# IFB399 - Capstone Phase 2

# Team Balanced

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# 1. Introduction (Project Context, Goals, Scope, Outcomes and Success)

**Project Context:** The assignment has been given to Team Balanced, who have been tasked with conceptualising, developing, and delivering a simple accounting web application tailored for the specific requirements of our client, OreFox. OreFox is a company that specialises in using AI exploration technology to aid in the discovery of mineral deposits.

This web application is designed to streamline essential financial processes and simplify daily accounting tasks. The following sections will provide further information into the project's goals, scope, anticipated outcomes, and the metrics by which the project's success will be measured.

**Project Goals:** The primary objective of this project is to collaborate closely with OreFox to create a user-friendly and efficient simple accounting application. This application will empower OreFox to perform critical financial functions seamlessly. The key project goals are as follows:

- 1. **Invoicing Functionality:** Develop the capability to create, modify, delete, and view invoices, enhancing OreFox's ability to manage financial transactions.
- 2. **Quotation Management:** Implement features for creating, modifying, deleting, and viewing quotes, enabling OreFox to streamline their quoting processes.
- 3. **Basic Payroll Functionality:** Provide OreFox with tools to perform fundamental payroll operations, including calculating total weekly/monthly hours worked, determining time in lieu, and computing overtime hours.

**Project Scope:** The scope of this project is tailored to meet OreFox's specific operational requirements. It encompasses the development of simple but useful functionalities that will be implemented into OreFox's day-to-day business activities. The core components within this project's scope include:

- **General Invoicing Tasks:** Creating, modifying, deleting, and viewing invoices to facilitate financial transactions.
- General Quoting Tasks: Managing quotes efficiently to improve the client quoting process.
- Basic Payroll Tasks: Enabling OreFox to handle essential payroll operations, such as
  calculating total weekly and monthly hours worked, determining time in lieu, and tracking
  overtime hours.

**Project Outcomes:** Upon the successful completion, this project is expected to deliver upon several outcomes that will significantly benefit OreFox:

- An Accounting Application: The Team will deliver a fully functional accounting application, built using Django, customized to OreFox's unique needs.
- **Enhanced Efficiency:** The application will empower OreFox to optimize their financial processes, reducing the time and effort required for invoicing, quoting, and payroll tasks.

• **Streamlined Operations:** Improved workflow and task management, resulting in smoother business operations.

**Measuring Success:** The success of this project will be assessed based on the following criteria:

- **Client Satisfaction:** OreFox's endorsement and satisfaction with the delivered application and its functionality.
- **Functionality Adherence:** The application's capability to perform the specified tasks efficiently and intuitively.
- **Timely Delivery:** Meeting project milestones and deadlines to ensure on-time delivery.
- **Performance Metrics:** Tracking metrics related to improved efficiency, reduced errors, and enhanced productivity within OreFox's accounting and payroll processes.

# 2. Project Setup (Phase 2)

Setting up the project was a little bit of a hurdle, as the GitHub repository was recieved three weeks later than expected. At first, the team was building out the project using REACT, but after the third week, it was brought to light that OreFox already had a repository, the link was just not provided to the team until three weeks in.

Within the repo provided by OreFox, it was also provided how to set up the Django environment step-by-step, as this is the language the project will be using. This is due to the fact that OreFox's pre-existing web app uses Django, and will be much simpler to merge out project to their pre-existing web app.

Once the environment was set up, many elements could be recycled and used. This made the process of setting up UI elements for pages and styling much faster. For example, the table used for invoicing recycled a lot of the CSS styling sheets that were provided to us. This made it easy to keep the table and other UI elements consistent with the other pages and elements provided to the team by OreFox.

## 2.1 Project Management Approach

The Project management approach that was followed was the Agile approach to project management. This approach was chosen as it was deemed the most useful approach. This was due to the fact it allowed the team to make continual changes to the project without the need to scrap changes that were too costly and large. This dynamic was best suited to the project of Simple Accounting App as this app will have many moving parts and features that need to be implemented in order to have a fully functioning app. This means the project is volatile and prone to change, which means an Agile approach is the most effective approach when building out a project such as a web app.

Firstly, a product backlog was created and broken down into tasks and then subtasks. The idea behind this was that it makes the project much more manageable and functions much easier to implement. These tasks were sorted by deliverable as to better help visualise what was needed to implement each part of each deliverable.

Once coding began and the project was underway, each fortnight, progress was shown to the client in order to get feedback and approval of the functions being implemented. Depending on the feedback the team received, these functions were either changed, scrapped or kept and the development continued until the next meeting with the client.

As stated previously, the idea is that when a function is changed or scrapped, it will not hinder the performance of the project too greatly because the client is made aware of the changes to the project throughout. The team was each given individual tasks to complete each week, and each task was shown.

Individual Chapter - Lachlan Thompson

#### Project Management Role

The part I played in project management was that I was the main communicator with the client and the team. I sent out emails to the client in order to coordinate fortnightly meetings so that our progress could be assessed and easily changed based on the clients' needs.

Another role I played within project management was developing the Gantt chart which could then be broken down into tasks and sub-tasks. This was achieved with the help of Harry, as the Gantt chart and the tasks/subtasks needed to be reworked multiple times due to communication issues within the group.

Individual Chapter - Harrison Kelly

#### Project Management Role

The part I played in project management was that I coordinated and ensured correct coding procedures and development. I made sure that the code was formatted correctly to the needs of the client which included commenting structure and naming structures for variables and functions.

In addition, another role I took part in regarding project management was updating the client on their preferred project management platform (Notion). I developed an improved Gantt chart based on Lachlan's original design, I also utilised a project management website called Clickup and broke down everything into tasks and sub-tasks. I assigned each task with a task ID, and each sub-task with another ID. I then implemented this information as a table in notion as well as an interactive Gantt chart that I updated each fortnight.

I supported Lachlan with project leader duties and organising team meetings. I also led client meetings while Lachlan wrote down notes based on advice and feedback from the client. I communicated thoroughly with my team to make sure tasks were completed on time.

#### Individual Chapter - Lenny Wang

#### Project Management Role

In the team, I play the role of a task executor and partial coordinator. I maintain communication with Lachlan to stay updated on the latest developments and project requirements. I coordinate the work between myself and Anthony and ensure that tasks are executed according to the plan.

Within the team, I also collaborate with Anthony to share the work. This includes task allocation, creating work schedules, and ensuring that tasks are completed within the set timelines. Collaborating with Anthony allows us to efficiently distribute the workload and ensure that tasks are completed effectively. With Lachlan excelling in project management and scheduling, I can focus on my allocated work.

