Final Year-Project Report On

AI DIETICIAN

is submitted in partial fulfillment of the requirement of

B.E. (I.T Engineering)

By

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2020-2021

CERTIFICATE

This is to certify that the following students have submitted the Final Year- project report on AI DIETICIAN in the partial fulfillment for BE (Information Technology Engineering) semester VIII during the academic year 2020-21 as prescribed by University of Mumbai.

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Abstract

This work proposes an intelligent agent, called the personal dietitian agent, based on the user's characteristics and specification. The agent can create a meal plan according to a person's lifestyle and particular health needs. The experts recommend eating a wide variety of foods, including vegetables, whole grains, fruits, non-fat or low-fat dairy products, beans, lean meats, poultry, and fish. However, each person has a unique dietary pattern and have different health issues so a dietitian creates a meal plan depending on each case. The online artificial dietitian is an application with artificial intelligence about human diets. It acts as a diet consultant similar to a real dietitian. This system acts in a similar way as that of a dietitian. A person in order to know its diet plan needs to give some information to the dietitian such as its body type, weight, height and its working hour details. The system asks all this data from the user and processes it to provide the diet plan to the user. Thus the user does not need to visit any dietitian which also saves time and the user can get the required diet plan in just a click.

List of Figures

1	INTRODUCTION
2	LITERATURE SURVEY
3	EXISTING SYSTEM
4	PROBLEM DEFINATION
5	REQUIREMENT ANALYSIS
5.1	SOFTWARE REQUIREMENT
5.2	HARDWARE REQUIREMENT
6	METHODOLOGY
6.1	E-R DIAGRAM
6.2	USE CASE DIAGRAM
6.3	DATA FLOW DIAGRAMS
6.4	LEVEL 0 DFD

6.5	LEVEL 1 DFD
6.6	LEVEL 2 DFD: PREDICTION
6.7	SEQUENCE DIAGRAM
6.8	ACTIVITY DIAGRAM
6.9	CLASS DIAGRAM
7	ADVANTAGES OF PROJECT
7.1	LIMITATIONS
7.2	APPLICATIONS
7.3	FEATURES
8	EXPECTED RESULT
9	CONCLUSION
10	REFERENCE

1.INTRODUCTION

Smart phones and the Internet have revolutionized the communication and with it the lifestyle of people. An increasing number of smart phones and Personal Digital Assistants (PDA) allow people to access the Internet where ever they are and whenever they want. By using internet they can obtain on one hand information on almost everything they wish to. Therefore just by using smart phones user can get diet assistance anytime at free of cost. Artificial dietitian is an application with artificial intelligence about human diets. It acts as a diet consultant similar to a real dietian . This system acts in a similar way as that of a dietitian .A Person in order to know his/her diet plans needs to give some information to the dietitian such as its body type, weight, height, and working hour details.

Similar way this system also provides the diet plan according to the information entered by the user. The System asks all his data from the user and processes it to provide the diet plan to the user. Thus the user does not need to visit any dietitian which also saves time and the user can get the required diet plan in just a click.

The project also has a login page where in the user is required to register his/her account then they can use the app. This project requires Internet access and thus there is a disadvantage of server failure.

The system give more accurate results as it accepts the data entered by the user and process it depending on some metrices already known to the application on the basis of which a diet plan is generated and ask her the user if the user accepts the diet plan. If not accepted the system may also give an alternatve diet plan.

2. LITERATURE SURVEY

Husain et al. [1cancer is very severe disease. It is occurring frequently now days. Some systems are available in market which suggests diet for cancer but they are not sufficient. These systems only suggest one or two food items which help to secure from disease. This system provides a complete diet plan for cancer .cancer is a disease which is not curable. It needs kemo therapy which has side effects. Therefore the one and only solution to this is to take proper diet to prevent from getting such type of disease.

Abbas Lokman and Jasni Zain [2] This work describes the diet plan for diabetic patients. This system is based on a virtual dietician concept. a chat bot is designed which works as a dietician. The history and view of chat bot is provided in this system. Diet plan for diabetic patients is given using this chat bot. this system is the interface

between man and machine. chat bot concept provide interface that gives the diet plan for diabetic patients.

Barnett et al. [3] This work provides diet plan for obese people.As obesity is a major health problem proper diet is very essential. To lose weight for obese people is a very difficult task. There are certain ranges of BMI which decides normal, underweight or overweight. The BMI above30 is refer as BMI for overweight people. This paper provides a system which manages weight and provides a good diet to lose weight. There is face to face consultation between dietician and a person. Because of this dieticians get clients automatically and clients get the proper advice without wastage of time for travelling to dietician.

Carl J. Brandt et al. [4] Obesity is a major health problem . Each and everyone should take care of his/her health and should maintain a proper health condition. This system provides a diet plan to the user to lose weight. As today's world is internet world and there is Gmail service available, this work gives a system which uses the emailed of the user. Based on email id of user the system sends the diet plan to him/her on their respective email ids.

Talapanty Shwetha et al. [5] this work provides an intelligent agent which will give a diet plan to user. Eating habits of different person are different therefore their diet plan should be different. Lifestyle of each person is different. The different tensions are there for different professions. Because of this stress a proper diet is essential to follow. This work gives a proper diet which is different for each person. The user has to enter the information about his lifestyle and according to that, the diet plan will be displayed.

HITESH PRUTHI et al. [6] This work describes website. This website contains all the data about various health issues and their remedies. The required all information about health maintenance is provided in the website. This website is easily accessible to all people from lower age to higher age no issues. Admin and user are two

important keywords in this website. The user is a common people who want to take some information . A unique login id is given to the each user from which he/she can login to the website. the website is linked with different gyms from which gym book is taken and provided to the each user.

3.EXISTING SYSTEM

Many of the systems has a diet plan is described in simple way in our system we have explained all the diet plans for the various Diseases .If the user has any dought regarding any query related to their diet they can simply ask the query to our dietcian. We have also provided a chatbot in our application this system is the interface between the user and the machine in chat bot it will recommend u with our Dietcian.

