

Project Report on

**“Develop And Deploy An Application For Nutrition Assistant”**

submitted in the fulfillment of the requirement of the **IBM Hack Challenge 2022** by Students of **Biyani Institute of Science and Management.**



**Team Name :-** FitBiyanite

**App Name :-** NutriTech

**Team Members :-**

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**Team Mentor :-**

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## **CHAPTER 1 :- INTRODUCTION**

### **a. Overview :-**

The project, “**Mobile Based Health and Nutrition Application**” is a mobile-based application intended to guide users on how to attain proper nutrition and good health and personally monitor their health. This application provides information about ingredients and nutritional values in the food on the basis of food images. So that we can move towards a healthy life style. We can get most of the information that inside any food.

### **b. Purpose :-**

The primary goal of the project is to design and develop a mobile-based application that will guide users for proper nutrition and good health. The main feature of the application is to allow the users to browse for health facts, especially about proper nutrition and health. The application will also have a monitoring feature that allows the users to monitor their health. The application is a significant contribution in the field of health and nutrition.

The implementation of the project will ease up the process of seeking proper health and nutrition ideas. The app will eliminate all the difficulties and hindrances in the conventional way of acquiring knowledge about proper health and nutrition. The mobile-based application is an efficient and effective tool to aid the health needs of the patients.

## **CHAPTER 2 :- LITERATURE SURVEY**

### **2.1 Existing Problem :-**

Due to the ignorance of healthy food habits, obesity rates are increasing at an alarming speed, and this is reflective of the risks to people's health. People need to control their daily calorie intake by eating healthier foods, which is the most basic method to avoid obesity. However, although food packaging comes with nutrition (and calorie) labels, it's still not very convenient for people to refer to App-based nutrient dashboard systems which can analyze real-time images of a meal and analyze it for nutritional content which can be very handy and improves the dietary habits, and therefore, helps in maintaining a healthy lifestyle. Existing approaches or methods for solutions - **Android Studio and Back-End Database.**

### **2.2 Proposed Solution :-**

This project aims at building a web App that automatically estimates food attributes such as ingredients and nutritional value by classifying the input image of food. Our method employs Clarifai's AI-Driven Food Detection Model for accurate food identification and Food API's to give the nutritional value of the identified food.

## **CHAPTER 3 :- THEORITICAL ANALYSIS**

### **Hardware & Software Designing Requirements :-**

**Software Requirements :-** Android Studio , Back-End Database, Machine Learning Concept (TensorFlowLite Model)

**Hardware Requirements :-** Intel Corei3 processor, 8GB Ram (for smooth processing)

## **CHAPTER 4 :- EXPERIMENTAL ANALYSIS**

Our analysis or investigation made while working on the solution was totally based upon looking other apps and monitor what drawbacks were there in. So that we can overcome these through our app. Apart from food recognition and nutrition analysis, it will also provide the information of nutritionists, dietitians and fitness centres. Also provide a healthy diet plan with reminder / timer button for all of you. All these facilities are totally available at user-end.

Experimental investigations conducted so far on simple perspex and mortar models clearly indicate that the method of virtual work is quite adequate to predict the elastic deflections of the flag structures. The structural systems described above appear to hold promising prospects in view of the great strength of slabs in their own planes. Further, it appears possible that, by judiciously stacking and interlocking a number of the basic assemblies, multistorey buildings can be conceived combining the distinct advantages of clear spans at certain floor levels and structural efficiency.

In case of our project, experimental investigations are totally based upon surveying other food and health related apps available in the market. Also include those features which are not included in these apps. So that we can represent all the possible features through our app with food recognition and nutrients extraction facility

