGW modals marked this day's work. The focus included addressing failed tests related to the wholesaler modal. Given substantial changes in the modal structure, numerous unit tests encountered failures due to shifts in logic and alterations in return status codes. For instance, the previous success status code of 204 was replaced by our custom Ajaxy 234 code, necessitating modifications across all affected tests. This effort aligns with the commitment to maintain the integrity of the testing suite amid substantial updates to the system. Additionally, a Stock daily meeting took place at midday.

– Friday 10th, March 2023

Building on yesterday's work, today involved further refinement of credential validation for WholesalerGW modals. The primary focus remained on addressing failed tests associated with the wholesaler modal. Like the previous day, this process involved modifying both the code and existing tests for the modals. Additionally, a new phase commenced with the initiation of development for fresh unit tests dedicated to WholesalerGW modal validation. This ongoing effort ensures the systematic enhancement of both existing and new functionalities within the WholesalerGW microservice. The daily stock meeting took place midday as per usual.

– Week analysis 4.

This week posed considerable challenges primarily centered around API issues, encompassing database access and routing discrepancies. While successfully resolving these challenges demonstrated the team's adept problem-solving skills, a unique obstacle emerged when a key team member on vacation necessitated my provision of mock data for comprehensive code testing.

Communicating the anticipated data outcomes in the absence of the vacationing team member presented a notable challenge. Despite the novelty of the experience, I navigated it adeptly. The foremost coding challenge involved the reconstruction of the modal view. Alterations for the new workflow inadvertently disrupted existing tests for the old design, prompting the need to rebuild test cases.

Key pain points this week are:

- **API Understanding and Optimization:** The week highlighted the importance of a deeper understanding of API intricacies, planning, and discussions with stakeholders. Developing a more comprehensive knowledge of API functionalities can optimize the development process and enhance collaboration with team members and stakeholders. (Veenendaal & Vries, 2012).
- **Enhanced Testing and Quality Assurance:** The challenges related to failed tests, changes in modal structure, and the initiation of new unit tests underscore the importance of a robust testing strategy (Myers et al., 2011). Investing in skills related to testing and quality assurance can contribute to the maintenance of a reliable testing suite and ensure the integrity of the system during substantial updates.
- **Refinement of UI Rendering and Logic:** The issues with UI rendering due to revalidation in the API and the focus on addressing challenges related to the logic of dynamic fields highlight the need for expertise in UI development and logic refinement. Developing skills in these areas can lead to smoother UI experiences and more resilient code logic (McFarland, 2008).

Looking ahead to my professional development, a strategic focus on developing myself in those areas emerges. In order to achieve personal growth as a software engineer and become more advanced in those topics, I have outlined possible solutions that could help me with those challenges:

- **Online Learning Platforms:** Utilize online learning platforms such as Udemy, Coursera, or LinkedIn Learning to access a wide range of courses on relevant topics. This method allows for continuous skill development at an individual pace.
- **Peer Learning Sessions:** Organize peer learning sessions within the team where members share insights, discuss recent learnings, and collectively enhance their skill set. This fosters a culture of continuous improvement and knowledge sharing.

Online learning platforms offer a diverse range of courses that cater to individual learning preferences and pace. They provide flexibility, allowing team members to choose courses relevant to their specific needs, ensuring a tailored approach to continuous learning. Moreover, the company supports self-education and provides a sunlight balance for self-development so there is no monetary aspect that would impact the decision. Additionally, adopting principles from "Exploratory Testing Explained" by James Bach (2003), The Certified Tester Foundation Guide by Veenendaal, E. van, & Vries, D (2012) and "The Art of Software Testing" by Myers, Sandler, and Badgett (2011) can provide a comprehensive understanding of testing methodologies.

In reflection, this week was undeniably productive, offering insights into workplace dynamics and software development intricacies. The challenges encountered not only fostered problem-solving skills but also prompted strategic considerations for ongoing professional development.

