DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

High Level Design Document

On

<< BMI CALCULATOR >>

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Submitted By

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1. Project Overview

1.1 Purpose:

The purpose of this document is to specify the high-level design for the BMI Calculator. This document will act as an outline for implementation and discuss the design considerations.

1.2 Audience:

This high-level design is intended to be used by people of any age group.

1.3 Design Process:

This HLD was developed to give an architectural view of the important aspects of the system. Many architectures were proposed out of which most feasible was chosen.

2. Requirements:

Some performance Requirements identified as listed below:

The database can handle any number of users..

The user interface should be user-friendly and first-time users should be able to navigate through the application easily.

The Application should be available all the time.

2.1 Proposed Solution:

The proposed solution for the overall system is obvious when taken into the context of the requirements elicited during the analyze phase. To allow for clean interoperability between different platforms, React JS, and Nodejs are being used as the implementation for the medium.

2.2 Capacity Planning:

Persistency within the system is being accomplished through React JS Serialization of the Element objects. This type of serialization is very minimal and contains the data about each player. Whereas MongoDB is used to store Databases, Node JS is used to provide Back end.. There are no particular limits to store Data.

3. Architecture

3.1 Design:

We used REACT.JS, CSS for frontend. and to connect the browser to the backend we used MONGODB. For the server of the application, we used NODE.JS and for all the UML diagrams we used STARUML.

3.2 Access:

The system will be accessible through a Web browser. People of all age groups are able to access the webpage directly.

3.3 Hardware and Platform Requirement:

Hardware Requirements:

The hardware requirements at the user end are really simple and the website can also run on the hardware that can run a basic simple browser, although the hardware should be good enough during peak times.

Platform Requirements:

The application should support all major web browsers that will make it convenient for the user to access our system with ease. The backend i.e., the database. Services will be used to a great extent and hence it will be quite effectively designed.

3.4 System Connectivity:

The client will connect with the system using React JS technology. So, users will be able to access the website.

4 Standards

4.1 Security Standards

4.3.1 Authorization and Logon

The system shall verify the height and weight of the user and provide the BMI value.

4.2 Disaster Recovery

If the website is interrupted, data will be erased off and we need to begin the process from the beginning.

5. Support

The following support documentation will be provided: Code, Design Document, Operations Manual, and Deployment Plan.

SRS (Software Requirements Specification)

1.INTRODUCTION

Good health is central to human happiness and well-being. In order to know whether a person is healthy or not, he needs to calculate his BMI. Body mass index (BMI) is a measure of body fat based on height and weight that applies to adult men and women. It is widely used as a general indicator of whether a person has a healthy body weight for their height. Specifically, the value obtained from the calculation of BMI is used to categorize whether a person is underweight, normal weight, overweight, or obese depending on what range the value falls between. In this project we will be calculating the BMI using the height and weight of a person. In this online BMI calculator people can check their BMI, which will help them to understand whether they are underweight, a healthy weight, overweight or obese.

1.1 PURPOSE

This document is intended for following group people:

1. Medical Data
2. Users

1.2 SCOPE

This document applies to the BMI Calculator browser. This software offers a chance to the users to check their BMI value and to verify their health status. The health status provides information whether the user is in the green zone in the BMI chart and to verify that the user will not be having any health risks in the given future.

1.4 OVERVIEW

- Section 1.0 discusses the purpose and scope of software.
- Section 2.0 describes the overall functionality.

2. The Overall Description:

2.1 PRODUCT PERSPECTIVE

BMI is a measurement of a person's leanness or corpulence based on their height and weight, and is intended to quantify tissue mass. It is widely used as a general indicator of whether a person has a healthy body weight for their height. Specifically, the value obtained from the calculation of BMI is used to categorize whether a person is underweight, normal weight, overweight, or obese depending on what range the value falls between. These ranges of BMI vary based on factors such as region and age, and are sometimes further divided into subcategories such as severely underweight or very severely obese. Being overweight or underweight can have significant health effects. So BMI helps people to know their health condition and provides a caution to maintain their health.And all this can be done just by tapping 2-3 instructions.

2.2 PRODUCT FUNCTIONS

Calculate: It calculates the BMI value by taking height and weight as input.

The BMI is defined as the body mass divided by the square of the body height

2.3 USER CHARACTERISTICS

Users can easily calculate their BMI value by entering their name, height and weight. It is a very easy and simple interface for the users.

2.4 CONSTRAINTS

The major constraints that the project has are:

Height and weight should be in the SI system only.

It may overestimate body fat in athletes and others who have a muscular build. It may underestimate body fat in older persons and others who have lost muscle.

2.5 ASSUMPTIONS AND DEPENDENCIES

The requirements started in the SRS could be affected by the following factors:

BMI is calculated only based upon the height and weight, but it does not take into account muscle mass, bone density, and overall body composition.

3.FUNCTIONAL REQUIREMENTS

At the start ,the user needs to open the url . In the browser, the user needs to enter the name, height and weight. After entering the details, and the user selects to calculate the BMI value, a screen is presented with the BMI value and the health status of the user.

VALIDITY CHECKS:

In order to gain the access to the website ,the user is required to have a stable internet connection, and their precise height and weight

SEQUENCING INFORMATION

The information about users should be entered into the database and backup must be maintained for all account information.

ERROR HANDLING:

If any of the above validation flow does not hold true, appropriate error messages will be prompted to the users for doing the needful.

4.EXTERNAL INTERFACE REQUIREMENTS:

4.1 USER INTERFACE REQUIREMENTS

1. A display screen is provided in the beginning for entering the user's name, their height and weight.

2.After entering, the user is supposed to click on calculate for the BMI value to appear.

3. A screen will appear with the BMI value of the user and also describing the health status of the user.

4.2 HARDWARE INTERFACE REQUIREMENTS

Computer/laptop -4 ghz mini ,multicore processor.

memory(RAM)- at least 4GB.

4.3 SOFTWARE INTERFACE REQUIREMENTS

Operating system windows server 2012 R2 or above .

4.4 COMMUNICATION INTERFACE REQUIREMENTS

Interaction between the integration layer and the application is:

Predominantly asynchronous.

One way communication.

5.OTHER NON FUNCTIONAL REQUIREMENTS.

5.1 PERFORMANCE REQUIREMENTS

Advanced versions of any browser can meet the requirements.

5.2 CAPACITY

Any number of users.

5.3 DYNAMIC REQUIREMENTS

The user needs to enter the height and weight in SI System only.

5.4 QUALITY

As the quality of a piece of software is difficult to measure quantitatively ,the following guidelines will be used when judging the quality of software.

1.Consistency- All the code will be consistent w.r.t style.

2.Test cases-All functionality will be thoroughly tested.

5.5 SOFTWARE SYSTEM ATTRIBUTES

5.5.1 AVAILABILITY

BMI Calculator website is available both in mobile , desktop.

The product will have a backup database.

5.5.2 SECURITY

The height and weight should be in the SI system only.

5.5.3 RELIABILITY

The data communication protocol shall be used such that it ensures reliability and quantity of data.

5.5.4 MAINTAINABILITY

The system should inform the main branches automatically as soon as it detects any error.