## **CHAPTER 5 : FLOW-CHART**

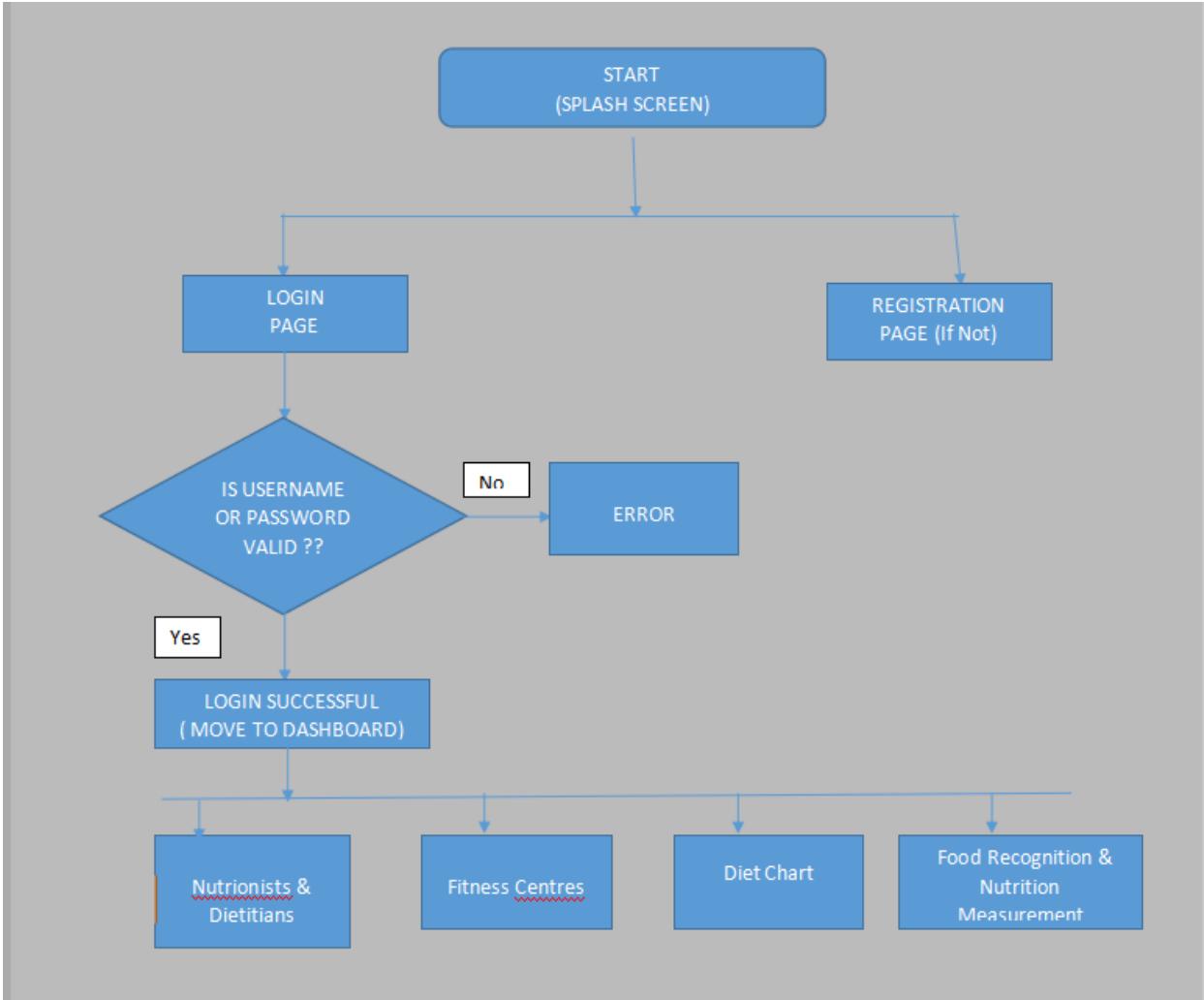
A flowchart is a visual representation of the sequence of steps and decisions needed to perform a process. Each step in the sequence is noted within a diagram shape. Steps are linked by connecting lines and directional arrows. This allows anyone to view the flowchart and logically follow the process from beginning to end.

A flowchart is a powerful business tool. With proper design and construction, it communicates the steps in a process very effectively and efficiently.

- **Flow Chart Symbols :-**

You'll notice that the flowchart has different shapes. In this case, there are two shapes: those with rounded ends represent the start and end points of the process and rectangles are used to show the interim steps. These shapes are known as flowchart symbols. There are dozens of symbols that can be used in a flowchart. If you're new to flowcharting, it's important to know what they represent before using them. Just as word usage conveys a certain message, flowchart symbols also have specific meaning.