3.5 Observation week 5

– Monday 13th, March 2023

Completing development of the delete functionality and credential validation tasks throughout the day. Participated in a midday stock grooming meeting, which lasted for one hour. Started development of unit tests for credential validation and delete functionality.

Encountered challenges with the credential validation unit tests, requiring a distinct set of mock data and a specific API mock response function. Fortunately, identified analogous cases utilized in other Gateway microservices, allowing to adapt these cases for my tests. This approach facilitated the resolution of issues related to credential validation unit testing.

– Tuesday 14th, March 2023

Finalizing the work consisting of pushing all pending code changes and tidying up code stashes. Concluded the work on unit tests. Attended the final Sprint review meeting scheduled for 14:00, lasting one hour. Marked the end of the stock team transfer.

Submitted unfinished code to merge requests (MRs) to facilitate continued development. Completed writing testing instructions for modal edit, create, validation, and delete functionality tickets. The emphasis was on ensuring comprehensive documentation for each functionality to support efficient testing and future development.

– Wednesday 15th, March 2023

Initiating work back in the second line support team. During the morning daily meeting, it was highlighted that the backlog of task tickets had accumulated significantly during my absence, prompting a shift in focus towards addressing these issues. One task involved investigating discrepancies in the invoice due sum, where the total amount did not align with what the client had paid and the original invoice indicated. The root cause was identified as the absence of a custom "tax item" in the invoice, and appropriate adjustments were made.

Another task centered around a clinic experiencing difficulties with an online booking system, specifically, the creation of appointments outside of the veterinarian's scheduled shifts. Upon investigation, it was traced back to custom-developed code from the clinic, utilizing the online booking API. The issue stemmed from a lack of validation for shifts in the code. The ticket was redirected to the individual responsible for handling such matters. The day concluded with a second daily meeting in the evening and closing total of 2 tickets.

– Thursday 16th, March 2023

Commencing the day with the morning daily meeting, my primary focus was on addressing a ticket related to estimate bundles. The issue reported involved a clinic, where a medicine-linked item was being added to the estimate with a quantity of a single unit instead of as a package. Initially, it appeared to be an isolated user error, as the functionality was working correctly for other estimates. To gain further insights, a meeting with a first liner was scheduled to discuss and analyze the problem collaboratively.

During the meeting, it was decided to test the issue on the live cloud environment to replicate and understand the problem better. I sought permission to proceed with the live testing and awaited a response. Additionally, the day included handling various tasks related to insurance claims and invoices, contributing to the overall support and maintenance of the system. The day concluded with the evening daily meeting, providing a platform for updates and coordination within the team.

Thursday proved to be productive resulting in 4 closed issues.

– Friday 17th, March 2023

Initiating the day with the morning daily meeting, the focus shifted to a significant handover meeting regarding SIE file integration. The integration teams Team Lead provided comprehensive insights and knowledge transfer about SIE integration, and it was officially placed under the responsibility of the second line team. This session equipped the team with the necessary understanding to manage and maintain the SIE file integration effectively.

Subsequently, I commenced work developing a custom script due to one clinic's specific request. The task involves creating a script to generate a list of modified invoices and facilitate with associated payments. The script will have to be run next week as requested by the client.

The day also included the second daily meeting, offering an opportunity for team updates, collaboration, and coordination on ongoing tasks and projects between EU and US members.

– Week analysis 5

This week marked the conclusion of my transfer to the stock team, offering a distinct experience from my usual second line support role. The transfer provided valuable insights into different development processes, contributing to my overall professional growth. The stock team's dedicated focus on code development resonated with my preferences, yet it also revealed a heightened confidence in my second line support skills over development team, honed over a year of experience.

A noticeable shift in the pace of communication became apparent during my time with the stock team. Contrary to my expectations, the reply speed in the stock team was faster. However, this

difference can be attributed to the intense development pace in the second line, where a barrage of emails and frequent meetings could impede immediate responses.

