# Criterion A

## Defining the problem:

NG next is a fast-growing company, based in Mauritius, an island on the far east coast of Africa. They focus on retail, and more specifically on fashion. The company currently own one shop in one of the most affluential commercial center of the island, and they plan on expanding very soon in other commercial centers and even airports. Currently the administrator, owner and managers of the shop work with an excel file and update it every single time a new employee is recruited, terminated, or his salary is updated. The management must also create a new timetable every week for the different shifts, which is time consuming, prone to errors, unsafe, and consequently creating inefficiency in the business.

I approached NG Next early January of 2022 and after further consultation with them, I suggested that a program could be developed to replace their legacy system. I explained how the program could look like and what it could do to make it easier. The owner of the company: Natalia, volunteered to be the point of contact during the implementation of this new system.

Natalia requested for a GUI to be developed for the new system which requires a user login and allow them to add new employees, search for employees, modify and delete employees(see Appendix A). Natalia also stated that the program should also be able to generate a timetable for the different shifts of different employees based on the parameters set by the user. Furthermore, she vaguely mentioned a tool that could help management visualize salaries, such as a CSV file Additionally, the owner requested that all the data should be serialized

## Rationale for Development:

NG Next, must upgrade from their legacy system if they are to grow and expand into different commercial centers, and airports, as more and more stores are opened, more employees will join the company, which will result in an unmanageable workload for the managers, thus result in more room for error and data loss, which can be detrimental to the productivity and good flow of the company

The new system I will develop will allow for management to login using their own personal username and password, and add, edit, delete, employees using a simple GUI. The program will also be able to generate employee shifts based on parameters the user sets, such as the minimum amount of employees per shift, as well as an additional feature that will allow the user to export all the salaries into a CSV format, and PDF format, as well as adjusting tax brackets depending on the salary. Depending on the type of data it will be both stored in a database and locally. A simplified GUI will allow for the program to be used without any prior training.

By developing the program this way, we can ensure that the company will solve their current inefficiencies and help the company grow and thrive at a faster rate, without constantly having to worry about problems encountered using Microsoft Excel, and the major risk of data loss, which already happened in the past.

To develop this new program, I will use Java and MySQL. Java is a perfectly suitable language for this task as it will allow me to create a responsive GUI, read/write files and use object-oriented programing functionalities such as inheritance and encapsulation. Java also offers great database connectivity, as well as working on multiple platforms, such as Mac or Windows; and considering the managers have the choice of choosing a Mac or a Windows, it is the "write once, run anywhere" capability that is much needed. I chose MySQL as a database for multiple reasons, the first one being that it is one of the most popular relational databases in use today, so there is a large community of users and developers who can offer support and guidance online, which improves the extensibility and ease of development.

## Success Criteria:

1) Users can login with a username and password
   A) Can handle errors
   B) Can deny access to a user

2) The program can add and delete employees
   A) Can handle errors

3) The program can search through the employee database and return the best value according to the parameters entered.
   A) Can return without requiring the entirety of the data by the user, for example return John Doe's information, for input name "Jo".

4) Employees can be edited after original addition

5) Schedule of shifts can be created according to parameters set by the user

   A) User can have parameters such as Max Employees per Shift, or Minimum Employees per Shift

6) PDFs can be created to display all the data of the employees

7) PDFs can be created to display all shifts

8) Salaries and tax brackets can be adjusted

9) Data can be serialized both on a database, and locally in a file

Word Count : 647