**Automated Nutritional Assessment and Patient Record System for Bongabong Municipal Health Office**

A Project

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for --------

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**CHAPTER I**

**INTRODUCTION**

**Project Context**

The Automated Nutritional Assessment and Patient Record System for Bongabong Municipal Health Office aims to improve the way nutritional assessments and patient record management are handled. Currently, these processes are done manually, which is not only time-consuming but also prone to errors. Proper nutritional monitoring is essential to prevent and address health problems, but without efficient tools, healthcare workers face challenges in providing accurate and timely interventions. Research shows that automated systems using artificial intelligence (AI) can enhance the accuracy of nutritional assessments. For example, Wang and Ranjan (2019) found that machine learning makes it easier to analyze data like height, weight, and health indicators, providing more precise results than manual methods. Similarly, Sabarinath et al. (2024) showed that AI systems could detect and assess nutritional needs accurately, reducing the workload of health workers and minimizing errors.

In addition, Bora et al. (2024) emphasized the importance of managing patient records digitally. Their study highlights how digital systems improve data storage, retrieval, and sharing, ensuring that healthcare providers have access to accurate and updated information. By integrating patient details, such as the names of their mother, father, or guardian, along with a family number, the proposed system will help healthcare workers track family-based health information more effectively. Moreover, research by Khan et al. (2020) demonstrated that automated systems improve healthcare services by generating personalized recommendations based on patient data. These findings align with the goal of this project, which is to create a system that can classify nutritional status, suggest management plans, and generate progress reports. By incorporating features like exporting reports in PDF format, the system can also assist healthcare workers in sharing information with other stakeholders, ensuring continuity in patient care. The system will be tailored to meet the specific needs of the Bongabong Municipal Health Office. It will not only automate nutritional classification but also streamline reporting processes and improve the accuracy of patient record management. With advanced technology, this system is expected to contribute significantly to better health outcomes for individuals and families in the community.

**Objectives of the Study**

**General Objective:**

To develop an Automated Nutritional Assessment and Reporting System with Patient Record Management.

**Specific Objectives:**

1. Develop a system that automatically classifies patients' nutritional status based on entered height and weight data.

2. Provide personalized nutrition management assessments and intervention recommendations tailored to individual needs.

3. Generate progress reports summarizing changes in patients' nutritional status with recommended interventions.

4. Record and manage the names of the patient’s mother, father, or guardian, as well as a family number, for effective tracking.

5. Enable the export of reports in PDF format for stakeholder dissemination and continuous monitoring.

**Scope and Limitation of the Study**

The study focuses on designing and implementing a system for the Bongabong Municipal Health Office to manage nutritional data. It processes information such as height, weight, and family details (names of mother, father, or guardian, and a family number) to provide tailored nutritional assessments. Limitations include dependency on accurate data entry and the necessity for periodic updates to the machine learning model to maintain reliability.

**Significance of the Study**

This study will benefit:

Patients: By offering precise and personalized nutritional recommendations, ensuring better health outcomes.

Parents and Guardians: By providing comprehensive records and tracking of family-based nutritional progress.

Healthcare Workers: Through streamlined record management, automated assessments, and reduced manual workload.

Community Health Programs: By enabling data-driven decision-making for targeted nutritional interventions and supporting public health goals.

**Conceptual Framework**

**Input**

Patient's height and weight

Patient details

Guardian names

Family Number

**Process**

Data Analysis

Classification

Personalized Recommendations

Report Generation

**Output**

Automated Progress Reports

Nutritional status classification

Summarized progress details

Actionable Insights

**Definition of Terms**

Machine Learning: A type of artificial intelligence used to automate data analysis and decision-making processes.

Nutritional Assessment: The evaluation of a patient’s health status through metrics such as height, weight, and dietary intake.

AI Automation: The use of artificial intelligence to perform repetitive tasks efficiently without human intervention.

Family Number: A unique identifier assigned to each family for tracking and managing records.

Patient Record Management: The process of storing, organizing, and retrieving patient information efficiently for healthcare purposes.

Progress Report: A document summarizing changes in nutritional status over time, including recommendations for improvement.

**REVIEW OF RELATED LITERATURE/SYSTEM**

**Local Literature/System**

Local studies have highlighted the challenges faced by healthcare facilities in managing nutritional assessments and patient records. According to Rivera et al. (2022), many rural health units in the Philippines still rely on manual record-keeping, which often leads to inaccuracies and delays in accessing critical data. For instance, a study in Mindoro Province revealed that 65% of health workers experienced difficulties in tracking patients’ nutritional progress due to scattered and incomplete records. These findings emphasize the need for automated systems to improve data accuracy and efficiency.

**Foreign Literature/System**

Internationally, research by Wang and Ranjan (2019) discussed the impact of artificial intelligence on healthcare. Their findings indicated that machine learning algorithms could analyze patient data with 92% accuracy, outperforming traditional methods. Similarly, Bora et al. (2024) demonstrated how AI systems could reduce the workload of healthcare professionals by automating repetitive tasks like nutritional assessments and patient record management. Another study by Sabarinath et al. (2024) explored the integration of patient record systems with digital reporting tools, noting significant improvements in healthcare service delivery and decision-making processes.

**Synthesisz**

The integration of local and foreign studies underscores a common goal: improving healthcare through automation. While local studies reveal the manual inefficiencies and the pressing need for digitization, foreign literature offers insights into proven technologies that can address these gaps. By adopting machine learning and automated systems, health facilities like the Bongabong Municipal Health Office can bridge the gap between traditional methods and advanced healthcare practices, ensuring accurate assessments, efficient record management, and better service delivery.