An evolving work style marked by increased comfort in completing tasks but accompanied by a tendency to accumulate issues without promptly closing previous tickets. This has led to a shift in performance, highlighting the need to assertively decline new tasks at times and prioritize completing existing ones for optimal efficiency.

Continuous learning remains a hallmark of the second line team, and this week presented an opportunity to delve into a new file integration aspect of the cloud. Acquiring a deeper understanding of this integration equips me to address related issues, ensuring effective support for veterinary clinics and enhancing overall customer satisfaction.

The development areas this week can be defined as:

1. **Communication Efficiency:** Efficient communication is crucial within the second line support team to address tasks promptly and facilitate collaboration (Brown & Smith, 2018).
2. **Work Style Optimization:** Streamlining work habits and task management is essential to prevent task accumulation and maintain optimal performance (Jones et al., 2020).
3. **Continuous Learning and Skill Enhancement:** Continuous learning ensures the team remains updated on industry trends, fostering skill development and adaptability.

Possible solutions for those are:

1. Implement a personal communication protocol, designating specific time slots for responding to emails and messages to ensure focused work periods (Jones et al., 2018).
2. Implement a personal task management system enforcing a one-task-at-a-time rule to prevent task accumulation and enhance focus (Brown, 2019).
3. Set clear boundaries for task acceptance, evaluating workload before committing to new assignments to ensure optimal personal performance (Jones et al., 2020).

While all 3 options are plausible, due to flexibility and workflows within the second line team it's only possible to select the first one. It is selected for its direct approach in improving personal communication pace and maintaining focused work periods (Jones et al., 2018) while not interrupting the ticket handling processes.

Reflecting on the week, it was undeniably productive, offering new knowledge, self-awareness of work habits, and a commitment to refine my approach for heightened productivity in the future. This experience has reaffirmed my dedication to constant learning and adaptability in a dynamic work environment.

3.6 Observation week 6

– Monday 20th, March 2023

A typical workday involving diverse tasks, with a primary focus on database modifications related to insurance claims. Additionally, delved into an investigative task addressing issues with online bookings occurring outside of veterinarian schedules. The root cause was traced back to a custom online booking system developed for a specific clinic and caused by interference from our resident bot attempting to breach the system. Participated in weekly morning meeting and daily evening meeting for team updates and coordination.

The outcome for the day was positive with a total of three tickets completed, which exceeds the average of two tickets processed per day outlined by the statistics.

– Tuesday 21st, March 2023

Most of the days focus was shifted onto tackling a tricky estimates issue (Estimates are kind of a certain package bundle clinics can create and use that would add all the necessary items into the consultation) which was caused by the item that is linked in the background to another that was using a unit size (e.g. 0.1 ml) rather than the package size. The item type was a procedure which means that logically it shouldn't be possible for that item to have unit size. This task highlighted the significance of logical consistency within software and the need for vigilant quality assurance practices. The resolution of this rather complex issue, alongside routine tasks, resulted in the closure of four tickets, reflecting a productive synergy between problem-solving acumen and operational efficiency.

– Wednesday 22nd, March 2023

Developed a script for a clinic to facilitate the addition of payments from an Excel sheet. Managed various financial tasks throughout the day, focusing on financial report duties involving

discrepancies in amounts due to bugs or user errors, and addressing issues with invoices (e.g., insurance claim status not changed, problems with invoice rows and items).

Participated in a Jira list overview session, dedicating 90 minutes to review older tickets in the backlog and assessing their relevance. Engaged in morning and second daily meetings which both lasted for 15 minutes and concluded the day with the successful closure of 5 tickets, excluding the script ticket as it was requested to be run the following day. The day didn't bring any complexities as the developments and investigations completed today were done previously resulting in acquired knowledge about software areas simplifying investigative processes.

– Thursday 23rd, March 2023

Running the script finalized yesterday for the clinic to add those payments, double checking that everything was done correctly, that invoices due sums got changed accordingly and created a backup in case there is some issue so that it can be reverted to how it was before.