Our app basically calculates the BMI, which takes the input from the user about their Height and Weight it also tells you about your BMI status that you are Normal,Overweight or Underweight. The BMI above 30 is refer as BMI for overweight people. This paper provides a system which manages weight and provides a good diet to lose weight. There is face to face consultation between dietician and a person. Because of this dieticians get clients automatically and clients get the proper advice without wastage of time for travelling to dietician.

In our system we had provided the diet tips to help our client they don’t have to waste the time or money on the nutrition they can get the diet plan by checking the goal that they want to loose the weight or they want to gain the weight in this app they will get the diet.

Our app has the facility that if they have any diseases the plan also has the diet for different diseases.

1. According to current health survey in India there are more then 70% of people suffer from one or the other disease

2. This is because they don’t know how much they should eat

3. People avoid going to nutritionists or diet planner because of their high fees

4. Unaware of amount of fat required by body

4 PROBLEM DEFINATION

This project is having 5 Modules:

1. User Registeration
2. User login
3. Online Consulting ability
4. Diet Data processing
5. User nutrition counseling
6. Efficient user handling
7. Chatbot

Description:

1) User Login:
   - Here, the Consulting user put his credentials in the Login page and also new user can register on the website.
2) Online Consulting Ability:
   - Here, the User is able to consult online with the Bot Dietitian regarding various queries and exchanging information.
3) Calculate BMI:
   - Based on details provided by the user, system automatically calculates the BMI of the user.
4) View Diet Plan:
   - The diet plan for the user is generated by the system itself using artificial intelligence.
5) Diet Data Processing:
   - Here the system will process the input query information provided by the Consulting User and will generate the appropriate Diet information as output.
6) User Nutrition Counselling:

- Here, the System provides the counselling to the Consulting User regarding Diet, Health, and Nutrition etc...

7) Efficient User Handling:

- Here, system handles the Consulting User by providing them appropriate diet information, satisfying the user's needs and keeping the track of the history for future use.

Proposed System

- Considering the anomalies in the existing system computerization of the whole activity is being suggested after initial analysis.
- **"Artificial Intelligence Dietitian"** is a BOT with artificial intelligence about human diets.
- It acts as a diet consultant similar to a real Dietitian
- User may log in and view various diet information
- A Dietitian consults a person based on his schedule, body type, height and weight. The system too asks all this data from the user and processes it.
- **"Artificial Intelligence Dietitian"** asks about how many hours the user works, his height, weight, age etc.
- **"Artificial Intelligence Dietitian"** stores and processes the above data and then calculates the nutrient value needed to fill up user's needs.

- **“Artificial Intelligence Dietitian”** then shows an appropriate diet to the users and asks if user is ok with it, else it shows other alternate diets to fill up user’s needs.

5.REQUIREMENT ANALYSIS

5.1SOFTWARE REQUIREMENT

- Windows 7 or higher
- Java
- JDK
- Firebase
- Android Studio

5.2HARDWARE REQUIREMENT

- Processor –Core i3
- Hard Disk – 500 GB
- Memory –4 GB RAM (Minimum)
- Monitor

6 METHODOLOGY

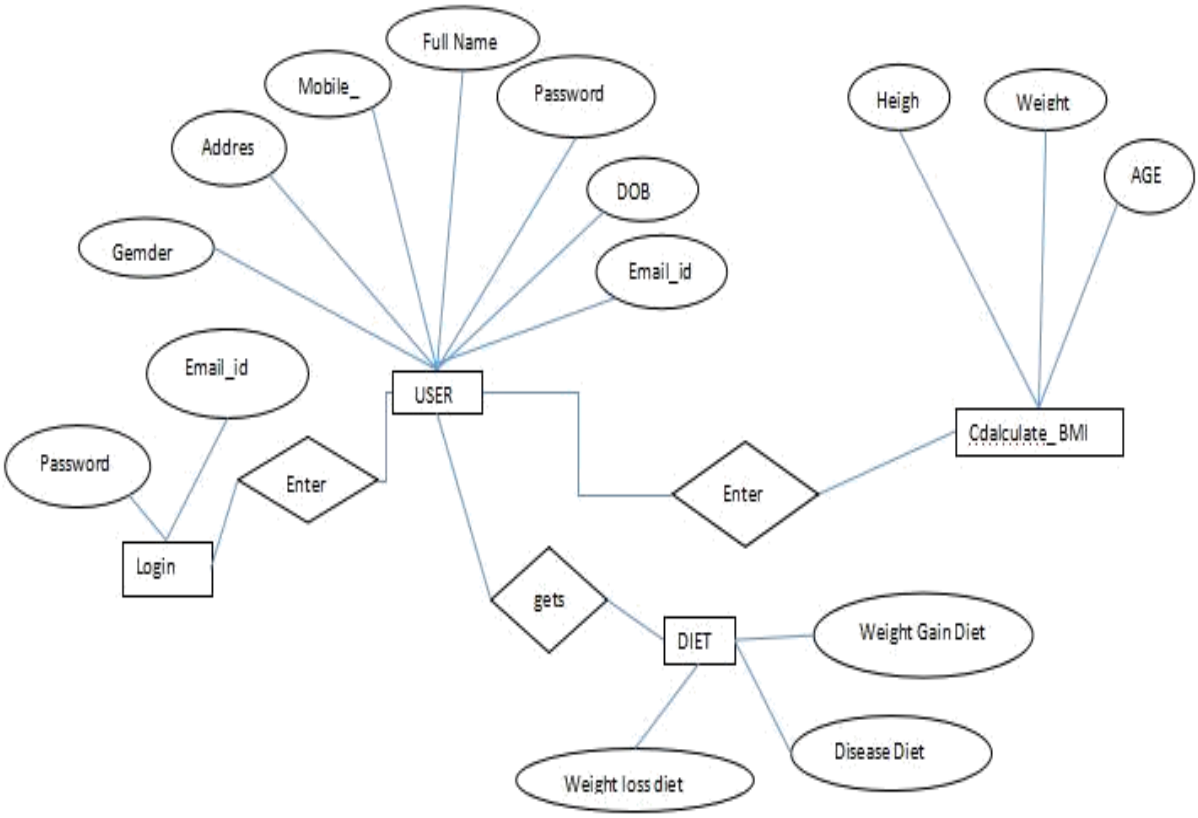
6.1 E-R Diagram

ER Model is used to model the logical view of the system from data perspective which consists of these components:

Entity, Entity Type, Entity Set –

An Entity may be an object with a physical existence – a particular person, car, house, or employee – or it may be an object with a conceptual existence – a company, a job, or a university course.

