

VERITAS UNIVERSITY ABUJA

(The Catholic University of Nigeria)

**GROUP 6**

FACULTY;

**NATURAL AND APPLIED SCIENCES**

DEPARTMENT:

**COMPUTER AND INFORMATION TECHNOLOGY**

**COURSE TITTLE**: **SOFTWARE ENGINEERING**

COURSE CODE**: CSC212**

DATE**:7/20/2023**

**NAME OF LECTURER: MR THOMAS BAIDOO**

**NAMES AND MATRIC NUMBER OF STUDENTS WHO PARTICIPATED**

* **RITJI JOHN GOWEN VUG/CSC/21/5440 (Programmer)**
* **GRASSWELL CHELSEA GABRIELLA VUG/CSC/21/5529 (Project Manager)**
* **ESSANG ETIM EDET VUG/CSC/21/5802 (Librarian)**
* **CYPRIAN TERKUMBUR AKANYI VUG/CSC/21/5413 (Scrum Master)**
* **UZOMA EMMANUEL MBACHU VUG/CSC/21/5426 ( Requirements Analyst)**
* **SUCCESS EDEH VUG/CSC/21/ (Tester)**
* **EBUBECHUKWU P. UCHEGBU VUG/CSC /21/5527 (Sponsor)**
* **CALEBYOUNG O. AKINFOLARIN VUG/CSC/21/5425 (Sponsor)**
* **CHRISTIAN CHUKUNALU AKOR VUG/CSC/21/5520**
* **JEREMIAH IFESINACHI EMMANUEL VUG/CSC/21/5433**

**TABLE OF CONTENTS**

Contents

[1.0 INTRODUCTION 4](#_Toc138797406)

[2.0 OBJECTIVE 4](#_Toc138797407)

[3.0 FEATURES 5](#_Toc138797408)

[4.0 DOCUMENTATION FOR THE SMART HEALTH ASSISTANT 6](#_Toc138797409)

[4.1 Requirement Documentation 7](#_Toc138797410)

[4.2 SOFTWARE DESIGN DOCUMENTATION: 9](#_Toc138797411)

[4.3 TECHNICAL DOCUMENTATION: 9](#_Toc138797412)

[4.4 USER DOCUMENTATION: 10](#_Toc138797413)

[5.0 System Architecture 11](#_Toc138797414)

[6.0 Conclusion 12](#_Toc138797415)

# 1.0 INTRODUCTION

The smart health assistant is a clever software application designed to assist individuals in managing their health and well being.It combines artificial intelligence and machine learning technologies to provide personalized health recommendations and offer medical advice based on user input. This documentation aims to provide an overview of the project, its features, architecture and implementation details

# 2.0 OBJECTIVE

The primary objectives of the Smart Health Assistant project are as follows:

* Provide users with personalized health recommendations and suggestions based on their medical history, lifestyle, and preferences.
* Deliver accurate and reliable information on various health topics, including symptoms, diseases, medications, and treatments.
* Send reminders for medication schedules, doctor's appointments, and other health-related activities.
* Enable users to track their fitness and health goals, including exercise routines, nutrition plans, and weight management.
* Ensure user data privacy and security through robust encryption and authentication measures.

Overall, the objective of a smart health assistant is to empower individuals to take control of their health, provide personalized support, and facilitate access to healthcare services, ultimately improving overall well-being and quality of life.

# 3.0 FEATURES

The Smart Health Assistant encompasses the following features:

**User Registration**: Users can create accounts and provide necessary information such as age, gender, medical history, and personal preferences.

**Personalized Health Recommendations**: Based on the user's profile and inputs, the assistant offers tailored health suggestions, including diet plans, exercise routines, and preventive measures.

**Health Information Retrieval**: The assistant retrieves accurate and up-to-date information from reliable sources on various health topics, medications, treatments, and medical conditions.

**Fitness Tracking**: The assistant allows users to track their fitness activities, including steps, calories burned, heart rate, and sleep patterns.

**Data Privacy and Security**: Robust security measures are implemented to protect user data, including encryption, authentication, and compliance with data protection regulations.

