

Expense Reimbursement

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ABSTRACT

This paper describes the goals, the processes, and the poster of the Expense Reimbursement project for Temperzone, through the Capstone program with Ara, the Institute of Canterbury. This project was to create a web application for Temperzone that could move the expense request and reimbursement process to an API increasing its usability, security and data integrity.

The project management framework Agile Kanban was used after extensive research, which set a strong backbone for the project to work on. The project was completed within thirteen weeks, with Temperzone very happy with the final product, ready integrate it with their ERP, and start reimbursing employees.

Keywords: Web Application, API.

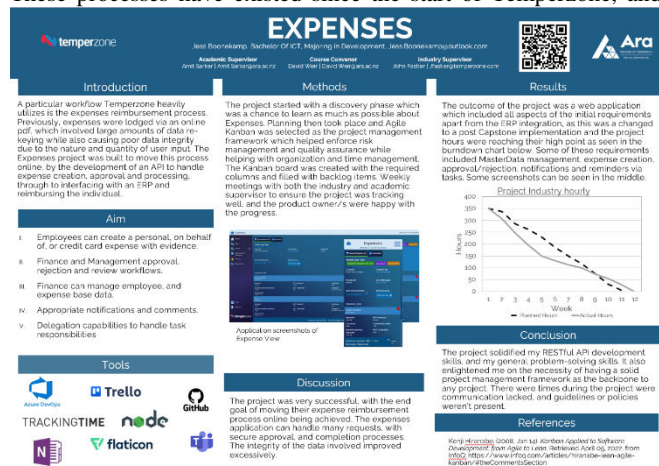
INTRODUCTION

Temperzone group is a leading manufacturer and distributor of innovative air conditioning and ventilation products throughout Australasia, South East Asia and China (Temperzone, 2022). Their organization utilizes a broad range of unique workflows and processes through different sections within the business.

Figure 1 Poster

These processes have existed since the start of Temperzone, and

some have old, outdated solutions to the problems, such as the expense reimbursement, using an online PDF solution. Such a workflow with its given solution spawned the Expenses project.



PROJECT GOALS

The primary issue of the previous Expenses solution was the excessive work Finance had to do to approve and process a request. It involved re-keying data into an online form which often caused human error and poor data integrity, but also cost a lot of unnecessary time. The new solution opted to move this process online through the development of an API, in combination with a task approval/rejection process, notifications, reminders, delegations and an admin MasterData management portal.

PROCESS ADOPTED

The project management framework utilized was Agile Kanban after an extensive researching period. With Agile Kanban, a project discovery phase occurred which was the opportunity to pool the major requirements together. This then formed the backlog in the Kanban board. From this, tasks were selected and subsequently developed which involved vigorous testing, approval, and final sign off.

Weekly meetings between myself, Jess Boonekamp and the industry supervisor, John Fastier granted the opportunity to get project wide feedback, and constructive criticism.

On the Academic side, weekly meetings were held between Academic supervisor, Amit Sarkar and myself, Jess Boonekamp which gave the opportunity to get feedback on the documentation and academic work required with the Capstone project.

TECHNOLOGY USED

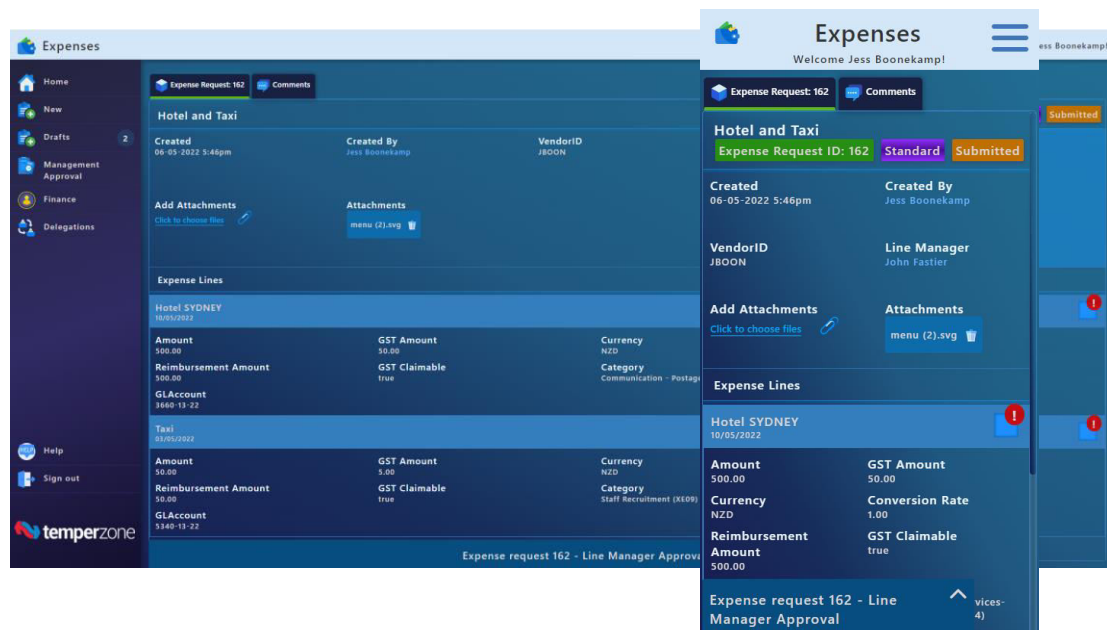
The RESTful API was developed with NodeJS, utilizing EJS for templating, and vanilla JavaScript and JQuery for the front end. The application utilized SQL for database management and Graph API for authentication in sessions. In parallel to the Expenses project, modules such as a Delegation module (for delegating your given tasks for a period), and a global SQL module (for developing complex queries through request parameters) were developed which were implemented within the API.

In respect to the project management aspect of the project, technologies including Microsoft Teams, GitHub, OneNote, TrackingTime, Azure DevOps and Trello were heavily used to host the Kanban board, peer to peer communication, file sharing, requirements tracking and more.

OUTCOME

Through the project, a well-tested API was developed which allowed users to create general, on behalf and credit card expenses. These expenses then went through an approval process, which required managers and finance to review and/or update the expense before approving or rejecting it. The API also hosted a MasterData management portal which allowed Finance users to update data across a multitude of different resources utilized in the application. To extend the approval/rejection process, a delegation module was developed to allow users to delegate their given tasks to other people for a given period. The expense view page can be seen in

Figure 2 Expense View Screen



screenshots below.

CONCLUSION

The objective of the Expense Reimbursement project was to heavily improve the rate, integrity and security of the Temperzone expense reimbursement process. I firmly believe the Expense API has this direct effect providing an user-friendly, secure process for the filing of requests, while also giving authorized users the ability to manage the data involved within the workflow.

This project overall went well, and it greatly heightened my attitude towards project management and how important it is. There were times within the project where communication/requirement management between myself and the product owner lacked, and this was directly due to discrepancies between the project management framework, Agile Kanban used through the Expenses project and Temperzone's standard project management, but this also gave me the opportunity to help them improve their project management strategies.

Throughout the project, I learnt many new skills in developing RESTful API's which I will rely upon heavily and further improve in my future work.

REFERENCES

Temperzone. (2022). *Welcome to*. Retrieved from Temperzone: <https://www.temperzone.com/>