Attribute(s):
Attributes are the **properties which define the entity type**. For example, Roll_No, Name, DOB, Age, Address, Mobile_No are the attributes which defines entity type Student. In ER diagram, attribute is represented by an oval.



6.2 Use Case Diagram

A use case diagram is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved.

The use case diagram can identify the different types of users of a system and the different use cases and will often be accompanied by other types of diagrams as well. The use cases are represented by either circles or ellipses.

The use-case diagram can help provide a higher-level view of the system. They provide the simplified and graphical representation of what the system must actually do.

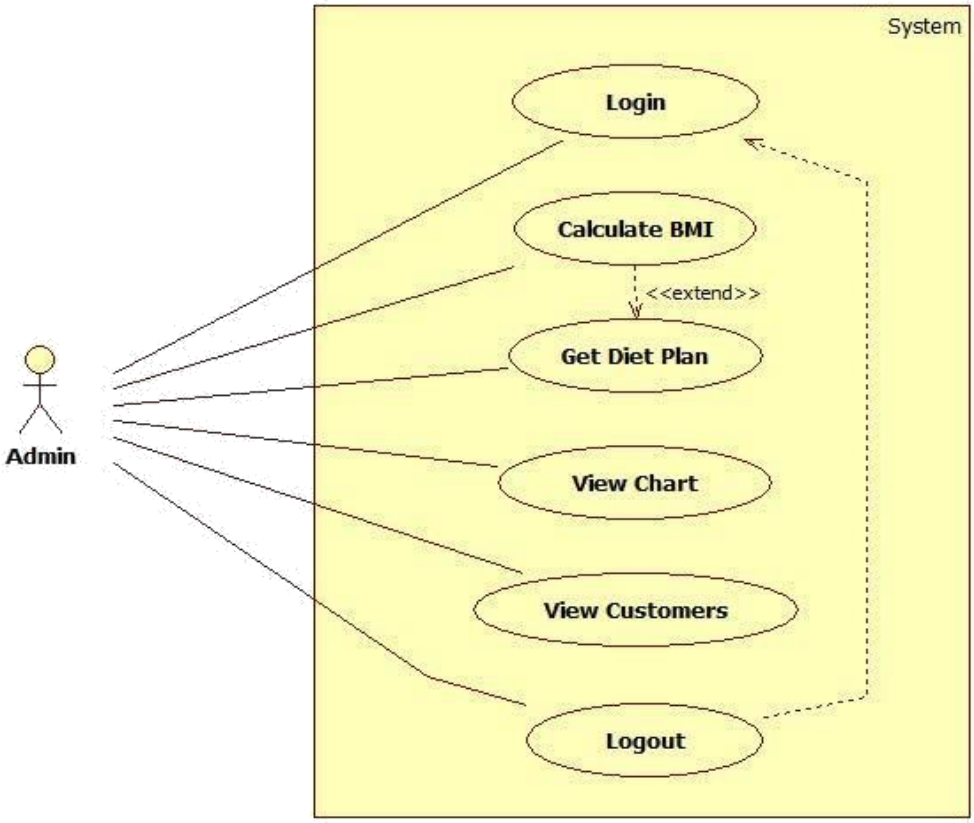


Fig. Use Case Diagram for Admin

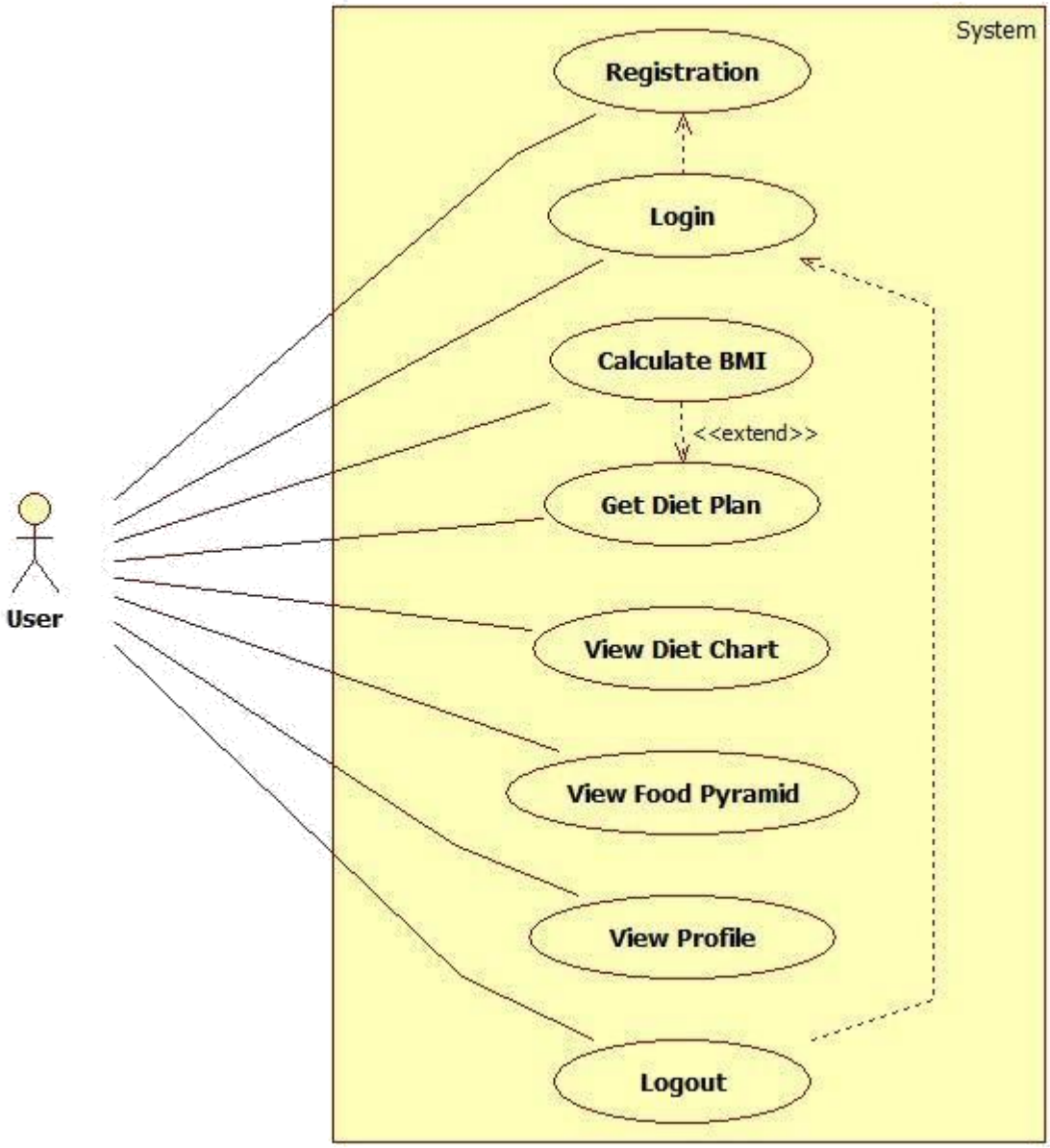


Fig. Use Case Diagram of User

6.3 Data Flow Diagrams

A Data-Flow Diagram (DFD) is a way of representing a flow of a data of a process or a system The DFD also provides information about the outputs and inputs of each entity and the process itself. A data-flow diagram has no control flow, there are no decision rules and no loops. Specific operations based on the data can be represented by a flowchart.

There are several notations for displaying data-flow diagrams.

For each data flow, at least one of the endpoints (source and / or destination) must exist in a process. The refined representation of a process can be done in another data-flow diagram, which subdivides this process into sub-processes.

DFD consists of processes, flows, warehouses, and terminators.

There are several ways to view these DFD components.

- Process

The process (function, transformation) is part of a system that transforms inputs to outputs. The symbol of a process is a circle, an oval, a rectangle or a rectangle with rounded corners (according to the type of notation). The process is named in one word, a short sentence, or a phrase that is clearly to express its essence.

- Data Flow

Data flow (flow, dataflow) shows the transfer of information (sometimes also material) from one part of the system to another. The symbol of the flow is the arrow. The flow should have a name that determines what information (or what material) is being moved. Exceptions are flows where it is clear what information is transferred through the entities that are linked to these flows. Material shifts are modeled in systems that