# 4.0 DOCUMENTATION FOR THE SMART HEALTH ASSISTANT

This documentation is divided under the following subheadings

* Requirement Documentation
* Software Design Documentation
* Technical Documentation
* User Documentation

## 4.1 Requirement Documentation

The requirement documentation describes the functional, non functional as well as the behavioural requirements of the intended software

**Functional requirements** includes the features in which the developer needs to implement in order for the user to accomplish a particular task, they are also requirements that enable user carry out a particular task

**The Functional requirements for the smart health assistant include**

* The app shall enable users create an account
* The app shall enable users log in
* The app shall enable users track their progress
* The app shall enable users track their meals
* The app shall enable users reset their password
* The app shall enable users set goals
* The app shall enable users have a community of like minded people
* The app shall grant profile personalization
* The app shall send a confirmation email whenever a user signs up
* The app shall allow users create posts
* The app shall enable users change profile picture
* The app shall enable users track calorie intake

**The non functional** requirements are requirements that states what a system should have in order to perform well but not what a system will do .They are the don’ts

**The Non-functional requirements of the smart health assistant include**

**USABILITY:** The app is user friendly

**SECURITY:**

* **Log on ID :**Any user who intends to make use of the app needs to log in with their username and password

**PERFORMANCE**

* **Response Time:** The system provides acknowledgment in just one second once the patient’s information is checked
* **Capacity:** The system needs to support at least 100 people at once
* **User Interface:** The user interface acknowledges within five seconds.it is user friendly

**RELIABILITY**

* **Availability:** The app is available all the time

**MAINTAINABILITY**

* **Back up :**The app offers efficiency for data back up
* **Errors:** The app will track every mistake as well as keep a log of it

## **4.2 SOFTWARE DESIGN DOCUMENTATION**:

This documentation contains the information needed to build the software and it helps the stakeholders involved in the software development. it contains the dataflow diagram, database design, software design details

## **4.3 TECHNICAL DOCUMENTATION**:

This documentation represents information about the code. They are maintained by actual coders. It enhances reuse capability of the code. The following frameworks were used in the course of the software project

**FRONTEND**  : Javascript , Html and CSS were employed in the creation of the front end of the web app

**BACKEND** :a Python framework called Flask was used to implement the backend

**DATABASE** :SQLite was what we used to create, manipulate and manage the database

## **4.4 USER DOCUMENTATION**:

This particular documentation is different from all other documentation. All previous documentations provides information about the software and its development process whereas the user documentation helps customers use software and how the user can maximise the product to the fullest

**THE HOW TO GUIDES**: This contains step by step instructions to help users perform specific tasks and they include

HEALTH LAB AI

1. Enter into health lab AI
2. Then you submit a prompt to the health lab AI

FOOD TRACKER

1.Add food items

2.Create a date based of your added food items

WEIGHT TRACKER

1.Enter into the weight tracker

2.Input your weight in kilogram(kg)

3.Then you pick the category to identify whether it is a weight gain or weight loss

4.You can view your dashboard to view your progress

**Technology Stack**

The Smart Health Assistant project utilizes the following technologies:

* Programming Languages: Python, JavaScript, HTML, CSS
* Backend Framework: Flask(Python framework)
* Frontend Framework: JavaScript, Html and CSS
* Database: SQLite
* Web APIs: Integration with external APIs for retrieving health-related information and services

# **5.0 System Architecture**

The system architecture of the Smart Health Assistant includes the following components:

* **User Interface**: The frontend component allows users to interact with the assistant through a web or mobile application.
* **Application Server:** Handles user requests, processes data, and communicates with the backend services.
* **Backend Services**: Includes modules for user management, health recommendations, information retrieval, reminders, and data analytics.
* **Database**: Stores user profiles, health records, appointment details, and other relevant data.
* **External APIs**: Integration with external APIs to retrieve health-related information, location-based services, and healthcare provider databases which is OPENAI
* **AI/ML Engine:** Powers the personalized recommendations, natural language processing, and data analytics functionalities.

# 6.0 Conclusion

The Smart Health Assistant project aims to enhance the healthcare experience by providing users with personalized health assistance, reliable information, and reminders. By leveraging AI, ML, technologies, the assistant can cater to individual needs and contribute to improved health outcomes. With a user-friendly interface and robust security measures, the Smart Health Assistant strives to be a valuable tool in promoting wellness