**Feasibility Study – Digital *Maître d’Hôtel***

**Introduction/Executive Summary**

The following report will consider the feasibility of the Digital *Maître d’* program. The background section will elaborate on the general idea of the project and inspiration for carrying it out. The outline of project section meanwhile, will describe in more detail the general application which will be created during the project, and its function, as well as some of the tools which will be used.

The section on Methodology will discuss the areas of feasibility, which will then be analysed in depth in the Analysis section. Finally, the Conclusion and Recommendation sections will conclude the report with a final decision on the overall feasibility of the project.

**Background**

The *maître d’hôtel* (French for “housemaster”) or *maître d’*, is the most senior member of the front of house staff in a typical restaurant. The roles and responsibilities of the *maître d’* include greeting patrons, managing the assignment of patrons to tables, liaising with kitchen staff, handling complaints, and accepting orders from patrons. The *maître d’* is usually assisted by other front of house staff.

The purpose of the Digital *Maître d’* is to automate a large amount of the labour carried out by *maîtres d’*, through the implementation of a software package.

The inspiration behind the Digital *Maître d’* is the long-term trend towards smaller catering establishments closing. By automating more of the labour performed by front of house staff, establishments may be able to reduce their wage bills. This is particularly important at a time when many establishments are faced with increased electricity, gas, and food costs.

**Outline of Project**

The project will consist of several components, which automate different aspects of the labour performed in a catering establishment.

The primary component of the project will be a web application, through which patrons can book tables and order their meals. A user-interface will be created, which patrons will interact with. This will be designed using HTML/CSS for its style and format, and provisionally JavaScript for its function, although this may be substituted for a Python or C# framework later.

The web application will interface with a SQL database, which maintains track of stock and table availability. When patrons attempt to book tables, the application will query the database and return which tables are available. Once the patron has selected their table, the database will be updated to reflect the fact that the table is not available.

When a patron wishes to order a meal through the web application, the database is again queried to check what meals are available, based on stock. If the meal is not available, due to ingredients being out of stock, the option is still displayed on the UI but is greyed out.

To complete their order, patrons will be required to make payment through the application. This will be handled by implementing PayPal or an equivalent service (as such a service gives more confidence in the security of the application, particularly for customers). Once the order has been completed, kitchen staff will be automatically notified using a notification system. The database will also be updated to reflect the decrement in stock.

An additional feature of the project, time permitting, will be the long-term tracking of statistics for the establishment. This will be accomplished by storing data in CSV files, pertaining to meal orders and table bookings.

**Methodology/Method of Analysis**

Feasibility will be analysed in this report by considering various lenses of feasibility. This is important as the feasibility of any project is multi-dimensional. For instance, a project may be economically feasible but technically unfeasible. Because of this, this report will separately consider the technical, legal, financial, operational, market and environmental feasibility of the project.

This report will also consider the risks and implications of all aspects of the project and make cost-benefit analyses where applicable.

**Technical Feasibility**

On a technical level the project’s feasibility is dependent on two factors – the technical ability of the development team and the tools/technologies available to use on the project.

At present, the development team has created and modified SQL databases using Microsoft SQL Server Management, created user interfaces using JavaFX and HTML/CSS/JavaScript, and interfaced between the front-end and back-end using Java and C#. It is thus feasible for the development team to design and implement a full-stack application or learn any new languages.

As far as technology is concerned, there are several solutions possible for the project:

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| **Back-end Solution** | **Front-end Solution** | **Dev. Team Experience** | **Likely Challenges** |
| SQL, Java | JavaFX | Strong experience in back-end, minimal in front-end | Fulfilling user interface, security and modularity requirements |
| SQL, Node.js | HTML/CSS/React.js | Fair experience in back-end and front-end, but none in Node.js | Learning Node.js and React.js |
| C# .NET | C# .NET | Minimal in both front-end and back-end | Completing within cost and time requirements, learning more C# |

The project is clearly feasible therefore, on the technical level.

**Legal Feasibility**

The legal feasibility of the project is mostly dependent on the storage of user data. If the security requirements for the project are met, no user information or payment data will be stored post-transaction, and the application will be compliant with the General Data Protection Regulation (GDPR).

Additionally, the integration of pre-existing, third-party payment software (for example PayPal) improves the legal feasibility of the project. This is because the project takes on less liability for payment transactions.

One final consideration for legal feasibility is copyright. Care must be taken to ensure that plagiarism is not committed by the development team. Any images used in the final application must be licensed.

If the above requirements are fulfilled, the project will be legally feasible. Failure to adhere to these requirements could leave the project subject to legal proceedings or fines.

**Operational Feasibility**

Operational feasibility hinges on whether the project is a worthwhile endeavour. As demonstrated by the user questionnaires and interviews, there is appetite among hospitality workers for a more convenient product than those currently on the market.

One issue of operational feasibility is the urgency of the project, given that competitor packages already exist. However, given the present energy crisis is having a significant impact on the hospitality sector, and many establishments are closing due to costs, a product which can reduce the amount spent of wages will be well received.

On balance the project is believed to be operationally feasible.

**Market Feasibility**

Market feasibility aims to assess whether the project can achieve success in the market, i.e., turn a profit and hold its own against competing products.

As discussed under technical feasibility, the technology necessary for the project is readily available. The technology is also well-documented and supported, making it suitable for use in a commercial product. No raw materials are necessary to create the final product, given the solution is entirely software-based. There is also no need to discuss a site, for the same reasons. Overall, the project can be completed with minimal expenditure beyond labour.

There are several products on the market, which offer a similar solution to the issue of automating hospitality labour. These products include electronic point of sale (epos) software and hardware, which are used by workers; as well as software packages that allow customers to place orders and browse menus. Such solutions are now widespread in the hospitality industry, particularly following the coronavirus pandemic. What is not widespread however, is a solution which marries automation on the worker side with automation on the customer side. In other words, the market does not offer a popular integration of the two sides of the restaurant floor. The Digital *Maître d’Hôtel* project will aim to address this gap in the market.

**Environmental Feasibility**

The feasibility of the project must finally be considered from an environmental and social point of view, particularly given the current situation with the climate of the planet.

Thankfully, the project is an entirely software-based solution. Thus, the only pollution associated with the project will be that of the electricity consumed (dependent on how the electricity is produced). Conversely in fact, the project has the potential to reduce the consumption of paper, in that paper notepads (for workers) and paper menus (for customers) can be eliminated. Giving restaurant managers the opportunity to check inventory digitally may also reduce human error in ordering food stock, and thus reduce the amount of food waste produced by restaurants who use the product.

Socially, there is an argument to be made that the project could render some hospitality workers unemployed, given restaurants which take on the product will operate more efficiently. However, this ignores the pressing crisis in which hospitality establishments are closing frequently, leaving an even greater number of workers without work. Similar arguments have in fact been made against every form of technology which has increased the output of an industry. Hospitality establishments that adopt automation will lose some of their workforce, while establishments that fail to automate will lose the entirety of their workforce, when they inevitably close down.

Another factor which affects the environmental feasibility of the project is its impact on public health. Following the coronavirus pandemic, an effort was made by the hospitality industry (at least for some time) to minimise contact between workers and customers. In turn, this minimised the transmission of airborne disease. The project will have a similar effect on establishments where it is adopted, given that interactions between workers and customers will be less frequent. This also has a knock-on effect of reducing costs associated with worker illness.

It is obvious that from an environmental and social perspective, the project is feasible.

**Conclusion**

In conclusion, the project appears to be feasible overall. The main concerns are derived from the operational feasibility (particularly the urgency and necessity of the project) as well as the technical feasibility (whether the development can implement the project within the desired timeframe). The project is clearly feasible from a market, environmental, social and legal point of view.

**Recommendation**

The final recommendation is that the project begin gathering requirements from hospitality workers, owners/managers and patrons alike.

In order to make the project technically feasible, time should be invested in upskilling the development team before the design/implementation phases can begin.

To make the project operationally feasible, and viable in the market, it must retain its unique selling point of integrating both the customer and worker side of the transaction.