#### Individual Chapter - Anthony Chen

I worked as a developer and part coordinator, collaborating with Lenny to manage tasks and synchronise project development progress and requirements with the team leader, Lachlan, by maintaining clear communication. I allocate development tasks, create work schedules, and ensure timely project delivery. Working with Lenny increased my productivity and boosted task completion. And thanks to Lachlan's superb project management and scheduling skills, and Harry's assistance with some of the development work, I was able to concentrate fully on the assigned tasks with assurance.

## 2.3 Client Expectations (Phase 2)

Initially the client didn't provide much expectations to us when it came to the project. This includes both the planning and initial progress stage of the project. When showing him the initial stages of the prototype and the progress that was made, the client did not give much insightful feedback or provide expectations. He did say to add as many features as possible but did not go into much detail about which features he was expecting, other than the ones outlined in the initial task sheet. The client seemed to assume we should be creative and add features that we deemed relevant for a Simple Accounting Package project.

When asking questions to the rest of the OreFox team, they did not provide much helpful feedback either. The feedback was on par with what was previously received as the team was told to do our own research and implement what we believed to be what the client wanted.

The feedback became more specific and helpful after the client was shifted to a new person from within OreFox, Dinesh. He had more specific expectations for the project and provided specific suggestions that the team could implement if it was feasible. With this, the team had a more clear idea of what the project should have implemented if possible, outside of the initial specifications.

The role of our client was product owner. Planning and progress was organised with the client by utilising the Notion page they set up for us. The team communicated the planning and progress reporting with them by uploading our progress to their Notion and we tagged our main point of contact and explained to him what he was being shown. For example, we uploaded the tasks and subtasks within our planning stage. The team then made a comment which included the contact's username and we explained the purpose of the tasks and subtasks to give an idea of our plan and to instill confidence in the client that the project had a solid foundation and an idea on how to build the features was presented.

As touched on previously, progress was also shown via demonstration videos which were shared and uploaded to Notion. From here, the client provided feedback to us on how it looked and functioned. This was a very clear and informative way for us to demonstrate the product to the client in action and receive feedback on specific elements of the product as they can see how each feature operates and give the client an idea on how the workflow would appear to be used in everyday business activities. The team also showed our progress in the fortnightly meetings with the client as well.

Individual Chapter - Lachlan Thompson

#### Participation in Client Expectations

I participated in client expectations by speaking to the client directly about what is feasible. For example, initially he was really vague about what he wanted but asked us to implement as many features as we could. I basically told him which features we could and could not implement with our product backlog.

We also, as a team, spoke about the fact that troubleshooting certain functions made it difficult to complete other parts of the project. At this time it was unclear as to whether or not payroll would be implemented due to time constraints.

I also demonstrated the project to get feedback and show him how the project was realistically shaping up. We also updated him of our progress via their Notion in order to show him how fast a project like this could come together with a team of 4 people.

#### Individual Chapter - Harrison Kelly

#### Participation in Client Expectations

During the sprint I would make sure that I posted updates to the notion and tagged our client. This process was requested by the client as Notion was their main platform of communication. I participated in conversations with the client as well as other staff at OreFox using this approach. During each meeting, I would make sure I updated the client in detail about the progress made during that sprint period. This would include what I implemented and what issues I had encountered.

The main role I performed was obtaining feedback on each functionality implemented that week, I would then discuss improvements or issues related to the client's expectations for the functionality and what they would like to see at the next meeting.

If I had questions I would either email the client personally or tag them in notion with a question. To manage their expectations I made sure that I used these methods of communication and kept a consistent flow of updates so that they didn't feel like they were out of the loop.

### Individual Chapter - Lenny Wang

#### Participation in Client Expectations

In the team, I usually don't communicate with clients directly, I will share my requirements and ideas with my team members on Discord and then compile them to present to the client. But I do engage in direct discussions with clients regarding matters related to my tasks during meetings. In team meetings, I listen to the client's needs and expectations, with a particular focus on aspects closely related to my responsibilities. I ensure that I have a comprehensive understanding of the client's requirements to effectively coordinate and plan my work. My priority is to ensure the successful completion of the tasks I'm responsible for and collaborate closely with other team members to achieve the overall project objectives.

#### Individual Chapter - Anthony Chen

#### Participation in Client Expectations

As a team member, I typically do not have direct communication with the client. However, I will provide weekly updates on the task's progress via Notion to keep them informed of my development. Prior to the bi-weekly client meeting, I will collate the necessary materials and milestones to present to the client and request their feedback and requirements. If any issues arise during our standard development process, I will communicate with the team via Discord. If

I am unable to resolve the problem, Lachlan or Harry will summarize the issue and send an email to the client to request additional information.

#### 2.3 Team Collaboration

Team collaboration was paramount for the project to progress smoothly and efficiently. The team collaborated by communicating through a team Discord server. Within this server, files, links and updates relevant to the project were shared. The group also used this server to organise group meetings on campus as these were more effective than simply calling to discuss the progress made within the Agile sprints. Within these meetings, any issues that were being faced in terms of the project were brought up and discussed, and rectified if possible.

Within these group meetings, weekly tasks were decided upon and given to each member. These were broken down into particular functions for each member to progress and eventually complete. For example:

Lachlan: Quoting functionality

Harry: Invoicing

• Lenny and Anthony: Payroll and Database management

These tasks were then expressed via a Gantt chart so each team member could track the progress made. The team members were also required to complete a product backlog so the client may also track which items are completed, in progress and what items are yet to be implemented. The team also used this backlog to track their progress in real-time.

A list of tasks and subtasks was created to show how the product could be broken down into more manageable bites, which helped with collaboration and building the project out.

On top of this, each email that was sent to the client, everybody was included and CC'd into the email so they were aware of what was being sent to the client and received from the client.

Individual Chapter - Lachlan Thompson

Contributions to team collaboration

I dealt with managing team collaboration and culture by:

- Updating Discord with any commits I was making to GitHub, or any client/group interactions I had made.
- Reminding team members to update Notion for the client
- Messaged client via email and CC'd all team members in to keep them all included
- Created Teams meeting with client and team
- Consistently updated Notion. I filled in all the required information except for the individual parts in order to make it easier for other group members to do their work.
- Posted to github consistently
- Answered any questions other group members had surrounding github and how it works

This was to ensure everyone was included in all processes of the project to some capacity and everyone had access to the most relevant and up-to-date information necessary to perform their parts optimally.