Getting a new responsibility of adding online booking iframe scripts for the clients that monitor trafficking which involved a meeting with the developer teaching me how to complete and verify it works and regarding the workflows of logging hours and invoicing since it is a paid job, first ever task done, paid job so different workflows. Other tasks throughout the day. Daily meetings in the morning and the evening. A total of 3 tickets closed today.

Implemented the script developed the previous day for the clinic to add payments, conducted a thorough verification to ensure accuracy of completed actions, and confirmed that invoices' due sums were appropriately adjusted. Additionally, created a backup to facilitate a swift reversal in case of any issues, ensuring system integrity.

Assumed a new responsibility involving the addition of online booking iframe scripts for clients monitoring web traffic. Engaged in a meeting with a developer to learn the completion and verification processes, including workflows for logging hours and invoicing, given that it is a paid job with distinct workflows.

Accomplished various tasks throughout the day, attending both morning and evening daily meetings. Successfully closed a total of 3 tickets on this day. Quite an informative day with challenges and responsibilities.

– Friday 24th, March 2023

Mainly working on a dashboard filter bug where in some particular cases it is replicable to get a consultation displayed on the dashboard under the incorrect ward that is not the one used in the filter on the dashboard. Another case of the online booking iframe script paid job for another clinic. Other tasks throughout the day, mostly were health plan related.

– Week analysis 6

This week, in comparison to the others, in my opinion was much more dynamic. That was very noticeable in the way I was assigned to the tickets or how they were being tackled. Firstly, it is important to understand that this would never happen in a development team, e.g., stock team I was transferred to for some time. At one point I was assigned 3 tickets in a day, all urgent and requiring immediate attention to the issues at hand. Luckily, most of them were quite straightforward so I was able to complete them in the preferred timeline, however, those are very stressful to have and require a certain mindset that not everyone has or can maintain.

Also, as I have already mentioned in the entries, this week I have been assigned and taught on the processes of adding scripts to our online booking and am now responsible for the new part of cloud. Even though it was not something extraordinary, it still feels great to have some trust put on yourself and as it is a paid job (this means that the client specifically requests something to be done via our services for an hourly fee that we provide) it makes it quite important aspect of the support processes of our company.

However, those things mentioned, I believe there is room for my improvement in the mental aspects this week rather than technical. I believe writing the scripts and processing all the technical aspects of the job this week was done quite well, however, the speed was most likely affected by my personal mental lack of experience under duress. Even though I have been in those situations already over the year, it still noticeable that I don't have enough experience to be consistently performing under pressure.

For the development, I decided to take a look at the article written by the Center for Management and Organization Effectiveness or CMOE for short. There, they provided 2 points that are "done is better than perfect" mindset and "schedule breaks and take them" which supposedly should enable help with work under pressure. After reading those I understood that my root problems are overthinking and that sense of perfection I have sometimes, and I do not tend to take breaks as I am trying to fit my work time with studies and other life activities. I don't really do "Take five minutes to decompress, take a walk, get a drink of water, and free my mind from the task at hand

for a little while” (CMOE, n.d.) as I don’t have enough time for that. The problem with the mindset that they provide, however, is that it is hard to define the line of what is just done and what is done “perfectly” in our line of work. I think that the best solution for me is to try to stay in the “scope” of the ticket I am working on and then divide and create new tickets in case I discover new issues not mentioned in the ticket as that is something I often do.

The sixth week of observation has been a significant turning point in understanding the multifaceted nature of IT support work. The diversity of tasks this week, ranging from database modifications to tackling complex software bugs, exemplified the dynamic and unpredictable environment of technical support. Reflecting upon the week, a few key themes and areas for personal development emerge:

1. **Diverse Problem-Solving:** The week's challenges underscored the necessity for adaptive problem-solving strategies. This was particularly evident in addressing the online booking system's issues, where a blend of front-end and back-end analysis was crucial. This aligns with Anderson and Reimanis's (2016) emphasis on the multidimensional nature of problem-solving in IT environments.
2. **Client-Focused Communication:** The week also highlighted the importance of client-centric communication. Balancing technical explanations with client understanding is a delicate art, one that I am progressively refining. This is in line with the communication strategies discussed by Barr and Stephenson (2011).
3. **Time Management Under Pressure:** The pressing deadlines and quick turnarounds required for several tasks this week brought my time management skills to the forefront. While I managed to meet all deadlines, the pressure underscored the importance of efficient task prioritization and stress management, as recommended in the time management strategies by Jones et al. (2021).
4. **Technical Skill Enhancement:** Consistent with the week's technical demands, I recognize the need to further deepen my technical knowledge, particularly in database management and debugging techniques. This is a direct response to the challenges faced and aligns with the skill enhancement approach suggested by Smith (2022).
5. **Mental Resilience and Adaptability:** Finally, this week tested my mental resilience. Facing varied challenges in rapid succession requires a flexible mindset and quick adaptability, traits that are crucial in the evolving landscape of IT support.

Among these, Mental Resilience and Adaptability emerges as the most pertinent area for development. The week's pressures underscored the importance of maintaining composure and flexibility in the face of unexpected challenges, a skill crucial for thriving in IT support roles.

To enhance my mental resilience, I am inspired by techniques suggested by the American Psychological Association (APA), such as building connections, fostering wellness, and accepting change as part of life (APA, n.d.). Embracing these strategies could significantly improve my ability to remain effective under stress, ensuring both personal well-being and professional efficacy.

This week has not only been about surmounting technical hurdles but also about introspection and understanding the nuances of working within a high-paced tech environment. The learnings and accomplishments of this week have laid a foundation for continuous improvement, steering me towards becoming a more resilient and adaptable IT professional within that kind of work environment.

3.7 Observation week 7

– Monday 27th, March 2023

Dived into troubleshooting a recent release bug that affected online booking, leading to double bookings and auto-check-in errors. Swiftly identified and fixed the code, coordinating with the original developer to ensure seamless integration of my solution. Luckily, the issue was captured early, and incident cases caused by the bug were minimal. Participated in the morning weekly (45 min) and afternoon daily meetings (15 min).

– Tuesday 28th, March 2023

Working on the tasks that were created due to the bug that was fixed on Monday. Basically, fixing the schedules and client information for clinics that have faced the issue. Apart from that several tickets regarding insurance claims, after processing them it appeared to be the bug where invoice row previously selected for the insurance claim that was later archived was no longer selectable if it wasn't unmarked during the archiving of the claim. Fixed the issue in the database for the client reported and had a small discussion with the clinical workflow team lead. The decision was to

escalate that bug ticket to them. Participated in morning and afternoon daily meetings (15 min each).

– Wednesday 29th, March 2023

Simple task day, working on several tasks throughout the day e.g., clinic made a lab referral request for the wrong client so transfer the records in the database off one referral and client to another; copy cloud task for the new environment, client health plan wasn't working properly on counter sale (was due to user error) etc. One more investigation issue with reminders for the clinic. They were claiming that their logs for client communication of reminders looks weird and it did indeed. Logs were showing that they were supposed to be sent via SMS but sent column was showing Email method. The reason turned out to be the error in the implementation by one of our employees where he updated the reminders via the DB using a script which didn't update send queue table that still had the old values (meaning that method in send queue was the old one while in the UI it was showing the new one). Participated in morning and afternoon daily meetings (15 min each).

– Thursday 30rd, March 2023

Investigating the ticket where Agria insurance claim got stuck in status sending. The case was old and there was only one error log which could mean several issues but most likely caused by Agria integrated API as it was a "send_error" type error which usually means that there was a problem reaching it. The clinic requested modification of the due sum of the paid invoice as they made an error. However, by law we are not allowed to modify finalized invoices unless it was a bug or anything else on our side that has caused the issue. The solution required a lot of time for investigation of what was desired to be achieved, the workaround solution was provided. One stuck payment issue where terminal didn't return any response which caused the payment to be stuck in the UI was also fixed. Morning daily (15 min) and a Nordhealth Pay training done by one of the employees of the financial department (1 hour).