are not merely informative. Flow should only transmit one type of information (material). The arrow shows the flow direction (it can also be bi-directional if the information to/from the entity is logically dependent - e.g. question and answer). Flows link processes, warehouses and terminators.

➢ Warehouse

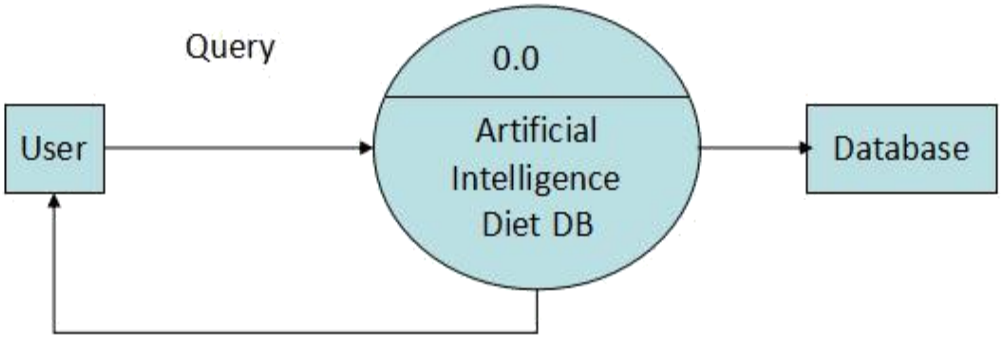
The warehouse (datastore, data store, file, database) is used to store data for later use. The symbol of the store is two horizontal lines, the other way of view is shown in the DFD Notation. The name of the warehouse is a plural noun (e.g. orders) - it derives from the input and output streams of the warehouse. The warehouse does not have to be just a data file, for example, a folder with documents, a filing cabinet, and optical discs. Therefore, viewing the warehouse in DFD is independent of implementation. The flow from the warehouse usually represents the reading of the data stored in the warehouse, and the flow to the warehouse usually expresses data entry or updating (sometimes also deleting data). Warehouse is represented by two parallel lines between which the memory name is located (it can be modelled as a UML buffer node).

➢ Terminator

The Terminator is an external entity that communicates with the system and stands outside of the system. It can be, for example, various organizations (e.g. a bank), groups of people (e.g. customers), authorities (e.g. a tax office) or a department (e.g. a human-resources department) of the same organization, which does not belong to the model system. The terminator may be another system with which the modeled system communicates.

6.4 LEVEL 0

DFD Level 0 is also called a Context Diagram. It’s a basic overview of the whole system or process being analyzed or modeled. It’s designed to be an at-a-glance view, showing the system as a single high-level process, with its relationship to external entities. It should be easily understood by a wide audience, including stakeholders, business analysts, data analysts and developers.