Contributions to setting up team collaboration

I contributed to setting up team collaboration by working on the project management side with Harry (for example, we created subtasks and tasks, created the Gantt chart/Burn-down chart, worked on the product backlog, etc).

How you followed through on the team collaboration

To continuously promote team collaboration, I did the following:

- Consistently updated discord server
- Organised team meetings with the client
- Organised team meetings with the group
- Followed up consistently with group members to remind them of their tasks
- Worked on my section of the app consistently
- Worked on the report consistently. What this entails specifically is that I worked on basically all of the group sections and my individual section. Much like doing the group sections on the Notion, this was to make it easier for the other group members to do their work in terms of the report. In other words, the other team members will only need to fill out their individual sections.
- I continuously worked on the Notion page for the same reason. Each week we needed to report what we had done. I created the layout and kept it updated so other members simply had to fill out their parts and be done with it.

Individual Chapter - Harrison Kelly

Contributions to team collaboration

For team collaboration I felt that keeping a constant line of communication via discord was vital towards completing the project. They way I contributed to team collaboration was:

- Update team on different functionalities that I implemented that week.
- Reiterated important comments and notes from the client about the project.
- Always CC'd in all group members when communicating with the client.
- Provided detailed explanations when pushing changes to Github.
- Made sure everyone updated their sections in the task logbook.
- Reminded everyone when meetings were occurring.
- Always made sure to offer a helping hand to other group members.

Contributions to setting up team collaboration

I contributed to setting up team collaboration by making sure we had a system in place to log all of our activities. I found a project management website called Clickup, where we transferred our product backlog and brokedown each task into subtasks. This was done with the help of Lachlan.

How you followed through on the team collaboration

I made sure to keep a strict mentality in regard to keeping the project on track. If some group members couldn't complete their parts I made sure to fill in where necessary. I managed to figure out a way to follow through with team collaboration by following my own defined structure of processes. This included communicating with the team before every client meeting to make sure things were getting done and offering my help. Making sure our team's progress was communicated effectively to the client, and then reiterating the clients feedback and advice to the team. In addition I always updated Clickup along with the task table and Gantt chart on notion. This was so that my team could see how I formatted my progress so they could follow suit. The client would often tag team members and ask questions, I would then make sure this was acknowledged by the relevant team member.

I consistently worked on Invoicing and Quoting and implemented the functionalities. Functionalities created in Invoicing were then transferred over to Quoting as the functionalities were pretty much the same. Initially Lachlan was in charge of Quoting, however, since there was a large amount of work to be done in other areas ( the report ) I took over as the main coder for Quoting until the end of the project. This helped us in the long run as I was more comfortable with coding and we encouraged each other to work to our strengths and advantages.

Individual Chapter - Lenny Wang

Contributions to team collaboration

As a member of the group, here are my contributions to teamwork:

- Receive and complete the tasks I am responsible for mainly through Discord.
- Participate in team meetings with clients and team members.
- Complete my development logs in as much detail as possible and update the schedules.
- Complete and continually improve concepts and prototype during the design phase of the project for keeping them in line with the requirements and team discussions.
- Regularly check our Notion page and contribute to it regularly.

How you followed through on the team collaboration

As an ordinary member of the team, I have also made my own contributions to team collaboration:

First and foremost, I always maintain a clear understanding of the team's goals and vision, striving to ensure that my work aligns with the overall direction of the team. I believe this is the basic responsibility of every team member, helping the team to focus and work towards the same direction. In terms of communication, I actively participate in team meetings, offering

suggestions and recommendations. I also make efforts to establish trust with team members, deepening understanding and collaboration with colleagues through team-building activities and workshops. In my daily work, I use online collaboration tools like Notion, Trello, and Discord to ensure I sync with the team and complete tasks efficiently, especially in a remote working environment.

Individual Chapter - Anthony Chen

Contributions to team collaboration

During the course of the project, I actively engaged in team collaboration and culture by:

- Keeping track of any commits made to GitHub and notifying the team via Discord.
- Actively participating in client/group interactions and updating the group accordingly.
- Ensuring I was kept in the loop by checking emails that were CC'd to all team members.
- Actively participating in Teams meetings with clients and team members.
- Regularly updating and checking our Notion page. Although I primarily focused on my individual parts, I also contributed to group sections whenever possible.
- Consistently committed my work to GitHub.
- Whenever I encountered uncertainties, especially with GitHub, I reached out to the team to seek clarification and support.

Contributions to setting up team collaboration

Assisted the team in establishing successful collaboration, provided support in enhancing and modifying the preliminary Gantt chart during the early stages of the project, and created a timely Google Drive link for sharing project files among the team.

To ensure seamless and continuous team collaboration, I:

- Actively engaged and contributed in the Discord server, ensuring I was up to date with all announcements and updates.
- Participated and contributed during client and group meetings.
- Checked in with team members regularly to stay informed about ongoing tasks and provide assistance where necessary.
- Diligently worked on my assigned sections of the app.
- Contributed to the group report by working on my designated sections and supporting the team wherever possible.
- Checked and contributed to our Notion page regularly. I ensured that my weekly updates were timely so the team was always informed of my progress.

By actively engaging in these collaborative efforts, I aimed to strengthen our team dynamics and contribute meaningfully to the successful completion of our project.

#### 2.4 Communication Plan

For the project, a formal communication plan was not developed. However, each week, the group would come together for group meetings to discuss the previous sprint and how things went, if any issues arose and if the member was ahead of schedule or behind. This ensured that communication did not break down and the project's goals remained clear and manageable.

Minutes for each meeting were created for team members to go back and assess what they stated they needed to do for the next sprint and could look back upon any issues that arose that they may have missed in the following sprints.

Individual Chapter - Lachlan Thompson

#### Contribution to Communication Plan

Each week I contributed to the communication between the client and the group by attending client meetings and writing the minutes for the meetings. This was to ensure that all the important information is noted and stored for later reference if needed.

I also contributed to the communication with the tutor by showing my progress each week. This progress was related to development, such as debugging, or report writing, such as getting feedback on the structure of the report. Each fortnight, we also had to report our progress and contribution to a Google Form to elaborate on our contribution. This included contributions such as:

- Contributions to the project itself
- Contributions to communicating with the team
- Contributions to communicating with the client

I also used Notion to update my progress to the client. This was to ensure they could better understand what progress was being made each week. It was important to keep this information detailed as to best show the client what specific part of the project was being worked on.

Individual Chapter - Harrison Kelly

#### Contribution to Communication Plan

Each week I attended and helped organise online and in-person team meetings. In these meetings I would communicate in detail my progress and concerns. I would also help out team members that were having technical issues like setting up the Django framework and virtual

environment. I would then update the client on the notion of my plan for the following weeks and what tasks I wanted to complete. When new tasks were created I would create a task ID and then break down the task into smaller components and update the task table on notion. This was so the client could keep up to date with our plans and progress.

I attended each tutor meeting every fortnight and relayed my progress in detail. With each tutor meeting I would complete an Individual progress report that highlighted what I planned to do, what I've done, and what I plan to do in future. I would then show the tutor my recorded tasks for that fortnight, which then would be used to provide proof of what I had done over the past few weeks.

Similar to the tutor meetings the client meetings followed a similar format. I usually would lead these meetings and update the client on a large portion of the application's progress. He would then pass on feedback from other departments and ask us to apply certain changes. Once changes were made, I tagged the client in motion to update him. Then I would repeat the above process.

#### Individual Chapter - Lenny Wang

#### Contribution to Communication Plan

During the course of the project, we utilised multiple avenues to ensure effective communication with our tutor and client. Each week, we collaborated and exchanged information with the client via the Notion platform.

In addition, to report our progress and activities to the tutor, we submitted detailed reports weekly through Google Forms. Beyond that, we also organised weekly group meetings to ensure smooth communication among team members and the steady progression of the project.

#### Individual Chapter - Anthony Chen

#### Contribution to Communication Plan

Throughout the project, I played a role in streamlining communications within the team and externally with clients and mentors. Recognizing the importance of transparency and regular updates, I continually update our collaboration tools, including Trello and Notion.

I also bring my perspective to bear during team discussions, which ensures our internal communications remain smooth and effective, allowing us to operate cohesively as a unit. Additionally, I stay in touch with clients and bridge the communication gap. This ensures that we are always aligned with our clients' expectations and able to adapt quickly to any changes or revisions.

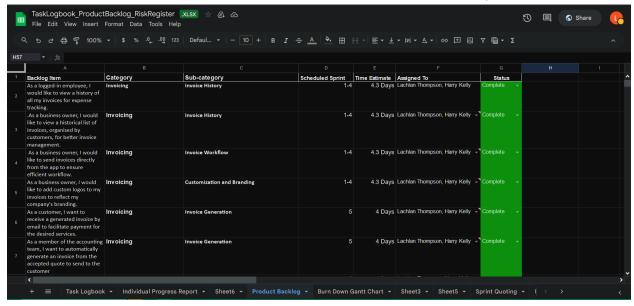
In conclusion, my contribution to the communication plan is multifaceted. From ensuring clarity of external communications to promoting unity and understanding within the team, I work to ensure we stay on track and collaborate effectively throughout the project lifecycle.

# 3. Project Plan and Risk (Phase 2):

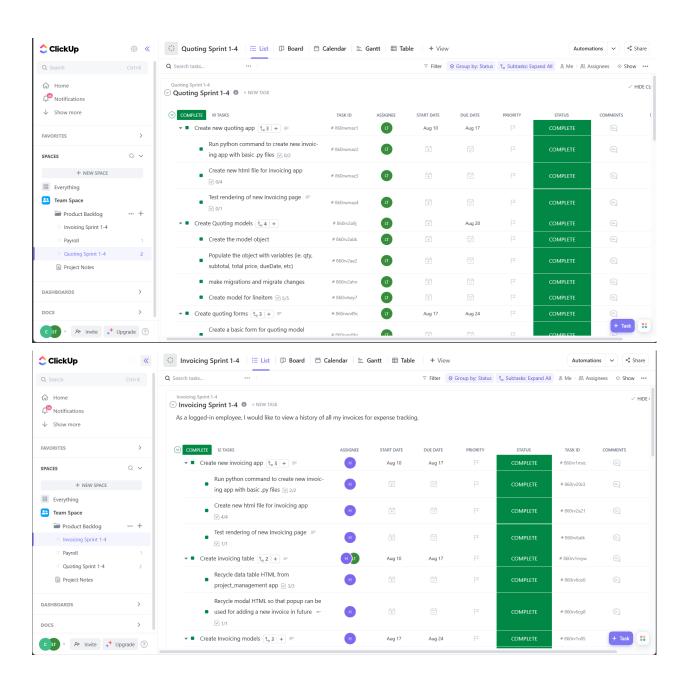
## 3.1 Project Planning and Progress

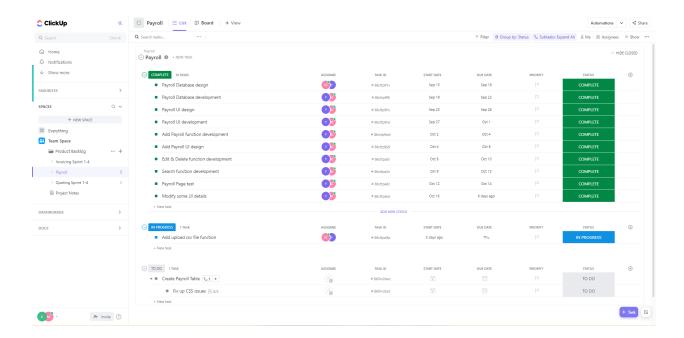
Every successful web app or software project begins with a well-thought-out plan that outlines the scope, objectives, and the various components that will bring the project to fruition. A crucial element in this planning process is the development of artifacts. These serve as an essential blueprint and documentation for the project's design, development, and execution.

The artifact was developed by creating a product backlog which can be seen below. This product backlog allowed the team to track the status of each function, whether that function was complete, in progress or planned. This backlog was updated regularly in order to maintain the most up-to-date information on the deliverables and what current state they were in.

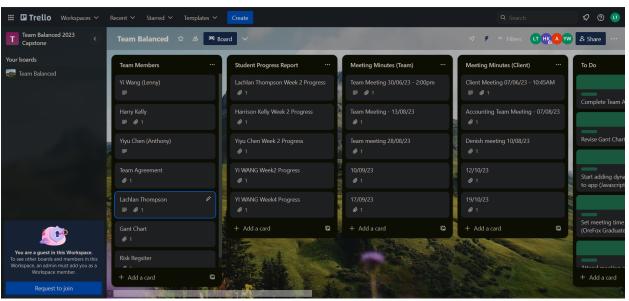


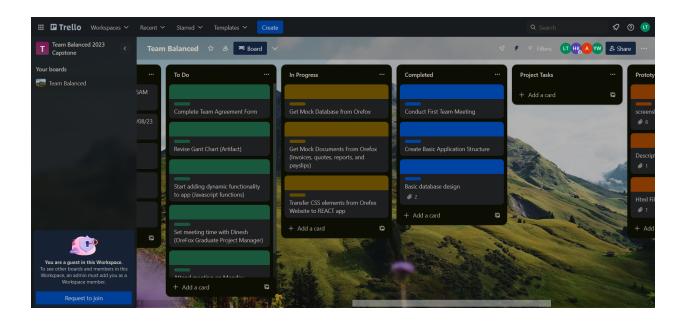
ClickUp was used to go through step by step of how to build out the different functions. The way this was done was by breaking down the functions into much smaller tasks which made it more manageable and easily able to visualise how each part of each function was supposed to work, how they connected to the other parts and which tasks needed to be completed first before moving on to the next.



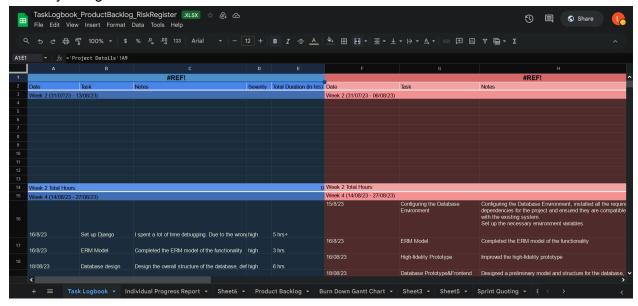


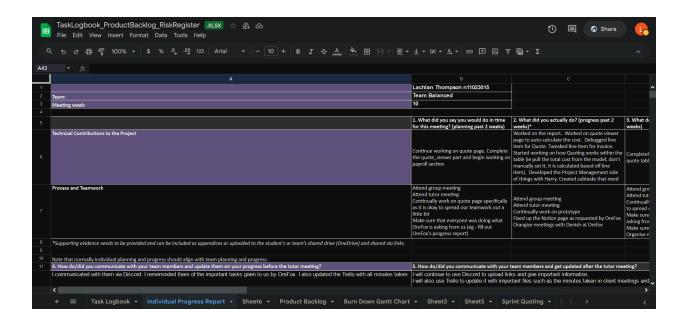
Progress for the entire project was tracked using Trello. The meeting minutes were recorded and added every week. This made it easier to go back and retrieve certain important information when deemed necessary. It also acted as a backlog of what has been completed in terms of the overall project, what was discussed and what information was needed to build out a product that functioned well and addresses what the clients' needs are.





Progress was also tracked in the task logbook every two weeks. This logbook served as a similar function to Trello but was based more around what each member's contribution was to the project. This acted as a way to get up-to-date information on each member's contribution and acted as evidence for what had been completed, what was completed and what was currently being worked on at that time.





The group tracked their progress over phase two of the assignment by having weekly group meetings, having fortnightly meetings with the client, and discussing the progress of the project over discord if any problems arose or if anything major got completed. During the group meetings, attendance and notes were taken about the current state of the project. Each member took turns at discussing what they had completed during the sprint. Each member would also discuss any problems that had arisen during the sprint and if they would need to continue the tasks over from the current sprint into the next.

#### Individual Chapter - Lachlan Thompson

#### Contribution to Allocating and Coordinating Tasks in Relation to Your Roll

As group leader, my main role for allocating and coordinating tasks were helping Harry design product backlog, updating the group as to what I had completed during group meetings, writing meeting minutes for every meeting we had and every meeting the group had with the client.

As I was in charge of *quoting*, I allocated tasks to myself in the most logical order. First was to create the template of the *quote* page, then add finer details until moving on to other functionality such as *quote viewer*. This was then broken down into smaller and smaller details. I knew what function that needed to be completed as it was stated within the Gantt Chart, and during group discussions, I expressed my logic and received feedback on it.

These were very important tasks for ensuring the success of my part of the project, which in turn, ensured the success of the project itself.

#### Contribution to Reporting Progress

I contributed to reporting my progress by updating the Notion using clear and concise language so the client was able to see and understand what I was doing within my role for each week of

the project's development phase. I also updated the table that was sent to the tutor every fortnight and I attended every tutor meeting to show and discuss the progress I had made every sprint and the issues that potentially arose during each sprint.

#### Individual Chapter - Harrison Kelly

Contribution to Allocating and Coordinating Tasks in Relation to Your Roll

As a lead developer, my main role for allocating and coordinating tasks was to design the product backlog into a more detailed and intricate format for logging tasks and task details. This provided a way for group members to log their tasks efficiently and uniformly.

I was in charge of Invoicing, then later on Quoting. I managed to create my own system for breaking down the functionalities that needed to be implemented into smaller and smaller sub tasks. This made it easier for me to complete the functionality I was working on as small goals were being reached and it kept my attention focused.

After we presented our progress to the client, I made sure to break down each bit of feedback and advice the client gave us to make it more digestible for each group member including myself. Then we would assign each other tasks based on our strengths.

#### Contribution to Reporting Progress

For reporting progress, I maintained a consistent flow of updates to the clients Notion page. In addition to this, I updated the table lachlan created with what I was going to work on that week with the expected finish date. I always made sure the gantt chart was up to date along with the list of tasks and subtasks on the table in Notion. I went to every tutor meeting and showed my progress and any issues I encountered.

#### Individual Chapter - Lenny Wang

#### Contribution to Allocating and Coordinating Tasks in Relation to Your Roll

In the database part , I followed the standard database development process, first completed the ERM model, then designed the initial structure, defined how to create, read, update and delete invoices, and at last added the document generation and storage methods, and added admin management functions. In the payroll part, from the basic payroll UI page development, then complete the basic display and add, delete, check and change, and at last write the automatic calculation to search and sort and other gradually subdivided functions. The assignment of tasks is basically done in the order of design and layout, followed by the development of core functions, and then gradually filling in the details and complex functions. This allocation process ensures that the project works properly as well as efficiently.

#### Contribution to Reporting Progress

Reporting to clients is mainly through regular updates on my progress via Notion and weekly project progress presentations to clients in meetings.

Reporting to my tutor and group is done by writing down my daily tasks and progress in a weekly logbook file, and updating my schedule on trello and explaining at tutor meetings. This reporting provides visual feedback on how my project is progressing and how it is being improved and refined.

#### Individual Chapter - Anthony Chen

#### Contribution to Allocating and Coordinating Tasks in Relation to Your Roll

As a member of the team with a focus on software development, my primary responsibility was to develop the payroll page of the application. In line with the project's objectives, I closely collaborated with the team to understand the specifications and requirements for this particular feature.

After understanding the broader goals, I divided the development process into smaller tasks. This started with drafting a basic layout for the payroll page and incrementally refining it with additional features and functionalities. I consistently referred to the Gantt Chart to ensure alignment with the project timeline. In group discussions, I shared my approach to developing the feature, ensuring it met the client's expectations, and actively sought feedback from peers to make any necessary improvements.

Executing my tasks effectively was vital for the overall functionality and efficiency of the application, and I took measures to ensure the payroll page seamlessly integrated with other parts of the software.

#### Contribution to Reporting Progress

Consistent communication was a key aspect of our project's success. I regularly updated our team's shared platform, Notion, detailing the development status of the payroll page. This ensured transparency and provided clarity on the progress I was making. Every two weeks, I contributed to the progress report table that we submitted to our tutor, highlighting any achievements, challenges, or modifications needed for my section.

Furthermore, I attended all tutor meetings to present the advancements I had made during each sprint. This not only allowed me to showcase the progress of the payroll page development but also to discuss and find solutions to any challenges I encountered.

## 3.2 Risk Management

Within the development and operation of any web application, risk management plays a pivotal role, and this is particularly true for building a simple accounting package. This web app is designed to assist OreFox in managing their financial transactions. This makes it essential to identify, assess, and mitigate potential risks that could compromise data accuracy, security, and operational integrity.

As stated in the previous report in phase one of the project, feature creep was indeed a risk that had the potential to bloat the project and distract the team causing loss of focus on the project goals and aims, resulting in the group underdelivering on the promises outlined to the client.

During one of the meetings with the accounting team and Prithvi, they made it a point to have us decide on as many features as we could and try to implement them. The team managed this risk by clearly stating what would be in the accounting package and showing a clear list of functions in the product backlog that stated what the accounting package can have, will have, must have and won't have. These were presented to the client in our fortnightly meetings.

Another risk was poor project management. Poor project management can lead to issues such as:

- Scope Creep: Lack of scope control can lead to the project expanding beyond its original boundaries, causing further delays and costs.
- Quality Issues: Inadequate oversight and quality control can result in a lower quality end product, leading to customer dissatisfaction and rework.
- Stakeholder Dissatisfaction: Poor communication and mismanagement can lead to stakeholder dissatisfaction, potentially damaging relationships with clients, team members, and other involved parties.
- Communication Breakdowns: Poor communication can result in misunderstandings, conflict, and confusion among team members and stakeholders.
- Incomplete Documentation: Insufficient documentation can hinder knowledge transfer and future project maintenance.
- Project Abandonment: In severe cases, poor project management can result in project abandonment due to insurmountable issues.

The project, at times, was definitely at risk of this. However, this was mitigated somewhat by creating an effective Gantt chart for the group to follow. Tasks and subtasks were also created in order to help break down the project into more manageable pieces for each member to follow and effectively develop.

# 4. Project Experience (Phase 2)

Individual Chapter - Lachlan Thompson

For my individual chapter of this report, I would like to address the two main issues that really stood out to me throughout the duration of the entire project, and then I will address the positives of this project and the development of it.

The first issue I would like to address is that OreFox did not work effectively with the group, some of the issues faced while working with them are

- Receiving the GitHub repo 3 weeks late
- Not being informed what language we were using. With that said, after being given the repo 3 weeks late, we were told we are using Django and the project basically started from there.
- We received vague feedback on the progress of the project. Mostly we were told things
  like "yeah that looks good guys" and "great". It seems the client was mostly focussed on
  us using Notion and were very informative about what to do around this area of the
  project but not really very informative feedback on the prototype being shown to them.

Orefox also told us to add as many features as we could without specifying what features they would like. We asked them and they told us it is what we are being marked on so we need to do our own research. We asked about what their quotes and invoice layouts currently are so we can implement them into the accounting package but were told the same thing. We need to do our own research as we are being marked on it. Basically they were pretty unhelpful as to specifying what they wanted further than the task sheet.

This got slightly better towards the middle/end of the project's development cycle when our main contact was transferred over to another person within the company. However, I feel this is unacceptable in my opinion as informative feedback should have been consistently given. We later found out that OreFox was running many of these capstone projects at the same time as ours. This explained a lot of the behaviour the group saw during the progress of this assignment. However, better preparation for this project on the client's side should have been made from the beginning.

Another issue that was faced was around teamwork and how group members interacted with the project and with the group. At a high level, some of the issues I noticed were as follows:

- Team members tended to be unresponsive on Discord. To remedy this, I stressed the
  importance of teamwork and communication within the project. I also stated directly that
  if there are any things any team member is uncertain of, I am always happy to help with
  laying out what to do at a high level or re-explain what needs to be completed in more
  simple terms if possible.
- Sometimes group members were also reluctant to show progress during the group meetings.

Group members required consistent reminders to do tasks that needed to be done.
 These reminders were sent over Discord. This had no real remedy, I just kept reminding group members so tasks were completed and the client remained happy.

Eventually, the issues above became slightly better towards the end of the project, but ultimately many of these issues went unresolved, despite different approaches and each one not really leading to anything productive. The workload felt very unbalanced at times because of these unresolvable issues persisting throughout the development and planning cycles.

A lot of the group issues in some ways boil down to a lack of project management which was not handled as well as it could have been. While a Gantt chart was initially created, it was reworked many times over the course of the project as our project deliverables changed during the start of the development process. While we did use ClickUp to create tasks and subtasks to break the project down into much more manageable pieces, this could have been used earlier on to mitigate the issues seen with the Gantt chart and project management. As this was my responsibility, I feel that I did not succeed as well as I could have in this regard.

On a more positive note, I believe I learnt a lot about how projects are run as this was my first real project working with an actual client. This client had real-world requirements that were to be met within the given time limit. I also learnt a lot more in-depth about how to build out a web application using Django and how each part of the project interacts with one-another in order to come together and create one cohesive product. I feel this was very informative and I am glad to have had hands-on experience with a project like this.

#### Individual Chapter - Harrison Kelly

The experience of the project for me was quite mixed. Initially when we met with our original project manager from OreFox, it seemed that he was either overworked or didn't care about what we were doing for the project. We would often receive one worded answers from him, and in addition to this we would also receive sub optimal feedback. Other issues came to fruition when we suddenly were invited to a large meeting involving the accounting team and development team. During this it set in stone our feelings of dissatisfaction towards the client. During that meeting we received the most uncollaborative advice from the people we needed the most information from. For example, we were trying to gather information on how their invoices are structured and how they charge the customers for their services. We received a very unhelpful reply of "that's what you should be researching", which is what we were trying to do. Some of the employees from OreFox really made it obvious that they didn't want to be involved in the meetings and would also give terrible feedback and then leave the meeting abruptly.

After these experiences, we were unexpectedly given a new project manager from OreFox who was extremely helpful to us. This made the experience a lot more enjoyable for us as we finally got a hold of their repo which we didn't know existed. This gave us hope even though at this point we were 3 weeks behind with development. Unfortunately we spent a long time trying to learn the Django framework, but once it stuck we picked up the pace of development. We

thought this was completely unprofessional for OreFox. Depending on what benefit they get out of these student projects from QUT, I feel they are undeserving of it. I and other group members looked at possibly handing over our resumes to OreFox, but didn't want to take the risk of possibly working at an unsupportive, uncollaborative workplace.

Regarding teamwork, there are a few issues around communication, punctuality and completing assigned tasks. The issues were:

- Lack of communication from some team members was one of the main issues. I found it
  hard to get answers out of some team members when asking questions or enquiring
  about tasks. I eventually tried to address these issues and made sure that they
  understood that I was patient and would help them when needed. I would also try to
  break down tasks for some team members so that they had what they needed to do in
  front of them which required extra work.
- It became evident that one of my main roles was to pester group members to show what they've been working on or answer questions that I asked. Sometimes I would receive emojis instead of answers, an answer a day later or no answer at all.
- I also found it to be quite stressful, as a lot of pressure was put on me to be the main communicator/speaker whenever we had a meeting with the client and other members of OreFox. I eventually addressed this and voiced my frustrations, and then later in the project, things improved.

A broader issue would also be the project management side of things. I found myself doing an unnecessary amount of reminding people to update their task logbooks and tables on notion. This however, I feel isn't the fault of singular group members and is more of a group issue. The project management side of things could have been resolved very early in the development process. We were very confused about what format we should use and how we would go about it, which led to multiple remakes of documents. However we did find a good project management website called ClickUp that improved this, even though it was a bit late.

Ending on a positive note, I learned how to address issues in a lot of ways. Some ways were definitely better than others, but that was a huge learning experience for me. I learned how to keep a level head but also speak my mind on issues, which I previously would have been quite hesitant to do. Overall, it was a very educational life experience.

#### Individual Chapter - Lenny Wang

From a personal perspective, I was fortunate to participate in a project, experiencing the entire process from design and development to delivery, which provided me with invaluable experience. Although my skills in software development are basic and I have relatively little experience in team collaboration, I am lucky that my team members are experienced and responsible. They managed and propelled the project effectively while encouraging me to keep pace.

Indeed, in the tasks of the previous semester, as the content was more aligned with my major (IS), I was able to stay in sync with the team smoothly. However, when we delved into the

specific coding phase this semester, I often found myself dedicating a lot of time to self-study rather than directly contributing to the project. As a result, I deeply appreciate my team members who generously offered help and took on the responsibilities that I should have shared.

Even though there's room to enhance my skills further, I am content with the progress I've made during this course. Now, if faced with a similar project again, I know how to engage and drive its execution. With each challenge faced and resolved, my coding abilities have improved. This self-motivated learning journey, starting from scratch and gradually realizing the project's goals, has brought me immense satisfaction.

#### Individual Chapter - Anthony Chen

First of all, when faced with this project, the Django framework used by Orefox gave me a big headache, because it was a framework I had never learned before, and as an information systems major student, I was very lack of programming experience, and I was not skilled enough in Python language. Faced with this problem, I can only start from the most basic Django framework to learn, I know we need to use Django framework from the third week, then I began to learn about Django framework on the Internet, and try to develop some simple web pages to practise, which took me a few weeks of time, but also slowed down our team's development progress, and also led to a number of meetings can not be shown progress! It took me a few weeks, slowed down our team's development progress, and led to several meetings where I couldn't show progress, but in the end I was able to complete the development task on time, which was a challenge and a breakthrough experience for me.

Another important aspect of this project was teamwork, as it was the first time I had been involved in a real team project for such a long period of time. It was the first time I had been involved in a real team project over such a long period of time and it was a new challenge for me as a very introverted person, both in terms of communicating with the client and working with the team members. However, I am still very happy that I have the opportunity to participate in real projects, even though there are often many shortcomings, but these valuable experiences will benefit me for the rest of my life.

# 5. Artefact Description

# **Functionality**

This project involves developing a simple invoicing package with features such as invoicing and quoting history and the ability to generate and view invoices and quotes. Users can download invoices and quotes as PDFs or send them via email.

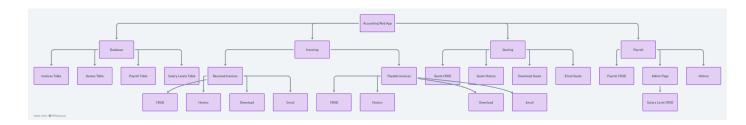
Additionally, there's a quoting system with similar functionalities. The financial management aspect includes payroll features like calculating hours worked, time in lieu, and overtime based on employment type. However, some features, like charging job codes for different projects and generating specific financial reports, were marked as "May not deliver."

ID	Category	Feature	Description	Must/Should/ Could/May Have	Will/May/Won't Deliver
1	Invoicing	Invoicing History	Invoicing will have features such as invoicing history, which can be accessed at a later date.	Should have	Will deliver
2	Invoicing	Invoicing History	Invoices that have been sent will be moved to a invoicing history table	Must have	Will deliver
3	Invoicing	Invoicing Generatio n	This will allow users to generate an invoice by inputting data into a number of fields. The invoice will then be generated for them.	Must have	Will deliver
4	Invoicing	Invoicing Generatio n	Users can then view individual invoices that will dynamically display the data that was stored when generating an invoice.	Must have	Will deliver
5	Invoicing	Invoicing Workflow	Users can download invoices as a pdf on their local file system.	Must have	Will deliver
6	Invoicing	Invoicing Workflow	Users can send the invoices via email to their customers.	Should have	May deliver
7	Invoicing	Invoicing Generatio n	Calculate GST per invoice	Must have	Will deliver

8	Invoicing	Notificati ons	Users will receive a notification when a new invoice is received	Should have	May deliver
9	Quoting	Quote History	Quoting will have features such as invoicing history, which can be accessed at a later date.	Should have	Will deliver
10	Quoting	Quote Generatio n	Users can generate an invoice by inputting data into a number of fields. The invoice will then be generated for them.	Must have	Will deliver
11	Quoting	Quoting Generatio n	Users can then view individual quotes that will dynamically display the data that was stored when generating a quote.	Must have	Will deliver
12	Quoting	Quoting Workflow	Users can download quotes as a PDF on their local file system.	Must have	Will deliver
13	Quoting	Quoting Workflow	Users can send the quotes via email to their customers.	Should have	May deliver
14	Quoting	Quoting Generatio n	Calculate GST per quote	Must have	Will deliver
15	Quoting	Notificati ons	Users will receive a notification when a new quote has been accepted	Should have	May deliver
16	Financial Management	Payroll	Users can input their hours and job code into the system to calculate total weekly/monthly hours worked	Should have	May deliver
17	Financial Management	Payroll	Users will be able to calculate their time in lieu	Should have	May deliver

18	Financial Management	Payroll	Users will be able to input the work hours based on their employment type	Should have	May deliver
19	Financial Management	Payroll	Users will have their overtime calculated based on their employment type. Different rules to apply to casual, part-time or full-time	Should have	May deliver
20	Financial Management	Payroll	Users will have the option to charge a specific job code for hours worked on different projects	Could have	Won't deliver
21	Financial Management	Reporting	Users can generate financial reports for ASX announcements	Could have	Won't deliver
22	Financial Management	Payroll	Users can generate financial reports on profit and loss	Could have	Won't deliver
23	Financial Management	Payroll	Users can generate tenement financial reports inline with legislative requirements	Could have	Won't deliver

# Architecture



# Accounting Web App Architecture Description

1. Accounting Web App: This is the main application that encompasses all the functionalities.

## 2. Invoicing:

- Received Invoices: These are the invoices that the company has received.

- CRUD: Create, Read, Update, and Delete functionalities for received invoices.
- History: View the history of received invoices.
- Download: Allows users to download the received invoices.
- Email: Send the received invoices to an email address.
- Payable Invoices: These are the invoices that the company needs to pay.
- CRUD: Create, Read, Update, and Delete functionalities for payable invoices.
- History: View the history of payable invoices.
- Download: Allows users to download the payable invoices.
- Email: Send the payable invoices to an email address.

#### 3. Quoting:

- Quote CRUD: Create, Read, Update, and Delete functionalities for quotes.
- Quote History: View the history of quotes.
- Download Quote: Allows users to download the quotes.
- Email Quote: Send the quotes to an email address.

#### 4. Payroll:

- Payroll CRUD: Create, Read, Update, and Delete functionalities for payroll.
- Admin Page: A special page for administrators.
- Salary Level CRUD: Create, Read, Update, and Delete functionalities for different salary levels.
  - History: View the history of Payroll.
- 5. Database: This represents the backend storage of the application.
  - Invoices Table: Stores all the data related to both received and payable invoices.
  - Quotes Table: Stores all the data related to quotes.
  - Payroll Table: Stores all the data related to payroll, including Salary Level data.
  - Salary Levels Table: Stores different salary levels which can be managed by administrators.

## **Technical Description**

Initially, the team wanted to use REACT before the link to the repo was given. The team was then informed that the project will be written in Django. The team then had to go back over the new Django code once it was provided. This was then studied to decipher how the code came together and functioned cohesively. Once understood, the code was then recycled to get a base UI up and functioning. The previous CSS stylesheets were studied and used to keep the UI consistent with the other parts of the app that already existed. The pre-existing code was then studied further to begin adding functionality to the specific parts of each page of the app. For example, adding functionality to the invoicing table was the first to be implemented once the code was studied.

The most vital parts of the code are the views.py and models.py files. These files are vital in database operations and url mapping to the frontend UI in order to generate the dynamic content

The most innovative part of the code is the email functionality for invoicing and quoting. This functionality was explicitly requested by OreFox in the later client meetings. The user can email the invoice to a client and the client will receive that email. From here, the client can then confirm the invoice has been paid, which will then be dynamically updated on the web package. The same can be done for quoting. Instead of the client receiving an email about setting status to paid, the client will set the status of the quote to confirmed. Like invoicing, this will also be dynamically updated in the quoting table within the web package. Both of these functions will also be reflected in the backend database as well.

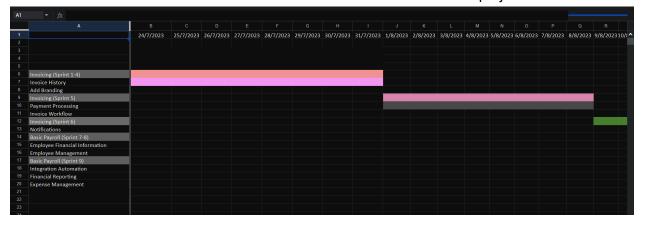
The admin page for payroll is another innovative feature of the web package. The idea of these features is that the management interface that comes with the Django framework can be used so that when the user's permissions are set to super user or administrator, the user can enter this page for database management. This page can manage all databases of the web app.

As all pages of this web app will be storing and modifying data within the database, this administration page is a very powerful feature OreFox will be able to use and modify to their needs..

## **Quality Metrics**

To test the quality of the project the following was created to ensure the best possible quality product to present to the client:

A burn down chart was followed to know that the project was on track. This ensured that every week goals were being met in order to keep progress steady and on track. This way each deliverable would be able to be delivered within the time allocated to the project.





This was important for the next step in ensuring the quality of the product.

Every two weeks, the client was shown the product functioning as it should be and asked to report on any concerns they may have had with the design or the functions as to better improve. The client also showed the other stakeholders in his company such as the accounting team as they were the primary users of the accounting package. This was done to ensure the quality and satisfaction of the client continually throughout the development process.

The idea behind this Agile approach is to minimise the size of the changes being made to the product so minimal progress is lost each time the client requests changes to be made. Minimal progress loss ensures that the project stays on track as it should, ensures the product remains functional by not losing any major components to the project and ensures client satisfaction by meeting the clients' exact requirements.



To further test the quality of the product, the client was frequently asked via their Notion page for feedback. A demo video was also created during the development cycle to show the client and the company's accounting team and get feedback on the state of the project. This can be seen below:



© Dinesh Nair Krishnakumar please find attached the embedded video above of Payroll and quoting

Also apologies for the weird aspect ratio on Harry's and mine. I didn't realise I messed up the settings in OBS.

Dinesh Nair Krishnakumar Oct 16 (edited)

Hi Lachlan, thank you so much. Would you be able to embed the video for Quoting and Invoicing as well?

As stated previously, it was important to also gain feedback from the accounting team, as they are intended to be the primary users of this specific simple accounting package.

# **Appendices**

# Final Team Agreement