– Friday 31st, March 2023

Resolved a department rate application issue on items, traced back to a recent development oversight. Worked closely with the developer for a swift resolution. Completed tasks related to cloud environment setups and user permissions. Standard morning daily and the day concluded with the afternoon daily.

– Week analysis 7

This week, quite a lot of time was shifted to investigative type of work. A lot of debugging was done, and it is arguably one of the strengths I have. Debugging is a crucial skill for software developers, and developing one's debugging skills can significantly improve their efficiency and effectiveness. According to McMillan and Creasy (2005), debugging is a cognitive process that involves problem-solving, critical thinking, and decision-making. Therefore, it requires developers to develop specific mental models and strategies to identify and fix issues in their code effectively. To improve their debugging skills, developers should practice various techniques, such as tracing, logging, and testing, as suggested by Anderson and Reimanis (2016). This is what I have decided to follow as my personal development for this week. However, developing that skill is quite challenging as it requires practical learning, but thankfully nowadays it is simple to get it online. I have found a website which is made for developing debugging skills as it has problematic code piles with some automated tests failing or use case scenarios (depending on the complexity of the exercise). It also develops the knowledge of the coding language/framework. So, I believe it is highly beneficial this week to develop my so called "debugging mindset" which can help with approaching problem-solving (Barr and Stephenson, 2011).

I think this week was good on the communication side as well as coding and fast-paced handling of multiple issues at hand. Many tickets came my way, and I am proud to say that I have managed to handle this challenge quite well.

As the product that we have is very huge, it is quite hard to answer those questions fast and usually requires a deeper look into the code base or sometimes even questions from the PO or other team members who are more knowledgeable on some parts of cloud. I believe that this week's challenge and positive outcome was my way of handling that.

This week's deep dive into debugging, paired with the challenge of swiftly handling numerous tickets, underscored three key personal development areas:

- **Enhanced Debugging Skill**
- **Effective Communication**
- **Rapid Problem-Solving.**

Among these, **Enhanced Debugging Skills** emerges as pivotal, given its profound impact on both efficiency and the quality of outcomes in software development. McMillan and Creasy (2005) emphasize debugging as a multifaceted cognitive process, central to which is the development of a "debugging mindset," a notion that aligns with the strategies for problem-solving highlighted by

Barr and Stephenson (2011). This approach, underpinned by practices such as tracing and testing (Anderson & Reimanis, 2016), offers a structured pathway to navigate the complexities inherent in large-scale software environments. By prioritizing the enhancement of debugging skills, the foundation is laid not only for improved individual performance but also for a more robust and resilient problem-solving framework within the team. Due to the size of the software for the product, it will enhance productivity and given the experience gathered this week it is pivotal in the daily work for this position. Developing that skill can be quite challenging as it requires practical learning, but thankfully nowadays it is simple to get it online. I have found a website which is made for developing debugging skills as it has problematic code piles with some automated tests failing or use case scenarios (depending on the complexity of the exercise). It also develops the knowledge of the coding language/framework. So, I believe it is highly beneficial to develop “debugging mindset” which can help with problem-solving (Barr and Stephenson, 2011).

3.8 Observation week 8

– Monday 3rd, April 2023

Commenced the week by addressing a discrepancy in the user interface functionality, specifically a change in the behavior of the edit modal when accessed via a contextual right-click menu as opposed to the direct edit button. The cause was in the auto-selection of communication preference checkboxes, inadvertently triggering a barrage of reminder notifications from the clinic. Delved into a puzzling case where a client's records were untraceable through the conventional search fields, suggesting a potential integration anomaly. The fix involved a manual re-entry of the client's data through the interface, which solved the situation. An attempt to solve a backlogged reminder issue was unsuccessful due to the temporal retention policy of our SMS service provider, Link Mobility, which maintains logs for a finite duration of 2-3 months so the cause for the issue wasn't identified, however, the case was closed due to the relevancy. Participated in the morning weekly (45 min) and afternoon daily meetings (15 min).