## Flow-Chart For Solution :-



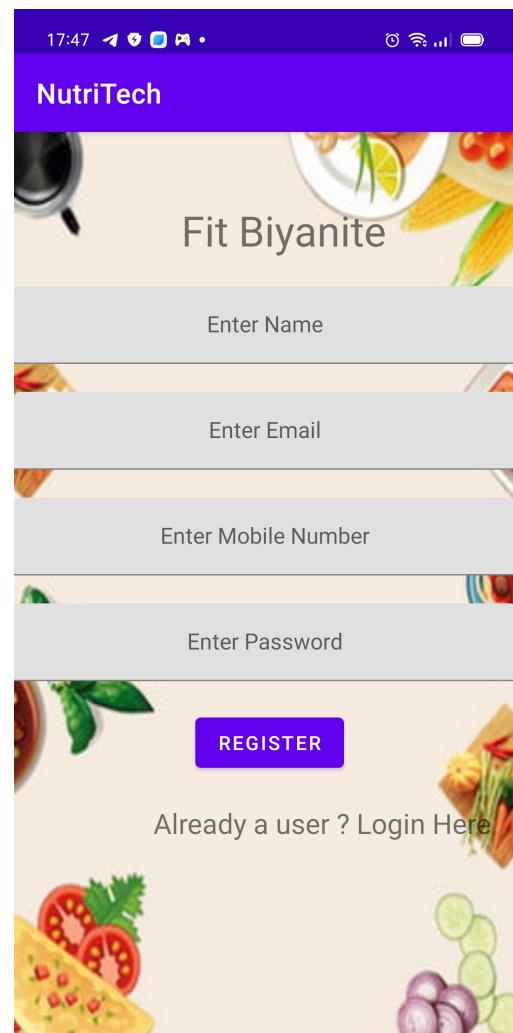
## **CHAPTER 6 :- RESULTS**

### **Screenshots :-**

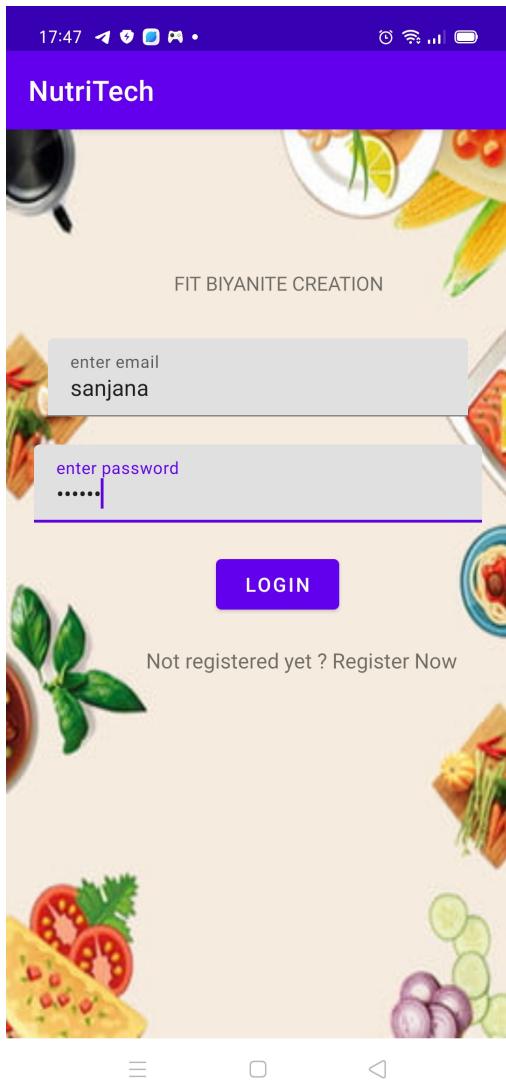
**Home (Splash) Screen Page :-**



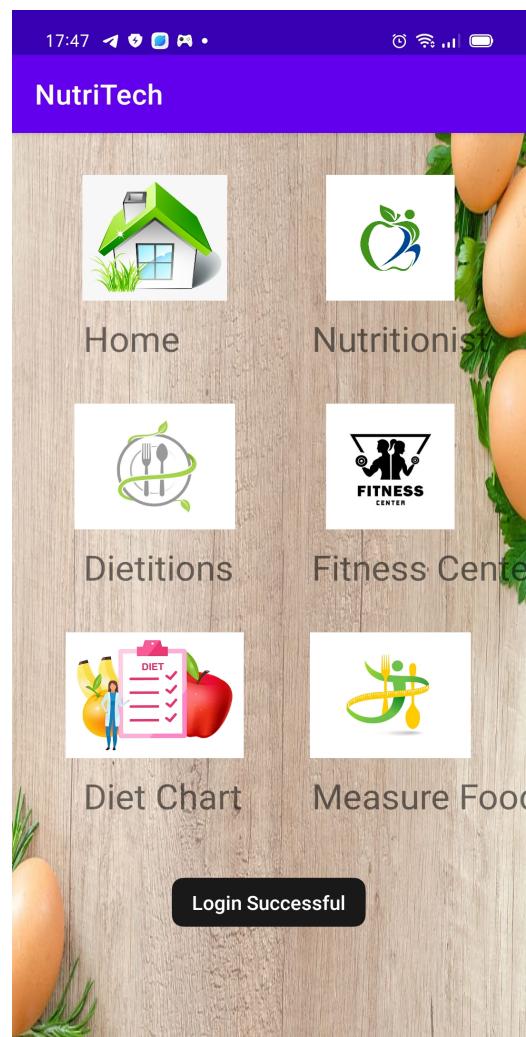
**Registration Page :-**



## Login Page :-



## Dashboard Page :-



## DietChart Page :-

The image shows a smartphone screen displaying a diet chart application. The top status bar shows the time as 17:48 and various system icons. The app has a purple header with the text "NutriTech". Below the header is the title "Diet Chart for Healthy Life". The main content area consists of three horizontal tables representing meals for Breakfast, Lunch, and Dinner, each with six days of the week.

**BREAKFAST**

MEALS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
<i>Kids Breakfast</i>	Idli with Podi and Ragi Hanchi	Fruit Smoothie Cheese Dosa	Oat Meal	Uenpongal & Gojju	Pancakes

**LUNCH**

MEALS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
<i>Kids Lunch</i>	Sambar Idli Mini Sambar Idli	Mint Rice with Raita	Rice & Chole Chole Roll	Uenpongal & Gojju	White Sauce Pasta & Steamed Broccoli

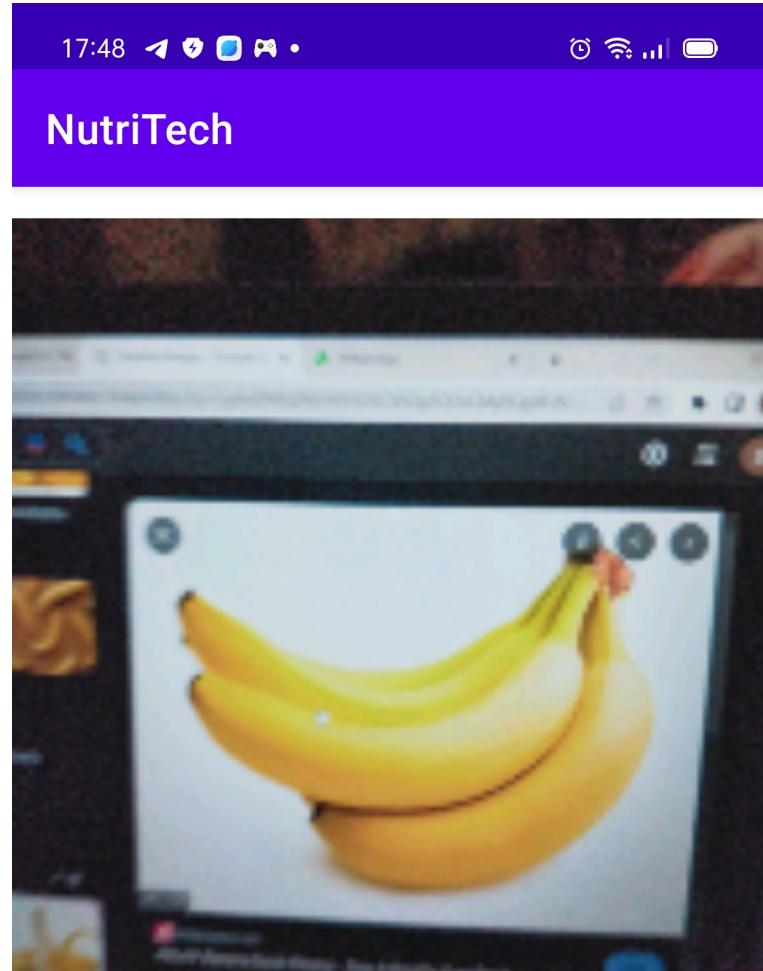
**DINNER**

MEALS	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
<i>Kids Dinner</i>	Rice + Sambar+ Beetroot poriyal	Roti, Chole, Farro Salad	Dosai and Chutney	Rice + Black chickpeas vathal kuzhambu, beans poriyal	Rice + Rasam + Cucumber Hootu + leftover kuzhambu

**SET REMINDER**

Three navigation icons are at the bottom: three horizontal lines, a square, and a triangle.

## **Food Recognition & Nutrients Extraction Page :-**



**Food Product is:  
banana**

**Food Nutrients are:**  
calorie : 110grams  
carbohydrate : 28grams  
fat : 0grams  
protein : 1grams

**Take Picture**



## **CHAPTER 7 :- ADVANTAGES & DISADVANTAGES**

### **7.1 Advantages :-**

#### **a. It provides general awareness of nutrients in food.**

Food tracker allow you to assess much more than calories. It shows protein, carbs, fat, sugar, saturated fat, fibre and more. Many programs also display micronutrients like potassium and iron. This allows you to see how balanced your meals are each day and over the course of a week. It also allows you to target certain nutrients for health conditions you are trying to address. For example, you can keep track of fibre if you are using lifestyle factors to address cholesterol. A pregnant woman who is anaemic might want to keep track of protein and iron.

#### **b. It is a targeted way to focus on your health.**

We all know that when we have a goal, it is necessary to have tools to help us focus and refocus because life is full of distractions. A food tracker can help you do this. Each day you are coming back to the same place to check, think through and stay motivated.

#### **c. Business / Social impact :-**

Can collaborate with Nutrionist, Dietitians, Fitness Centres for revenue. So that through this app a company can grow financially also.

## **7.2 Disadvantages :-**

### **d. Recognition and Detection of various food :-**

Current systems do not adequately identify and process mixed physical images. They do not involve cooking foods, liquid foods, and composite foods such as salads and sandwiches. In future research, a mixed food image and a cooking-like physical image are processed by combining image segmentation techniques to solve the phenomenon that the image has oblique edges or each other causes the recognition detection to fail.

## **CHAPTER 8 :- APPLICATION AREAS**

- Hospitals, clinics, and other health care facilities
- Training gyms and fitness centre's
- Food manufacturing companies
- Academic institutions
- Public health organizations
- Government agencies
- Community centre's
- Health food markets
- Wellness centre's

## **CHAPTER 9 : CONCLUSION**

Currently, fatness is a major issue in human life. Curiosity is found among people to measure their heaviness and healthy eating in order to avoid overweightness. So, this paper presents a novel system that tells us the information about the type of food we eat and its attributes. This system takes the image of the food from the user and after correct classification, the system will tell us about the attributes of the food. A dataset that consists of a common meal of Food-101 and our subcontinental food has been used in our system. We have fine-tuned the Inception V-3 and V-4 model to recognize the food items and also proposed a method to measure the attributes of the food using the attribute estimation model. The results are enhanced via data augmentation, multi-crop, and similar techniques. Our proposed method for classification as well as for the extraction of attributes achieves a considerably high accuracy of 85 %.

We have also described the possible improvements and the future work to enhance the usability and accuracy of the system.

The researchers conducted the study to develop a mobile-based health and nutrition application. The developed app will guide the patients on how to maintain proper health and nutrition. The result of the study showed that the developed application met the needs and requirements of the intended users. The majority of the respondents have seen the potential of the application as an effective alternative to aid the process of maintaining and monitoring one's health.

## **CHAPTER 10 : FUTURE SCOPE**

The researchers will mainly focus on developing a mobile-based application that contains fact-based information on how to attain proper health and nutrition. The application is limited in displaying information about ways on how to gain good health and nutrition. The application will also allow the users to monitor their health based on the guides provided by the application. The respondents of the application are health professionals and patients. The Uniqueness in this app will be that it will also take some information about your daily routine (about your working hours, wrong food habits, any disease) & accordingly provide a diet chart with proper timing alarms through which you can follow healthy diets to lose weights and make healthy habits.

The following individuals or groups will benefit from the study:

- a. **Users/Patients :-** The application can help in guiding them on how to remain healthy and how to take good nutrition. The application will help them without personally going to the doctor.
- a. **Doctors/Physicians :-** The application will lessen their work in attending to the questions of their patients for they will have their source of information.
- b. **Researchers :-** The researchers will gain experience in doing the project with the team and will also contribute to their knowledge and skills as developers.
- c. **Future Researchers :-** The study will serve as their basis in making their version of the project.

## **BIBLIOGRAPHY / REFERENCES**

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- c. [Db2 Connect – Overview – India | IBM](#)
- d. [Image Model - Teachable Machines](#)