Optimisation Report

# Optimisation

Performance optimisation is key in having an efficiently functional application and is executed by monitoring and analysing the performance of an application and identifying ways to improve it to work more efficiently and execute more rapidly.

At CITE we have identified the levels of optimisation to be focused on:

1. Design Level
   * + - The design of our system is making the best use of the available resources, given goals, and expected load.
       - The architectural design of our system plays an important role on affecting system performance.
       - Optimise the system to minimize network requests, ideally making a single request rather than multiple requests.
2. Algorithms and Data Structures

* Algorithm and data structures are key players, being crucial to the systems performance.
* To ensure our system is optimised, we are making sure the algorithms are constant, logarithmic, linear, or log linear.
* We are implementing abstract data types as they are more efficient for system optimisation.

1. Source Code Level

* On our implementation of algorithms, along with our source code choices are quite crucial on system optimisation.

## Client-side and Server-side Optimisation

Our client-side relates to how the performance is seen on the web browser or the user interface. This includes page load time, downloading of all resources, image load time etc.

Our server-side relates to how long it takes to run on the server to execute requests. Optimising our performance on the server generally involves Optimising the database queries and other application dependencies.

## Client-side Performance Optimisation

Below are some of the ways we are optimising performance on the client side:

1. Content Delivery Network

* The content delivery networks are an intelligent way that we are handling our static files like JavaScript, CSS and image files which do not change.

1. Bundle and Minification

* Bundling our files together and producing fewer files improves performance.
* Minifying our files and removing all unnecessary characters e.g. white spaces also improves our performance

1. Optimising Image Usage

* Most of our images can be optimised and made smaller

1. Removing duplicate code JavaScript and CSS

* Removing our duplicate code reduces the size of the files hence better performance.

1. Using a Minimalistic Styling Framework

* This will help with our styling aspect and as the styling framework has already been optimised and minified for better performance it should be effective in keeping the performance of our system optimal.