– Tuesday 4th, April 2023

Investigated a service failure incident involving the non-delivery of clinic SMS messages, which was later discovered to be caused by geographical restrictions, as the affected clinic was situated in the US and fell under the jurisdiction of the InfoBip service, thus limiting my access to pertinent logs. In adherence to established protocols, escalated the issue through designated communication channels in slack and engaged with a colleague responsible for SMS logistics and SMS gateway to diagnose the failure, which was traced back to a service outage within InfoBip.

Redirection of the SMS service to Link Mobility was done to fix the situation. Addressed another issue from a clinic in Iraq regarding undelivered SMS notifications, which, despite confirmation of dispatch within our system, communication with Link Mobility support was started to determine the root cause, suspecting a service-level discrepancy. Routine morning and afternoon dailies during the day.

– Wednesday 5th, April 2023

Received a reply from Link Mobility support regarding the previously mentioned issue with the Iraqi clinic that pinpointed the absence of a completed SenderID form as the critical oversight during the transition of SMS services from InfoBip to Link Mobility. Facilitated the documentation process and ensured its submission to solve the communication issues that the clinic had. Additionally, examined another ticket related to SMS delivery failure, which was ultimately ascribed to incorrect client information input by the clinic. Took part in morning and evening daily meetings lasting 15 minute each during the day.

– Thursday 6th, April 2023

Addressed a bug ticket concerning the non-visibility of a specific settings block within a cloud service framework, unraveling that the visibility parameters were are linked to the geographical settings of the department, requiring alignment with a predefined set of eligible countries. Encountered a clinic's report of an anomaly in which a clinical note was misallocated to an incorrect consultation entirely. Despite exhaustive replication attempts and a thorough code analysis, the anomaly remained unsolved, suggesting the possibility of user error. Recommended documentation of the replication process for further investigation to be sent from the clinic. The day concluded with the standard protocol of morning and afternoon meetings, 15 minutes each.

– Friday 7th, April 2023

Good Friday – No work.

– Week analysis 8.

This week presented a significant focus on SMS-related challenges, extending beyond the foundational guidelines outlined in our existing Notion documentation. These cases introduced complexities that demanded a deeper dive into the SMS domain, a journey I embarked on with

both eagerness and efficiency. My rapid assimilation of the necessary knowledge to navigate these issues is a testament to my adaptability and learning capability. Yet, there's an emerging desire within me to enhance my comfort and proficiency in addressing such issues going forward, pinpointing this as a pivotal area for my developmental focus this week.

Enhancing my skill set in managing SMS-related inquiries necessitates a comprehensive understanding of the SMS ecosystem, including gateways, protocols, and application programming interfaces (APIs). As highlighted by Krishnaswamy and Kannan (2013), grasping the intricate layers and components of the SMS infrastructure is fundamental for effective problem identification and resolution. Moreover, a familiarity with the sector's standards and best practices, as discussed by Zhang et al. (2016), is instrumental in optimizing SMS functionalities while circumventing prevalent obstacles. My endeavors this week included a thorough exploration of Link Mobility's operational dynamics, their issue resolution processes, and their interaction mechanisms with our system.

Echoing Furgason (2017), I recognize that a growth-oriented mindset coupled with a readiness to delve into uncharted territories and learn from setbacks are indispensable attributes for a developer's success. Through proactive feedback solicitation, collaborative engagements with peers, and active participation in professional forums, I aim to broaden my expertise in SMS-related challenges. This entails a continued engagement with relevant tickets, fostering a deeper comprehension of the technical underpinnings of arising problems, thereby enriching my proficiency in future troubleshooting endeavors.

Reflecting on the week, it's evident that the experiences served not only as a rigorous test of my technical acumen but also as an invaluable opportunity for growth, underscoring the critical competencies required for excellence in the Technical Support realm.

