

## Personal Nutritionist

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**Abstract:** In today's world, every other person is busy running errands of their lives. In such fast-paced life, people have become more health conscious and they really need to be because health is the most important factor to keep our body working continuously [7]. To keep your body working smoothly we have specially created a system for you where we will provide you a proper diet and workout plan according to your body type. Regardless of the age, height, weight everyone wants a perfect body, everyone wants to live a healthy lifestyle. Proper nutrition intake is the key to a healthy lifestyle. Personal Nutritionist provides you with a detailed diet plan for a whole week along with a full week workout plan, you just have to provide some details from which the system will identify your body type and will create a suitable diet plan and a workout plan and you can even download the plan on your system. Our system also provides the calorie count for each food item in the diet plan, this way you can also know your daily calorie intake.

**Key words:** Diet, Workout Plan, Body type, nutrition.

### 1. Introduction:

A large number of apps focused on health and fitness have emerged on the smartphone market. Tracking the

#### 1.1 Purpose of a healthy diet:

A healthy diet can make wonders. Proper eating is basically the key for a healthy body. Eating particular food which has the proper amount of protein, fat, calorie etc is always beneficial rather than eating all foods. Healthy diet works for both the individuals who want to lose weights as well as who want to gain weight. People who follow a proper diet plan are likely to have less diseases. Diet is instrumental in ensuring that all the body system digestive to the endocrine functions in optimum manner. Diet believes going natural in terms of food. This means eating, more vegetable fruits, consume herbs, curds, fruit juice. Diet supports the healing process and prevent nutrient deficiency.

### 2. Literature Survey

#### 2.1 Calorie Intake and BMI

##### Food Recognition and Health Monitoring System for Recommending Daily Calorie Intake

In 2019 a paper on Food Recognition and Health Monitoring System for Recommending Daily Calorie Intake was published by Rutuja Renawne. In this the

consumption of certain foods and drinks may potentially help individuals achieve an improved understanding of their dietary patterns. A proper nutrition decreases the chance of developing various diseases, helps to keep a healthy body, increases energy level and boosts immune system. According to World Health Organisation (WHO), "A healthy diet helps to protect against malnutrition in all its forms, as well as noncommunicable diseases (NCDs), including such as diabetes, heart disease, stroke and cancer" [8]. "A healthy eating plan gives your body the nutrients it needs every day while staying within your daily calorie goal for weight loss [1]. A healthy eating plan also will lower your risk for heart disease and other health conditions", stated by NLH. Some sources report that it is possible to prevent premature heart disease with changes in lifestyle such as increasing physical activity and a healthy diet. This system is designed to help an individual to plan his/her diet and workout plan based on his /her body mass index (BMI) and basal metabolic rate (BMR)[2]. This system calculates your BMR based on your height, weight, age and gender[3]. later it calculates your calorie and creates a flexible diet plan as well as a workout plan [4]. This system also provides you with an online store where you can buy basic workout products, according to your needs [5].

researcher attempts to develop an android based implementation for food recognition that could be used as a health awareness tool.

#### Personal Nutritionist using Fat Secret API

In 2020 a paper on a paper was published by Gunjan Ghanwat, Somesh Bankar, Malini Ghuge, Deepali Kadam on "Personal Nutritionist using Fat Secret API". It presents a study of various factors such as Fat Secret API, BMR, BMI, Fat percentage, Food recommendation. The working of this project is mainly based on two processes: Body type classification and Food recommendation.

#### 2.2 Diet Plan

##### Artificial Intelligence Dietician

In 2017, Hitesh Pruthi and Hardik Parvadiya developed a website regarding fitness such as how to maintain to main good health by doing some workouts and eating healthy food products.

### 3. Proposed System

First interface:

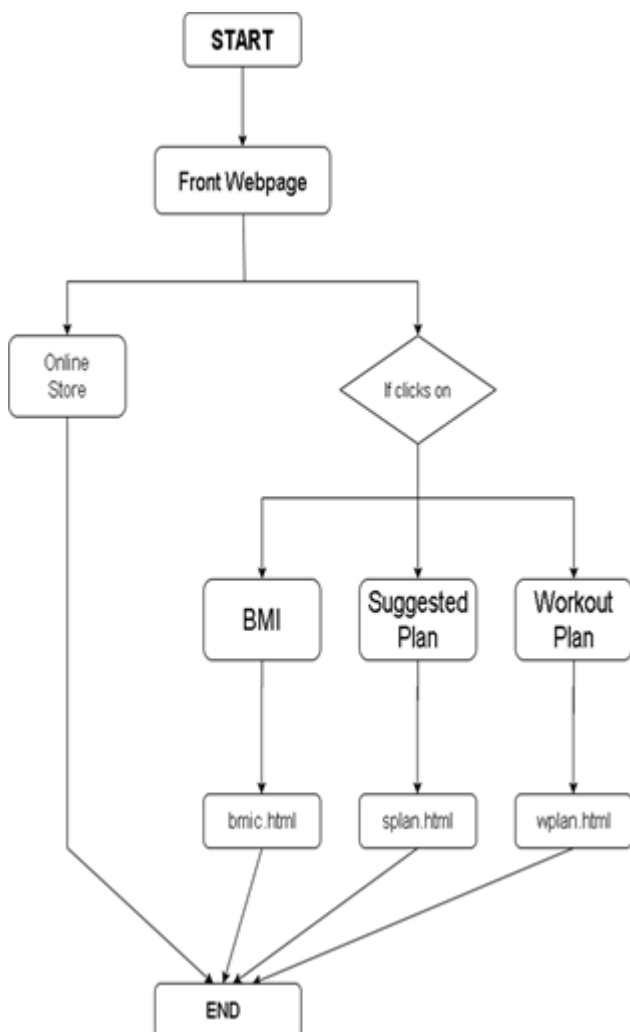


Fig 1. First interface flowchart.

Diet Plan Generation:

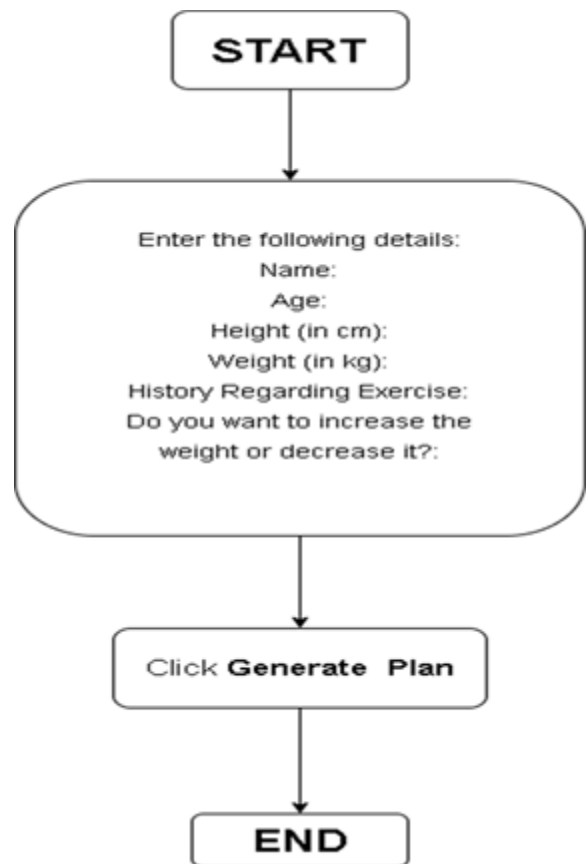


Fig 2. Diet Plan Generation

#### 3.1 Working

3.1.1 Execution:

When we will execute the command, the user interface will be displayed. It gives three options:

1. Calculate your BMI
2. Get a Diet plan
3. Get a Workout Plan



Fig 3. First Interface

### 3.1.2 Calculating your BMI interface

BMI interface will tell the user to enter it's weight and height. And according to the BMI, it will show the user in which category they lie.

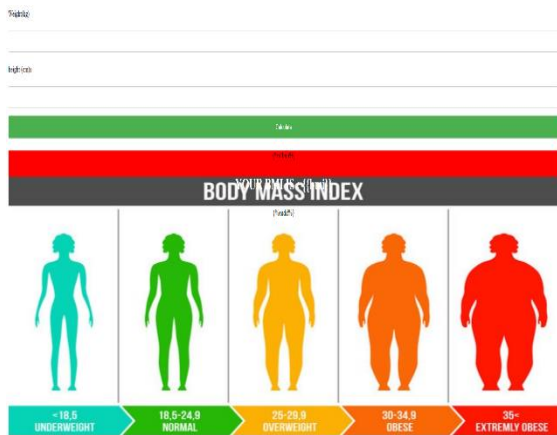


Fig 4. Body type chart

### 3.1.3 Diet Plan generation Interface

In this interface the user will require to enter some details and accordingly the diet plan will be generated. It will also have an option whether the user wants to increase or decrease their weight.

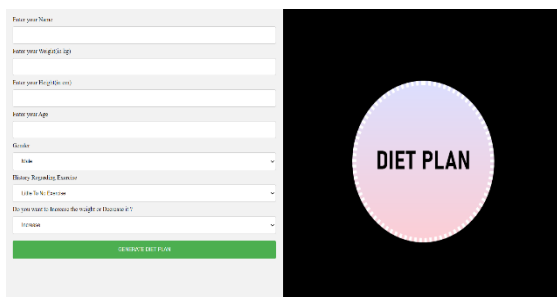


Fig 5. Diet Plan generation

Detailed plan will be given which they can even download in pdf format.



Fig 6. Diet Plan

In diet plan the user will be given a diet according to his BMI, BMR and calorie intake. The diet plan will contain intakes such as protein, vegetables, etc. A detailed chart will be given exactly what protein and vegetables the user needs to eat. They can even download this in PDF format.

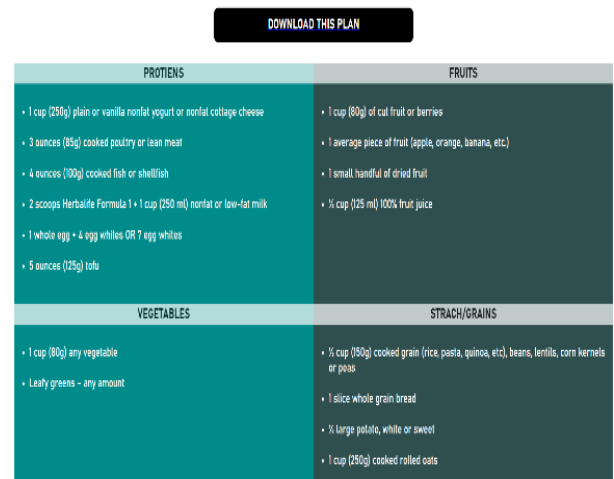


Fig 7. Plan

### 3.1.4 Workout Plan Generation Interface

In this interface the user will be provided a workout plan for a week. This will help the user to increase or decrease their weight more efficiently

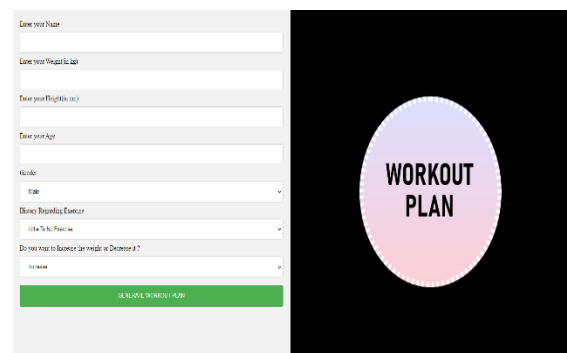


Fig 8. Workout plan generation

A plan accordingly will be provided to the user. The plan generated will look like this.

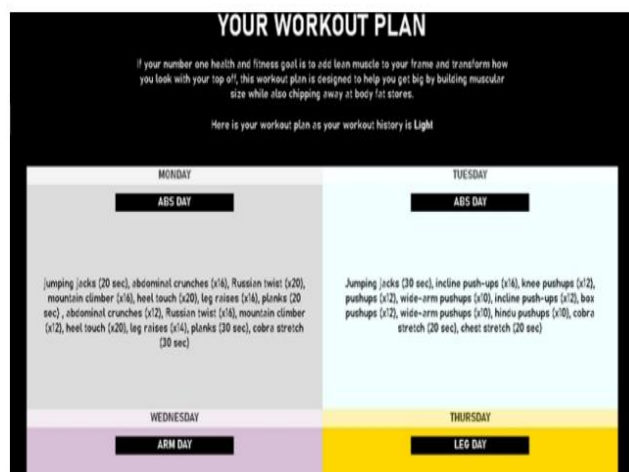


Fig 9. Workout Plan

Heavy Exercise	BMR * 1.725
Extra Heavy Exercise	BMR * 1.9

Based on the results from BMI and calorie intake, the system will suggest whether the user needs to increase the weight or decrease it. If the user needs to increase the weight, then it has to consume more calories than the calculated value and workout accordingly. If the user needs to decrease the weight, then it has to consume less calories than the calculated value and workout accordingly. As the results are generated, a flexible diet and workout plan is suggested to the user. In our project, based on the requirements of body such as minerals, fats, proteins, carbohydrates, etc. are recommended. The diet is kept flexible regarding food items but the user needs to meet the basic requirements.

**5. Conclusion:**

The working of this system is mainly based on generating diet and workout plan. The diet and workout is generated according to the body type of the individual. In diet plan, the food recommended is according to the nutritional value of that particular food. This system also provides us with the calorie intake on a daily basis. A workout plan comes with detailed type of exercises on the basis of your body type.

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**4. Methodology**

In this section, we will discuss what are the requirements for this project, its system architecture, and the required technologies to create it. The first step which should be implemented is the GUI (Graphical User Interface). We have used HTML, CSS for the front end of the website and for the back end, we have used flask framework. User have given a complete set of options which are essential for a healthy body. User will be asked to insert information like height (in cm), weight (in kg), age, gender, and history regarding exercises. Considering all these factors, the user's BMI, BMR are calculated and based on the results the user is classified as underweight, normal, overweight, obese and extremely obese. BMR is calculated in order to determine the average calorie intake of the user. BMI is calculated to know the current health status of the user. To find the average calorie intake, another important factor which is considered is the Activity level of user i.e., history regarding exercise. The table below gives the idea of how average calorie count is calculated.

**4.1 Software:**

Standalone computer software: Tkinter, GUI library is been used for generating dynamic pdfs. Plans are given to the user dynamically. HTML for linking the web pages. We have made use of FLASK framework to build the web application. Adobe was used for making pdfs of plans

**4.2 Observation**

**Table -1: Calorie intake based on activity level**

Activity Level	Calorie (kcal)
Little to no exercise	BMI * 1.2
Light Exercise	BMR * 1.375
Medium Exercise	BMR * 1.55