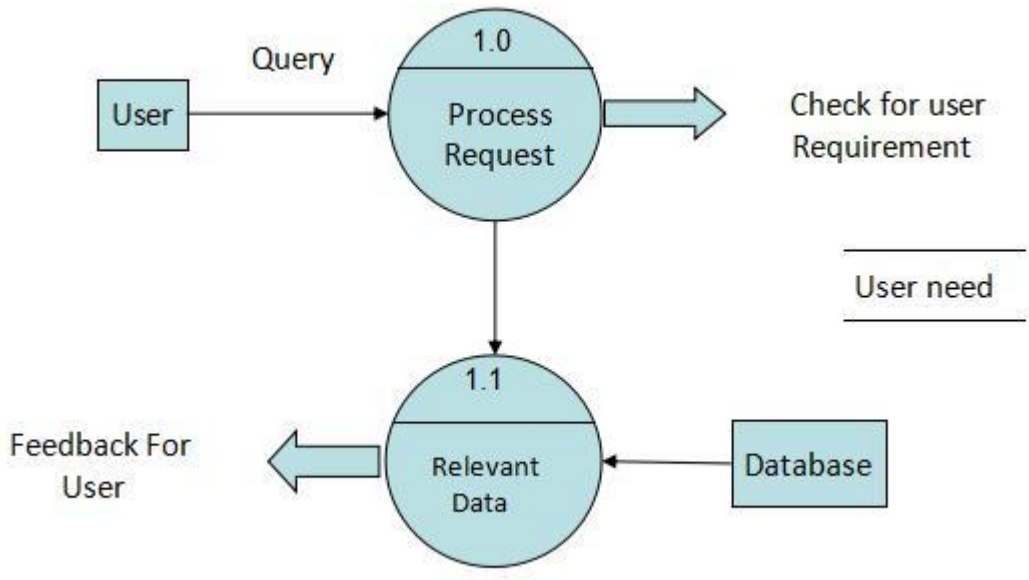
6.4 DATABASE DETAIL

6.5 LEVEL 1

The Level 0 DFD is broken down into more specific, Level 1 DFD. Level 1 DFD depicts basic modules in the system and flow of data among various modules. Level 1 DFD also mentions basic processes and sources of information.

It provides a more detailed view of the Context Level Diagram.

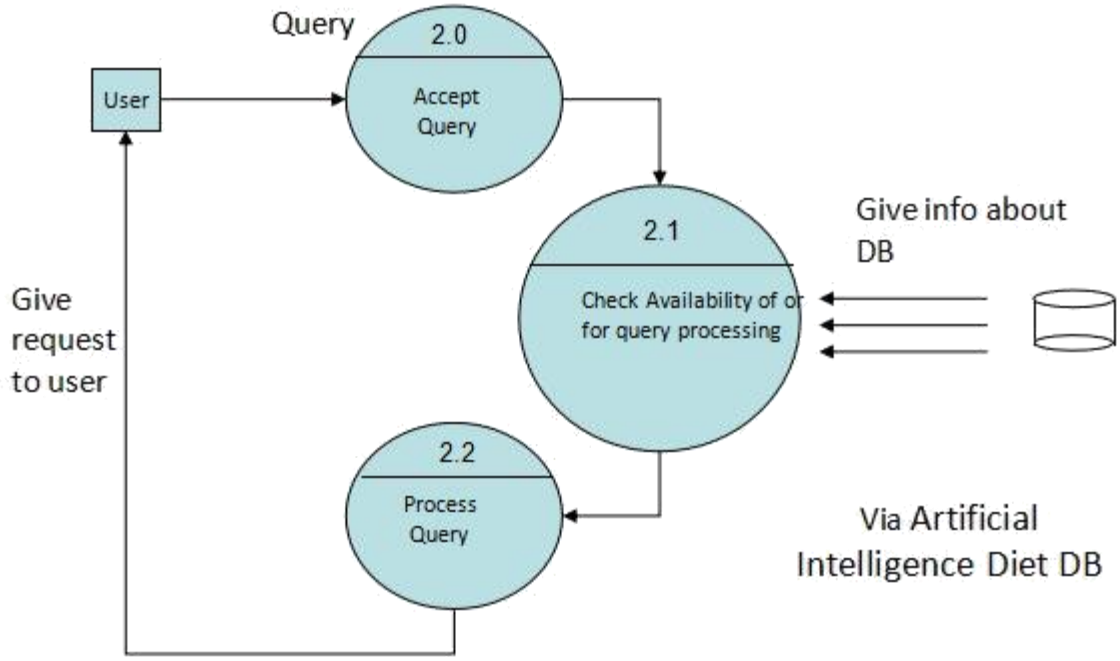
Here, the main functions carried out by the system are highlighted as we break into its sub-processes.



LEVEL 1 DFD

6.6 LEVEL 2 DFD

2-level DFD goes one step deeper into parts of 1-level DFD.It can be used to plan or record the specific/necessary detail about the system’s functioning.



LEVEL 2 DFD: PREDICTION

6.7 Sequence Diagram

A **sequence diagram** shows object interactions arranged in time sequence. It depicts the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario.

Sequence diagrams are typically associated with use case realizations in the Logical view of the system under development. Sequence diagrams are sometimes called **event diagrams** or **event scenarios**.

A sequence diagram shows, as parallel vertical lines (*lifelines*), different processes or objects that live simultaneously, and, as horizontal arrows, the messages exchanged between them, in the order in which they occur. This allows the specification of simple runtime scenarios in a graphical manner