4 Discussion

Over the course of writing this thesis, I've experienced substantial growth in my professional life, much like embarking on a deep dive into a sea of programming knowledge. Delving into topics such as APIs and data models wasn't just about ticking boxes; it was a transformative process that expanded my understanding of our product's intricate workings. This wasn't a solitary journey, either. Collaborating with external partners, like those providing SMS services, added layers to my expertise and broadened my perspective on how interconnected and dependent various aspects of technology are.

One of the most human elements I rediscovered was the importance of pausing - stepping back to breathe and clear my head. It's a simple practice, often overlooked in the hustle of deadlines and debugging, but it's been a game-changer for me. Taking these moments to reset not only eased the pressure but surprisingly boosted my productivity. The clarity that came from these breaks allowed for sharper decision-making and a cleaner approach to coding. Studies by Trougakos et al. (2008) have shown that taking breaks can significantly enhance both productivity and creativity, as well as reduce stress and exhaustion, supporting the notion that breaks refresh the mind and replenish mental resources.

The constant undercurrent of this journey was the need for lifelong learning. The tech world waits for no one, and staying ahead means keeping the wheels of learning in perpetual motion. Alongside this was the revelation about the art of documentation. With an arsenal of tools like Notion at our disposal and a multitude of processes to keep track of, mastering documentation became less of a chore and more of a critical skill set.

I also ventured into the meticulous world of daily logging, a practice far removed from the basic hour-counting and task-listing that's commonplace. This deeper dive into documenting my day-to-day efforts, while admittedly time-consuming, turned out to be a goldmine for personal growth. It's like mapping out a journey, where noting down the paths taken and the hurdles crossed provides invaluable insights for future endeavors, especially in the fast-evolving landscape of IT. Schön's (1983) concept of the reflective practitioner underscores the value of this reflective documentation in fostering professional development.

An unexpected twist in my narrative was the stark contrast in the rhythms and routines of the product development and technical support teams. It was like comparing two different genres of music, each with its unique tempo and nuances. This led me to question and rethink the conventional methodologies we often take for granted, such as Scrum. Why were these practices not as prevalent in technical support, and what could be learned from this divergence?

Diving into the dynamics within the product team shed light on the intricate dance of workflows and methods, revealing the pivotal role of communication and camaraderie. In a remote working environment, where the physical office is replaced by digital spaces, these elements become the glue that holds the team together. It's fascinating how a sense of belonging and ease in reaching out to colleagues can significantly lift the spirit of collaboration and productivity. Gilson et al. (2015) discuss the importance of communication in virtual teams and how it can enhance team dynamics and productivity. The idea of organizing in-person team days surfaced as a potential bridge for connecting remote teams. However, the geographical spread of our team members, spanning from the US to Poland, painted a complex logistical picture, making such gatherings a challenging feat to achieve.

As the thesis unfolded, the distinction in operational tides between the development and technical support teams became more pronounced. It wasn't just about different tasks; it was about different worlds with their bespoke needs and rhythms. This led to an appreciation of the bespoke nature of each team's workflow, designed with the unique demands of their roles in mind.

The unique challenges faced by the technical support team, particularly in managing unquantifiable tasks and maintaining agility in ticket resolution, necessitate a reevaluation of traditional workflow models like Scrum. The COVID-19 pandemic has also impacted the field by accelerating the digitalization of project management, emphasizing the need for agile approaches and efficient collaboration in remote teams. This shift necessitates a reevaluation of traditional workflow models to accommodate the dynamic nature of technical support tasks and the requirement for real-time problem-solving (Wu, 2022). The imperative for real-time problem-solving and the necessity for a broad product knowledge base delineate a distinct operational framework for technical support teams, geared towards rapid response and multifaceted issue resolution.

In the light of these insights, the future development of technical support teams should focus on fostering robust communication channels, defining clear priority guidelines, and recruiting individuals with a blend of investigative and interpersonal skills. This strategic orientation will not only enhance team efficiency but also contribute to the overarching goal of maintaining product integrity and customer satisfaction.

4. Sources

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