Statement and Confirmation of Own Work

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**Student Declaration**

I confirm the following details:

|  |  |
| --- | --- |
| **Candidate Name:** | SHIHAB SAJID MIRZA |
| **Candidate ID Number:** | P00190603 |
| **Qualification:** | NCC L5DC |
| **Unit:** | COMPUTING PROJECT (PROJECT REPORT) |
| **Centre:** | ZCAS UNIVERSITY |
| I have read and understood both NCC Education’s *Academic Misconduct Policy* and the *Referencing and Bibliographies* document. To the best of my knowledge my work has been accurately referenced and all sources cited correctly.  I confirm that this is my own work and that I have not colluded or plagiarised any part of it. | |
| **Candidate Signature:** |  |
| **Date:** | 30/04/2023 |



**OPS020\_Candidate Statement of Own Work**

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**ABSTRACT**

The scope and nature of this project is such that it involved the analysis, design, implementation and lastly, testing of the system developed for VTE (Visionary Technologies Enterprise). the analysis step consisted of interviewing or just generally conversing with the VTE staff. The design step was short and usually involved coming up with Backend architecture using class diagrams etc., frontend architecture and design using Figma and the necessary Database ERDs. The implementation or coding of the system was done using the MERN stack (Mongo dB, Express.js, React.js (With typescript) and Node.js). However, MySQL was also used as the primary data store. The system was developed in a responsive manner to allow mobile users to also use it effectively.

The testing strategy used was black box testing to find anything that is not working or having bugs and apply an immediate fix to it.

The system was given the nickname/name ***“Tasked.it”***.

The website is an admin dashboard style website, so it is only to be used by VTE staff.

A summary of the outcomes:

Easier freelancer management: The admins can now easily manage the freelancers by assigning projects to them, creating new freelancers and editing existing freelancers.

Better communication: Freelancers and admins can easily exchange messages through the system. Without the need of third-party apps.

Easier project management: Projects can easily be added, removed and broken down into smaller tasks which can then be assigned to the freelancers with the appropriate skill roles.

Client satisfaction: Clients will be more satisfied with well managed projects that are of high quality and are produced within ample time.

**ACKNOWLEGEMENTS:**

First and foremost, I show my heartfelt gratitude towards my parents who sponsored me for this journey and provided unwavering support throughout it. Additionally, I thank VTE for providing me with the opportunity to produce a computing project/solution for them. I also thank VTE staff for helping me with any queries I had regarding their business processes. Finally, I extend my appreciation towards all the supervisors, lecturers and colleagues that helped me during the development phase of the system.

**Chapter 1 - INTRODUCTION**

* 1. **System developed**

The system that was developed was a multifunctional admin dashboard which was later nicknamed or names “Tasked.it”. The system has a login page for freelancers that are registered with VTE and a login page for Admins which will be the VTE staff.

The admins of the system are able to add or create new freelancers or even create new admins using an admin key. During the creation of freelancers, they are assigned with roles or skills that they are qualified with e.g., front end developer, database administrator, UI designer etc.

The admins can also create, edit and remove projects and freelancer roles from the system. During the creation of a project, the project is broken down into what’s known as “tasks” and these “tasks” are then assigned to freelancers and given a due date to finish.

The admins can also view (on the home page of admin panel) high level analysis and statistics such as: the number of freelancers in the system, number of tasks finished. Freelancer to task ratio, admin and freelancer engagement etc.

Other functions are also available such as exchanging messages between freelancers and admins, editing profile, changing password, Freelancers being able to see the projects they are working on; they can mark a task as complete if its complete etc.

* 1. **Justification of methods used**

The Methodologies and frameworks used during the lifecycle of the system was mainly the agile methodology and the object-oriented methodology. The Agile approach is a technique for overseeing a project by dividing it into numerous stages. It necessitates continuous communication with stakeholders and constant enhancement at each step. When the project commences, teams undergo a cycle of preparation, implementation, and assessment. (*asana.com, October 15th 2022).*

The object-oriented methodology objects prioritize analysis, design, and implementation. During the analysis stage of this approach, UML diagrams are crafted to create a visualization of the software, which facilitates the comprehension of the system by those who are not technically inclined *(asana.com, date unknown).* At the analysis stage of VTE, the object-oriented methodology was employed to provide a lucid and non-technical visual representation of the system to stakeholders, to help them fully grasp its intended purpose. For the remainder of the project, the Agile methodology was utilized to fragment the work into iterations with set timeframes for completion, and evaluated based on the objectives of the project.

* 1. **Solution that emerged**

The final solution that had emerged was a web-based admin dashboard style website that allowed VTE registered freelancers to easily see the tasks they are assigned to for the projects they are working on and admins to manage freelancers and projects. The website enhances the work flow for VTE causing a boosted level of confidence in their projects that they make for their clients, hence increasing revenue.

The system allows admins to create new projects with tasks mentioning the due dates and assign them to the appropriately skilled freelancers to complete them. The tasks are given a price allocation for freelancers to see how much they will get after they complete the task. This will cause more freelancers to come and register with VTE hence causing a net increase in the number of projects VTE can take on at once.

The Home page of the admin panel shows various statistics. Such as the number of projects completed. The type of projects completed, the number of freelancers in the system, number of tasks finished. Freelancer to task ratio, admin and freelancer engagement etc. VTE can benefit from quick and precise decision-making by senior management, which is facilitated by the information provided by these statistics. As a result, the company can reduce mistakes and financial losses, leading to overall growth of the business.

* 1. **Aims**
* Design and develop a flexible and multipurpose web-based application
* Allow seamless management of projects within the company
* Enable faster work flows and no delays by freelancers due to deadline functionality
* Enhance project management within the company and strengthen the link between freelancers, company and clients
* Digitize the workflow of projects within the company.
  1. **Objectives**
* Conducting an analysis of business processes.

• Identifying the system requirements.

• Roughly planning the system's appearance and functionality.

• Creating a user interface design.

• Implementing the user interface using React.js and bootstrap for styling assistance.

• Designing the database using ERDs and other tools.

• Building and implementing the database in MySQL.

• Developing the backend architecture on paper.

• Implementing the backend using Node.js and connecting it to the database.

• Consuming backend APIs with the frontend.

• Testing and debugging all system layers (frontend, backend, database).

• Deploying all system layers (frontend, backend, database).

• Preparing a project report after achieving the desired system functionality.

* 1. **Overview Of remaining chapters.**

*Chapter 1* introduced the project.

*Chapter 2* covers analysis, including requirements, UML diagrams, and system architecture.

*Chapter 3* outlines the structural and behavioral models.

*Chapter 4* covers the programming aspect of the project i.e., language choice, data migration, and training.

*Chapter 5* discusses project, risk, configuration management, and testing.

*Chapter 6* concludes the report with results, problems, and potential improvements.

*Chapter 7* reflects on what was learnt, project approach, and future improvements.

* 1. **Conclusion.**

This chapter of the report introduces the multifunctional admin dashboard called "Tasked.it," developed for VTE. The chapter describes the features of the system, including login pages for both freelancers and admins, creation of new freelancers and admins, project and freelancer role management, and high-level statistics analysis. The chapter justifies the use of Agile and object-oriented methodologies in the development process. The solution that emerged is a web-based admin dashboard that enhances workflow for VTE and allows admins to manage projects and freelancers effectively. The chapter also outlines the aims and objectives of the project and provides an overview of the remaining chapters.