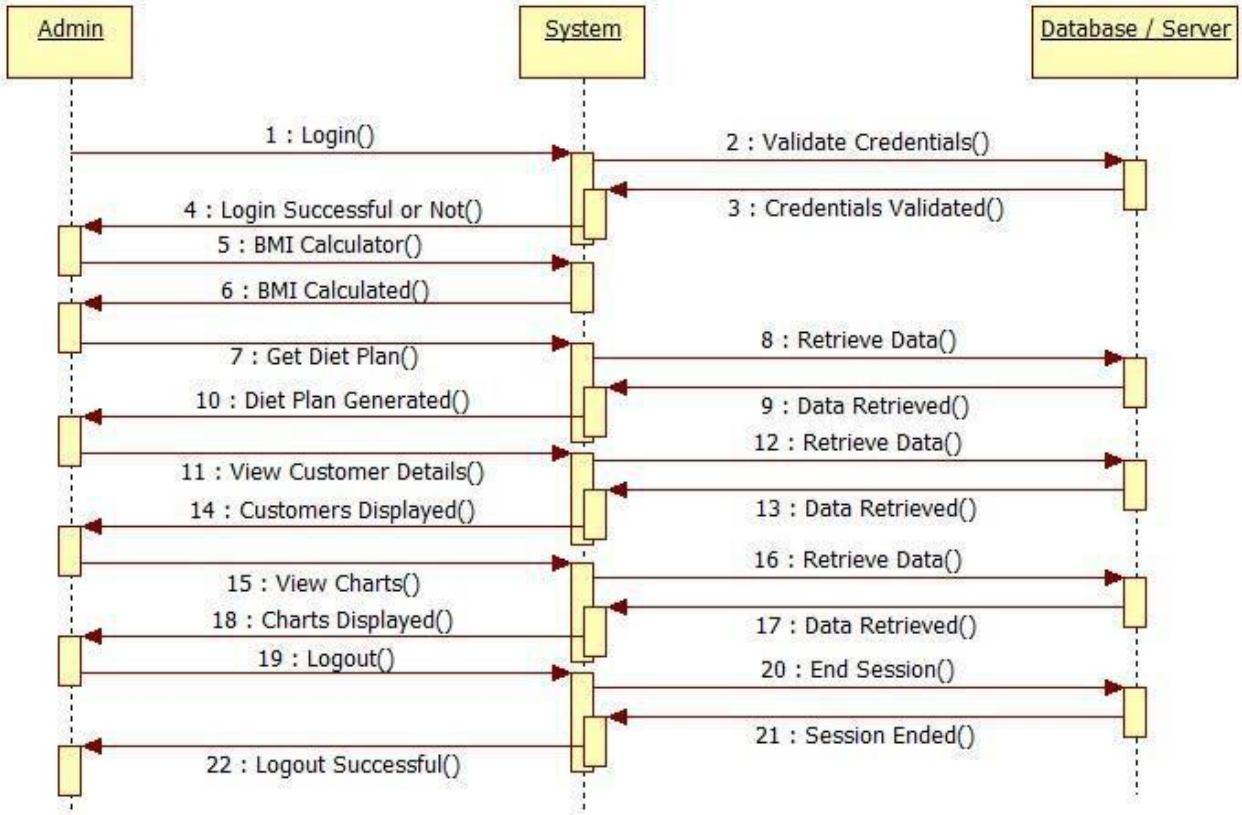


Fig. Sequence Diagram of Admin

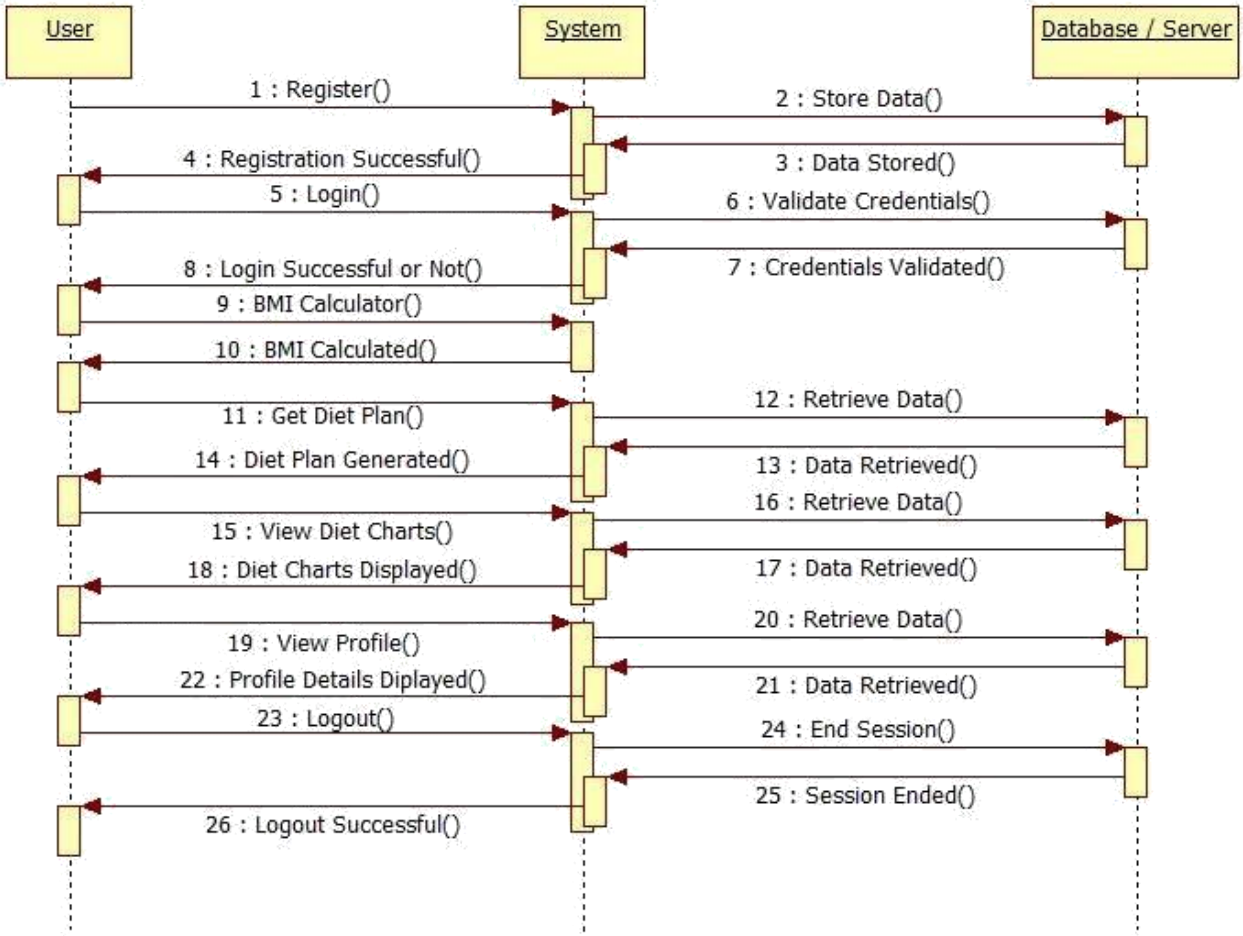


Fig. Sequence Diagram of User

6.8 Activity Diagram

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. The activity diagrams are intended to model both computational and organizational processes (i.e., workflows), as well as the data flows intersecting with the related activities. Although activity diagrams primarily show the overall flow of control, they can also include elements showing the flow of data between activities through one or more data stores.

