**Medical and Dental System Conceptual Framework**

In the modern world, the healthcare industry is experiencing rapid growth and development, driven by advances in technology, research, and innovation. As a result, medical and dental systems have become increasingly complex, requiring sophisticated tools and strategies to manage and optimize their performance. One such tool is the IPO Model Conceptual Framework, which provides a structured approach to understanding and improving medical and dental systems. In this article, we will explore the IPO Model Conceptual Framework and its application to medical and dental systems. We will examine the Input, Process, and Output phases of the framework, and discuss their importance in optimizing the performance and efficiency of medical and dental systems.

**About the Project**

The Online Medical and Dental System is a web-based application designed to store and manage patient information securely and efficiently. This system includes personal information, official health records, medical and dental history, daily transactions, medicine logs and inventory, and common and uncommon illnesses. With this system, patients can access their records anytime and anywhere, making it more convenient for them to keep track of their medical and dental history.

The system is accessible only to authorized personnel such as medical practitioners, clinic administrators, and other healthcare professionals. This ensures the privacy and confidentiality of patient information. With the Online Medical and Dental System, clinic personnel can easily access and retrieve patient records, process transactions and appointments, and manage medicine inventory. This will help the clinic personnel process records and keep the patients' information in a faster and more accurate way. It will help to keep and handle essential information of the patients for their convenience.

**Objectives of the Study**

The general objectives of the study on an online medical and dental system are to design, develop, and implement a web-based platform that allows for the efficient management of medical and dental records. The system aims to improve the quality of healthcare delivery by providing patients with access to their medical and dental records online, allowing them to easily view their history, schedule appointments, and communicate with healthcare professionals.

Additionally, the study aims to streamline the administrative processes of healthcare providers, including appointment scheduling, billing, and record-keeping. By reducing the time and resources required to manage these tasks, the system can improve the productivity and efficiency of healthcare organizations.

Specifically, the study aims:

1. To allow electronic recording of patients’ medical and dental records.
2. To store medical and dental records in a centralized platform.
3. To increase the accuracy of the information recorded in the patient’s medical and dental history.
4. To strengthen security and confidentiality of patient’s medical and dental records allowing only authorized personnel to access.
5. To allow easy and fast retrieval of patients’ medical records.
6. To evaluate the system in terms of user acceptability, efficiency, portability, productivity, quality, and reliability.

**Conceptual Framework Diagram**

**Output**

**Process**

**Input**

System Implementation and Maintenance

**Medical and Dental System**

System Development

* Planning, Analysis and Quick Design
* Data Analysis
* Prototype Cycle
* Testing
* Evaluation and Analysis of the System and Statistical Survey Result

System Requirements Determination

* Research
* Survey
* Observation
* Research on related literature, studies and systems
* Evaluation/Analysis of Requirements and Data gathered

Feedback, Review, Adjust, Upgrade and Remake

The image shown above is the Conceptual Framework Diagram of the capstone project, Medical and Dental System. It is based on the IPO model, also known as the input, process, and output model.

**Input**

The project will begin by evaluating the present process, which will lead to the stage of doing research, survey and observation. The researchers will also need to compile relevant papers and systems to use as a guide for the project's development. After all such process, the researchers will evaluate and analyze the requirements and data gathered.

* Research - In the study on an online medical and dental system, research is conducted to gather relevant information about the current state of the healthcare industry, including the latest technologies and best practices. This helps to inform the design and development of the online system and ensure that it meets the needs of healthcare providers and patients.
* Survey - Surveys are conducted to gather data and feedback from patients and healthcare professionals about their experiences and expectations for the online medical and dental system. This information is used to identify areas for improvement and to guide the development of the system to ensure that it meets the needs of its users.
* Observation - Observations are conducted to gain a better understanding of the current processes and workflows of healthcare organizations. This information is used to identify areas where the online system can be integrated to improve the efficiency and effectiveness of these processes.
* Research on related literature, studies and systems - This activity involves conducting a thorough review of existing literature, studies, and systems related to online medical and dental systems. This helps to identify best practices and potential challenges in the design and implementation of the system.
* Evaluation/Analysis of Requirements and Data gathered - This activity involves evaluating and analyzing the data and information gathered through research, surveys, observations, and literature reviews. This helps to identify the key requirements for the online system and to develop a plan for its implementation that is tailored to the needs of the healthcare organization and its patients.

**Process**

The researchers will select and choose the optimum software development life cycle model for the project in this section.

**Planning, Analysis and Quick Design**

During Analysis and Quick Design, the researchers did a personal interview with the respondents and the chosen client where the study was conducted. The respondents were given the chance to suggest how the system will be designed. After conducting the data gathering, the researchers made an initial design for the proposed system.

**Data analysis**

Consultation is used to gather requirements from end users and generate ideas. We also distributed a survey questionnaire that was authorized by three experts (IT Expert, English Grammarian, and Researcher). And these questionnaires functioned as our data gathering tool, measuring the performance of the manual system that served as the foundation for the development of our proposed system.

**Prototype**

The prototype and planned system features are developed at this phase. A concrete understanding of how the system will function is also created. We identify all of the necessary system inputs and outputs, as well as the design of data, processes, and interfaces, in this part.

**Testing**

In this phase, the researcher performed series of testing to check for any possible problems may arise during implementation and operation of the software and if the specification has been met.

**Evaluation and Analysis of the System and Statistical Survey Result**

This will include the feed backing of the proposed system after it will be implemented and had undergone testing by three Experts. It will also inform the researchers and the developer if there are any bugs, suggestion and if the system’s functionality will works well.

This will discuss the implementation of the propose system wherein Three (3) Experts will evaluate the propose system. This will also discuss if the recommended functions and suggestion are met.

**Output**

The output stage of the IPO model for an Online Medical and Dental System refers to the final stage of the conceptual framework, where the actual system is developed and implemented based on the requirements and data gathered in the input stage. The output stage involves designing and developing the online system, testing and debugging the system to ensure that it is functional, and finally, implementing the system in the healthcare organization.

In the case of an online medical and dental system, the output stage will involve the development of a web-based platform or application that can be used by healthcare providers and patients. This platform will likely include a range of features such as online appointment scheduling, electronic medical records, secure messaging, prescription management, and telemedicine capabilities.

Once the system is developed, it will undergo rigorous testing and debugging to ensure that it is functional and user-friendly. This testing process may involve a variety of techniques such as unit testing, integration testing, and system testing.

Finally, the system will be implemented in the healthcare organization. This will involve training staff on how to use the system and ensuring that all necessary hardware and software requirements are in place. Once the system is fully implemented, it will be evaluated to ensure that it is meeting the needs of both healthcare providers and patients. Any necessary modifications or improvements will be made based on this evaluation.

**Summary**

This article explores into the conceptual framework diagram of the Medical and Rental System, emphasizing the importance of the input, process, and output (IPO) model in guiding the investigation. The input phase of the study comprises extensive research, surveys, observations, literature review, and requirement and data evaluation. Once the input phase is completed, the researchers proceed to the process stage, where they adopt the Software Development Life Cycle (SDLC) approach. The SDLC technique involves planning, analysis, quick design, data analysis, prototype cycle, testing, and evaluation, followed by statistical survey result analysis. The final stage involves the output phase, where the developed system is ready to be implemented and used. By employing the IPO model and SDLC approach, this research article aims to provide a comprehensive understanding of the Medical and Rental System, its functionalities, and its impact on the healthcare industry.