System Analysis and Design Report

Name

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# Project Scope

## Project Scope Description

Project scope of this project is clearly defined, which is meant to analyze and design of the requirements to develop Central Dental Care Practice system that would allow bookings of the patients when seeking from different treatments. Ideally, the scope of the system is to provide automation to ensure that patients get services in an efficient manner.

## Specific Goals and Objectives

In ensuring that the goals and objectives of the system under consideration has been achieved, system analyst will need to correct the required data of the whole scenario provided regarding the Central Dental Care Practice problem. Data collection will be basically through questionnaire, interviews, and Joint Application Development (JAD). The other objective that needs to be achieved is analyzing the requirements defined before modelling through system design. Based on the project scenario, system analyst will interview different system actors direct to get direct data about development of the required system. Ideally, data analysis allows collection of data in the system development as well as improving efficiency in the whole process (Cosmos et al., 2019). System analyst must have ability to analyze, interpret, and present data suing different techniques such as UML diagrams, to facilitate the development process.

## Project Tasks

Notably, there are several tasks that system analyst must complete in this project to achieve overall object. Such projects involves requirements and elicitation. Defining functional, non-functional and systems requirements (Vidal & Marle, 2008). In this project, the system analyst acted as a consultant and performed various tasks as a consultant, supporting expert, and as an agent of change. As a system analyst who worked to complete this project, I analyzed how well the system would fit the business needs of the client by ensuring that all the requirements have been defined accordingly. Additionally, I wrote all the requirements for the new system, which designed based on the examination of the current system.

# Advantages and Disadvantages of Object Oriented Analysis and Design Methodology

## Advantages

* This methodology put focus on the data instead of structured analysis
* With the availability of the principle of encapsulation and data hiding functionalities, it becomes helpful to the developer to design system that is hard to be tampered with.
* This methodology enhanced flexibility such that the system can be upgraded from small to large and complex system.
* It allows effective management of software complexity through the concept of modularity.
* It is easier to use UML diagrams to model the system scenario as required

## Disadvantages

* Functionality is normally restricted within the objects
* It is not possible to identify the objects that can generate an optimal design.

# Software Development Methodology

The development methodology used in the design and development methodology used in the system under consideration is Object Oriented Software Development which comprises of object oriented analysis and object oriented design. OOSD is a practical method used in the development of a software system that focus on the objects of a problem in the system development. The 3 main stages of this methodology include analysis, design, and implementation. With this approach, the focus is to identify and organize the application based on object oriented concepts prior to the overall representation using the programming language of choice. In object oriented analysis, the role of systems analysis is to formulate user requirements and then ensuring that the model is built around based on the real-world objects identified in the project. With this methodology, the analysis produces models on how the desired system should work and how it should be developed. Such models do not include any implementation details so that it can be easily understood and examined from non-technical point of view. In the object oriented design, the aim of this was to provide a complete architecture of the designed system design. Ideally, system design is done based on system analysis model and proposed system architecture.

Additionally, there are other ideal system development methodologies available and could also be applied in the analysis and design of Central Dental Care Practice system Agile methodology, SCRUM, Waterfall. In my opinion regarding this project, Object Oriented System Analysis and Design methodology is the ideal approach due to its efficiency in analyzing and modelling technical requirements. The design principles to put focus on OOSD methodology include the following:

1. Common closure principle- where by application/ software with this feature, the performance of the software is generally improved.
2. Single Repository Principle- with this principle, every responsibility is considered in a cause and effect relationship. Each class assume only one responsibility in this case.
3. Other common principles include dependency inversion principle, and, and module encapsulation principle.

# Key Lessons Learned

* With the completion of this project, the system analyst will have hands on experience in modelling any form of system that requires application of object oriented analysis and design methodology
* The system keeps on evolving from small to complex with the improvement of various functionalities.
* This project also provides insights in applying various tools that support drawing UML diagrams in the analysis and design stage.

# Design Areas to Improve

Based on the areas to improve in this project, there are some areas that need to be looked at in future. Such improvements should include sending SMS to the client or patient immediately upon booking as well as ticket number so that it can make it easier for the clients to know the ticket number during the appointments. Additionally, this application being web-based, there is a need to work on the requirements to be mobile friendly. Admittedly, may clients prefer using mobile phones when accessing different things from internet as computing has become ubiquitous. I recommend redesigning use case diagrams to accommodate more changes and become more descriptive. Ideally, building of Central Dental Care system has helped me tremendously in gaining knowledge relating systems analysis and design. With this knowledge, I can embark on improving various functionalities of this system so that the system can become more robust and easier to use by all the stakeholders.

## References

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