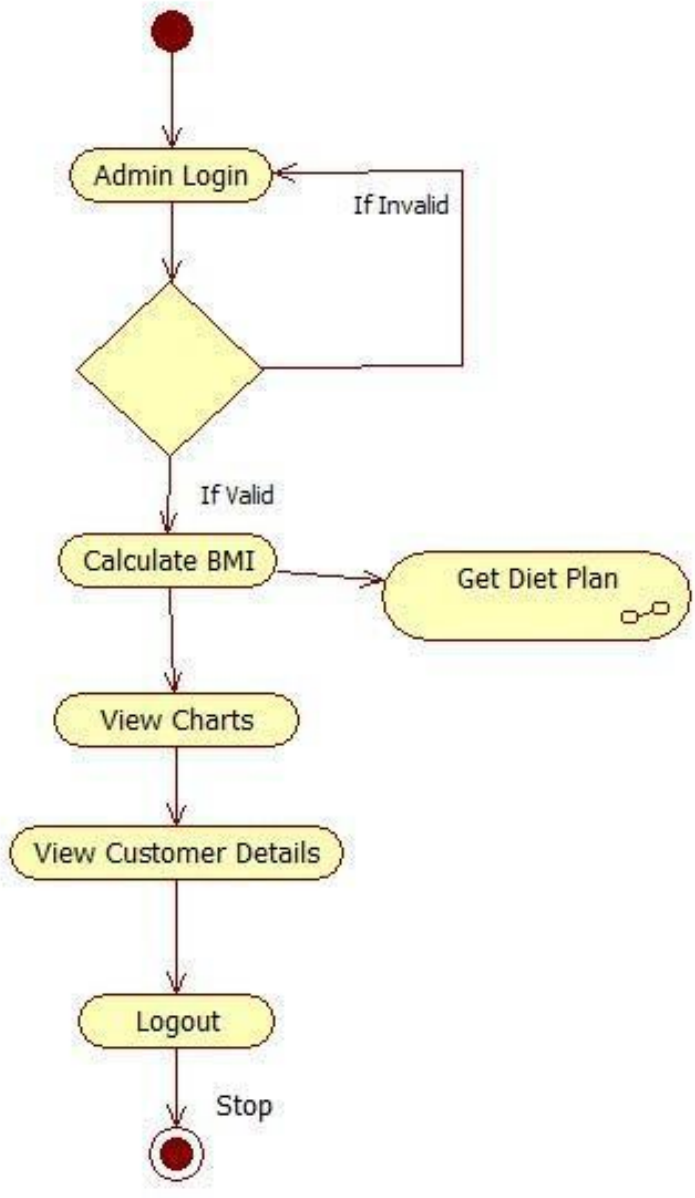


Fig. Activity Diagram of Admin

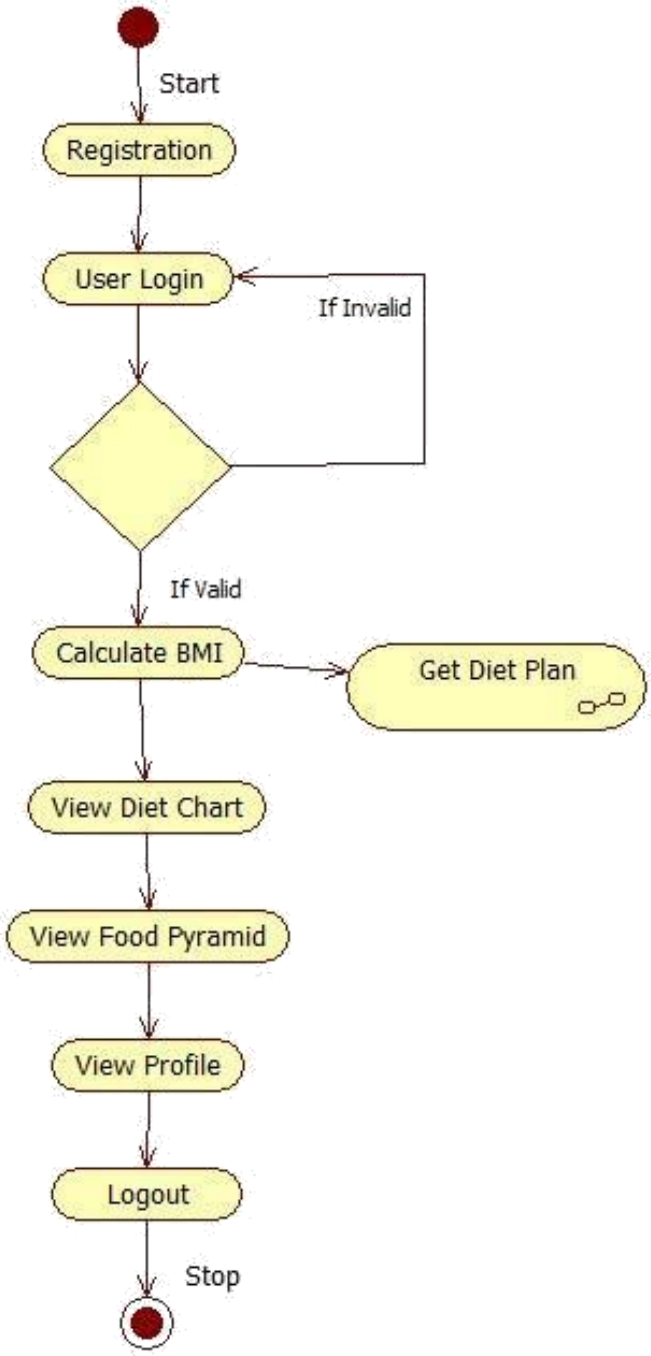


Fig. Activity Diagram of User

6.9 Class Diagram

A **class diagram** is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among objects.

