**New Zealand Diploma in Information Systems**

**HTCS5607 IS Application Project**

**TECHNICAL REPORT TEMPLATE**

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|  |  |  |  |
| --- | --- | --- | --- |
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**DATE OF SUBMISSION**

*dd/mm/yyyy*

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# 1. Document Control

## 1.1 Version History

This document has had the following revisions:

| **Version** | **Date** | **Author** | **Description of Change** |
| --- | --- | --- | --- |
| 0.1 |  |  | Initial draft |

## 1.2 Contribution to Report sections

| **Project Team Member name** | **Student ID** | **Report Section** |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

## 1.3 Glossary

To provide clarity, terms and acronyms used in this document are defined as follows:

| **Term / Abbreviation** | **Definition** |
| --- | --- |
| Supervisor | Technical Advisor |
|  |  |

# 2. Executive Summary

# 3. Introduction

This is a technical report for the management software being developed for NZ Wetland. This report will cover the research, analysis, planning, design, creation and deployment of the application. The report will also serve as documentation of the development, the reasoning for decisions made for the application during it development life cycle. The actual development and testing of the application will not be included in this report.

# 4. Technology Review

The objective of this technological review is to examine and identify technical aspects of developing an application for operations of NZ Wetlands. The type of application needed for NZ Wetlands is management software which functions as a human, land and wildlife management system.

The core element for the project is the coding language which will act as the key framework for the application development. For the application the coding language which would need to be able to operate and function with the ability to interact with and use a database, the current coding languages that can do this are many but the most common are C#, Python and JavaScript. C# is a general-purpose programming language developed by Microsoft; it is an object-oriented language which is primarily used on the Windows .NET framework although it can also be used with an open-source platform, because C# is such an integrated coding language with .NET Widows it can cause issues functioning on more open-sourced platforms. Python is a general-purpose object-oriented programming language, which is an easy to learn and uses English keywords, and fewer syntactical constructs than other languages; python is also a highly versatile language which can be used in a more open operating environment, the negatives of python are that the coding language are that it us an inefficient coding language and it has issues with database access. JavaScript is a coding language based on Java, it was created to be a lighted version of Java for frontend developers; the JavaScript of today is a more versatile language which is compatible with other coding languages and because it was Java based and is compatible with other languages it is one of the most commonly used languages available; the negatives of JavaScript is that it may be difficult to develop larger applications and due to the code being visible to everyone can cause security issues. After considering the advantages and disadvantages to the requirements of the application the system does not need a overly complicated and overly efficient application but it also does not need a very inefficient application; out of the 3 coding languages C# due to its issues with more open sourced platforms can be ruled out and; for Python and JavaScript due to Pythons inefficient coding language, the most suited language for the application is JavaScript.

To develop the application there are many methods available to code, the most useful being an integrated development environment (IDE), the IDE is useful for coding, debugging and automation which saves time and money for development. There are many IDEs to choose from which can be used to develop the application but the most useful IDE for this development must be usable with the chosen coding language of JavaScript, the three of most common IDEs for JavaScript are Visual Studio, Atom and VS code (Visual Studio code). Visual Studio is an IDE developed by Microsoft it is mainly used for C, C++, .NET and C#, but can support other languages like JavaScript, the downside of Visual Studio is that it is a very resource-intensive program, making it a bit excessive for application like JavaScript. Atom is an IDE Built by GitHub it is an open-source program which can use JavaScript, the IDE is also highly customizable. Atom by default is considered to be excessive due to the built-in packages which can reduce the performance and due to this it is also a resource-intensive program. VS code (Visual Studio code) is another IDE developed by Microsoft, but it is not Visual Studio since Visual Studio is mainly aimed at .NET development. VS code is a lighter and more customizable version of Visual Studio which is less resource-intensive, VS code is very compatible with the development of JavaScript applications; the downside of VS code is that due to being a lighter version of Visual Studio it is lacking in some of the more advanced debugging features. All the IDEs considered have the ability to work with JavaScript but considering the application needing development and the resources required, VS code (Visual Studio code) is the most suitable IDE to be use for the application development using JavaScript.

The application will also require a Database to sort the data for the application, this database will need to be JavaScript compatible. The most common databases that work with JavaScript are MySQL, Microsoft Access and SQLite. MYSQL is one of the most popular database management system available, it can be used for both small and large projects; but the downside to MYSQL is that it can be fairly slow to write data. Microsoft Access is still a common program for databases but little future proofing and due to having a file system which isn’t compatible with other system limits its uses. SQLite is a lighter version of MQSQL which is more suited for smaller applications, and due to being lighter than MYSQL is has a better performance on smaller scale projects. Considering the scale of the project and requirements of the application SQLite is the most suitable database for this project.

For comparison to other management systems available, many such systems are made for more basic application an example being Reflex ERP, a management program specializing in land management. The application which is to be developed would meet the requirements and have a more customized system to function as it is required to.

# 5. IT Methodology

# 6. Project Management

## 6.1 Project Management Narrative

*Details with evidence how the development of the project followed the selected systems development lifecycle*

## 6.2 Project Plan with Milestones

*Include an overall plan here and attach a detailed GANTT chart to the appendices*

## 6.3 Project Governance Responsibilities

*Explain who was responsible for project management and quality assurance, and explain how these tasks were carried out*

## 6.4 Project Meetings

*Include a schedule of your meetings (date, duration, participants, and type) and attach the minutes of each meeting to the appendices*

## 6.5 Project Reports

*Discuss the project status reports and attach your project status reports to the appendices*

## 6.6 Project Risk and Issue Analysis

*Discuss project risks and issues and attach your project risk and issue register to the appendices*

# 7. Requirements Analysis

## 7.1 Introduction

## 7.2 Use Case Diagram

## 7.3 Business Use Case Narratives (Descriptions)

## 7.4 Activity Diagrams

## 7.5 Overall Class Diagram

# 8. Project Design

## 8.1 Introduction

## 8.2 Software List

## 8.3 Version Control Software

## 8.4 Design Use Case Narratives (Descriptions)

## 8.5 Sequence Diagrams

## 8.6 Deployment Diagram

## 8.7 Database Design

*Include ERD and data dictionary*

## 8.8 Annotated User Interface Designs

## 8.9 Test Plan

# 9. Project Training

## 9.1 End User Background and Training Objectives

## 9.2 Training Materials

## 9.3 Training Deliverables

## 9.4 Evaluation

# 10. Conclusion & Lessons Learned

# References

# Appendices