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ACME Entertainment Pty Ltd

South Metropolitan TAFE

Performance Report

Rapid Application Development

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# Introduction

This performance report will research and determine the appropriate code optimizers and performance tools that will be beneficial for the project. Despite of that, this report will also explain what languages that used for this application.

The information will include in this performance report as following:

* Explain the definition of code optimizers and performance tools
* List out the programming languages that we used for this project and find out the most appropriate code optimizers and performance tools
* Explain why the selected tools will be beneficial for the project

# Client’s Project Outline

Based on current client’s requirements, our team been asked to work on developing movies website and database. The details of this project as following

## Languages for developing website and database

* [HTML](#_Glossary_of_Term)
* [CSS](#_Glossary_of_Term)
* [PHP](#_Glossary_of_Term)
* [JavaScript](#_Glossary_of_Term)
* [SQL](#_Glossary_of_Term)

## Website functionality

The website has a navigation bar that contains links to perform several of function

Home

* + Explain what is this website doing

Search

* + Able to search movies which saved in database and list out the movie’s information

Show All Movies

* + Display all the movies data that stored in database

Top 10 Movies

* + Display the most searched movies by users

Memberships

* + Contains Subscribe and Unsubscribe which allow users to sign up to be our members or unsubscribe our newsletter

Admin

* + Allows administrator to check the details of member, remove members’ subscription

# Code Optimization

## What is Code Optimization?

Code optimization is any method of code adjustment to improve code quality and efficiency. The basic requirements is code optimizer program must have the same output as its non-optimized version. This will improve the code by making it consume fewer resources so the program will run faster. Code optimization process should meet the following points:

* Code optimization should increase the speed and performance of the program
* The output of code optimization should same as non-optimized version

## Advantages of code optimization

* Code optimization helps to makes the code good and maintainable
* Code optimization will prevent future defects as the code size reduced
* Code optimization makes code can be understand easily as the code is restructured and duplicate code is eliminated

## When should not do code optimization?

* Delivery deadline is close
* The cost of code optimizations is higher than rewriting the code from scratch
* Do not perform code optimization when the code is stable

## Example to code optimization tools

CSS

<https://www.cssportal.com/css-optimize/>

HTML

<https://codebeautify.org/htmlviewer>

JavaScript

<https://codebeautify.org/jsvalidate>

SQL

<https://codebeautify.org/sql-tools>

PHP

<http://eaccelerator.net/>

# Performance Testing

## What is performance testing?

Performance testing is a type of software testing to ensure the application could perform under the expected workload. The performance testing will provide client with information about their application regarding speed, stability, and scalability. The goal of performance testing is checking the following points:

* Speed: Determines the application responds quickly and run smoothly
* Scalability: Determine maximum user load that application could handle
* Stability: Determine the application is stable under varying loads

## Types of Performance Testing

* Load Testing
* Stress Testing
* Endurance Testing
* Spike Testing
* Volume Testing
* Scalability Testing

## Performance Testing Process



The phases of performance testing process as following:

1. Identify testing environment
2. Identify performance acceptance criteria
3. Plan and design performance tests
4. Configuring test environment
5. Implement test design
6. Run the tests
7. Analyze, tune and retest

## Performance Testing Metrics

The basic parameters monitored during performance testing include:

* Processor Usage
* Memory Usage
* Disk Time
* Bandwidth
* Private bytes
* Committed memory
* Memory Pages/Second
* Page faults/second
* CPU interrupts per second
* Disk queue length
* Network output queue length
* Network bytes total per second
* Response time
* Throughput
* Amount of connection pooling
* Maximum active sessions
* Hit ratios
* Hits per second
* Rollback segment
* Database locks
* Top waits
* Thread counts
* Garbage collection

## Performance Test Tools

Below are some examples of widely used testing tools:

* Load Ninja: [https://loadninja.com/?utm\_medium=content text&utm\_source=guru99&utm\_campaign=perf-test-tutorial](https://loadninja.com/?utm_medium=content%20text&utm_source=guru99&utm_campaign=perf-test-tutorial)
* NeoLoad: <https://www.neotys.com/insights/performance-testing>
* JMeter: <https://www.guru99.com/jmeter-tutorials.html>

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*Pros And Cons Of Code Refactoring*. (n.d.). Retrieved from C# Corner: https://www.c-sharpcorner.com/article/pros-and-cons-of-code-refactoring/

# Glossary of Term

**Hypertext Markup Language (HTML)** - Is a standard markup language for documents designed to be displayed in a web browser

**Cascading Style Sheets (CSS)** -Is a stylesheet language used to describe the presentation of a document written in HTML or XML

**Hypertext Preprocessor (PHP)** -Is a server scripting language, and a powerful tool for making dynamic and interactive webpage

**JavaScript** - Is an object-oriented computer programming language commonly used to create interactive effects with web browsers

**Structured Query Language (SQL)** - Is used to communicate with a database and the standard language for relational database management systems