The class diagram is the main building block of object oriented modeling. It is used for general conceptual modelling of the structure of the application, and for detailed modeling translating the models into Programming code. Class diagrams can also be used for data modelling. The classes in a class diagram represent both the main elements, interactions in the application, and the classes to be programmed.

In the diagram, classes are represented with boxes that contain three compartments:

1. The top compartment contains the name of the class. It is printed in bold and centered, and the first letter is capitalized.
2. The middle compartment contains the attributes of the class. They are left-aligned and the first letter is lowercase.
3. The bottom compartment contains the operations the class can execute. They are also left-aligned and the first letter is lowercase.

In the design of a system, a number of classes are identified and grouped together in a class diagram that helps to determine the static relations between them. With detailed modeling, the classes of the conceptual design are often split into a number of subclasses.

In order to further describe the behaviour of systems, these class diagrams can be complemented by a State Diagram

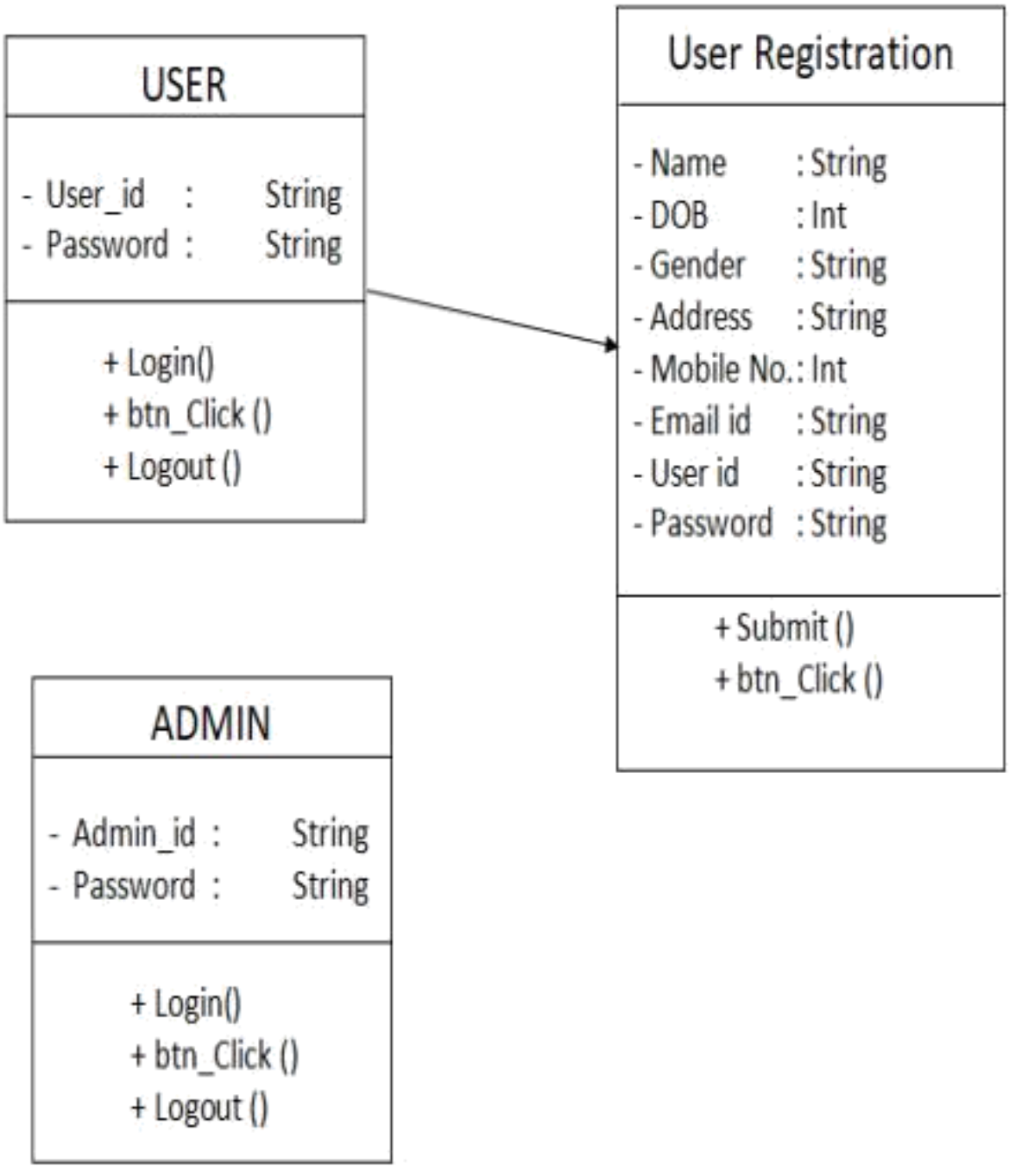

USER
- User_id : String
- Password : String
+ Login()
+ btn_Click ()
+ Logout ()
User Registration
- Name : String
- DOB : Int
- Gender : String
- Address : String
- Mobile No. : Int
- Email id : String
- User id : String
- Password : String
+ Submit ()
+ btn_Click ()
ADMIN
- Admin_id : String
- Password : String
+ Login()
+ btn_Click ()
+ Logout ()

Fig :Class Diagram

7. ADVANTAGES OF PROJECT

1. No need of consulting doctor for diet plans.
2. This system provides full details of the nutrient constitution in body and if required more or not along with the plan by just answering to some queries.
3. Saves money and very effective and give accurate results as it is coded with keeping diet chart in mind.
4. There are alternative diet chart provided by the system if the user don't like any.

7.1 Limitations:

- One has to be sure about their details while entering fields like age height weight working hours and many more otherwise this system would give results that is not suitable for user if not sure about what they entered.

7.2 Applications:

- Dietitians can use this system to make sure what they recommend patients.

- This system can be very well used in medical colleges for teaching and practicing purposes so that student can learn from it.
- This system can also be utilized in gym particularly for calculating the customers' calories and diet plans.
- Individual can also use this software especially for themselves in home.

7.3 Features

1) Load Balancing:

Since the system will be available only the admin logs in the amount of load on server will be limited to time period of admin access.

2) