Criterion A: Planning

Word Count: 455

Defining the problem:

My **client** is my father, a businessman, who is very passionate about innovation and technology. We often talk about improvements that could be made to his company. One such is optimising the prices of the products that the business is selling to be more competitive in the market.

Workers have to constantly compare the prices between the competitors and adjust to stay competitive. Too many resources are wasted by his employees doing this work and he wishes to change that. When talking to my **client**, I suggested that I could help solve this problem by building an application that automates the work. I discussed this idea with my computer science teacher (**advisor**) and after he approved it I contacted the client and arranged a meeting where we would discuss the project.

The rationale for the proposed solution:

The application for the company would be used by employees. The application will gather product data about the competitors and compare it with their products' prices. Additionally, the data will be preprocessed and presented in data graphs on a website that will be insightful for the human eye. This will help solve the company's problem because employees will be able to save the resources they used for this type of work and instead focus on maintaining and growing the company.

During the meeting with the client, as shown in **Appendix 1**, we concluded that the application should be a web application so that it could be used on any device with an internet connection. This web application will consist of two parts: the front end and an

API. As such, there were multiple programming languages to choose from: Python, NodeJS, and Java. We decided to use Python mainly because it has more tools for the rapid development of the application. It is also a good choice for this project because Python is scalable, fast, and popular among other developers, so it will be able to serve the company even if it grows very large. I am already familiar with it and it will be easier to solve challenges associated with the development. The Flask framework was chosen for serving the API, because of its simplicity and readability for the developer.

For the database storage, PostgreSQL was picked, as it is among the easiest to deploy on the cloud allowing to migrate the server's location whenever needed. For the front end, the decision was made to use native HTML and render templates using Jinja, allowing for custom website design and flexibility.

Success criteria:

1. **Clients can login with existing accounts**
2. **Clients can create accounts themselves**
3. **Clients can run an update query to gather data from the internet.**
4. **Users without an account cannot access the content of the application**
5. **Clients can filter the manufacturers and e shops in graphs**
6. **Clients can submit product analogs which are then saved in the database**
7. **Clients can remove analogs from the database**
8. **Clients can compare analogs based on a total price or price difference**
9. **User inputs are all validated**
10. **Sensitive user data is encrypted**
11. **Clients can search for any product within the database with their link and last price**