

EEE3000X : VacWork Experience Report

Kion Consulting Johanessburg

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25/11/2024 to 07/02/2025 and 23/06/2025 to 18/07/2026

Introduction

This report provides a comprehensive account of the vacation work experience I undertook at **Kion Consulting** over a period of fourteen weeks. Kion consulting is a financial technology consultancy company that specializes in development of software for financial industry clients. The purpose of this report is to document the nature of the tasks performed, the knowledge and skills acquired, and the outcomes of my engagement at the company.

The placement primarily focused on the development of software applications enhanced with artificial intelligence (AI) agents. A significant component of this experience involved the design and implementation of my own independent project, an agricultural application named *HarvestPal*. This project reflects both the technical competencies acquired during the internship and the application of theoretical concepts gained through my academic studies.

Objectives of the Placement

The objectives of the vacation work experience were as follows:

- To gain practical exposure to the software development lifecycle within a professional environment.
- To develop an understanding of the integration of AI agents into real-world applications.
- To apply theoretical knowledge from my studies to practical problem-solving tasks.
- To design and implement an independent project demonstrating creativity and technical proficiency.

0.1 Work Undertaken at Kion Consulting

During the six-week placement, I engaged in a range of activities, which can be broadly categorized as follows:

1. **Software Application Development:** I was involved in the development of software applications, which provided valuable exposure to modern frameworks such as vue.js and python fastapi, tools, and collaborative coding practices.
2. **Artificial Intelligence Prompt Engineering:** I contributed to projects that incorporated AI agents, thereby gaining practical insights into how AI can enhance application functionality through intelligent automation and data-driven decision-making.
3. **Collaborative Engagement:** I participated in team meetings, project discussions, and code reviews. These experiences strengthened my understanding of agile development practices and highlighted the importance of teamwork in a professional setting.
4. **Project Management Experience:** I was assigned a team of junior developers to work with. I assigned tasks and managed the outcomes of the development of Harvestpal. This was done so that I gain the practical experience of working with a team of developers as a team lead and as a project manager.

Independent Project: HarvestPal

The most significant outcome of my vacation work experience was the opportunity to design and implement an independent project named **HarvestPal**.

Purpose: HarvestPal was developed as an agricultural support system intended to assist farmers by providing guidance on crop management. The application aims to contribute to improved farming practices and sustainable agricultural outcomes.

Core Functionalities:

- *Growth Stage Advisory:* The application offers farmers tailored advice on crop care and management practices across different growth stages, including planting, irrigation, fertilization, and harvesting.
- *Image-Based Disease Identification:* An AI-powered image recognition feature enables the detection of plant diseases from uploaded images, allowing farmers to take timely corrective measures.

Significance: HarvestPal illustrates the potential of AI to address real-world challenges in agriculture, particularly within the context of resource efficiency and food security. The project also allowed me to engage in the full software development lifecycle, including requirements analysis, design, implementation, and testing.

Skills and Knowledge Acquired

The vacation work experience facilitated the acquisition of both technical and professional skills, including:

- Enhanced proficiency in software development methodologies and programming practices.
- Gained experience in software testing and production application deployment
- Practical experience in the application of AI, with particular emphasis on image recognition models.
- Strengthened problem-solving and analytical skills through the design of solutions for agricultural challenges.
- Improved teamwork, communication, and project management skills through collaboration with colleagues.

Conclusion

The fourteen week vacation work at Kion Consulting provided an invaluable opportunity to bridge the gap between academic study and professional practice. The experience enabled me to apply theoretical knowledge to real-world scenarios, gain exposure to AI-driven application development, and undertake an independent project of social and economic significance.

The development of *HarvestPal* was particularly rewarding, as it demonstrated the application of technical skills to a practical challenge in the agricultural sector. This project not only deepened my understanding of AI and software development but also highlighted the potential for technology to contribute meaningfully to sustainable development.

Overall, this experience has greatly enriched my academic and professional journey and has motivated me to pursue further opportunities at the intersection of software engineering, artificial intelligence, and real-world problem solving.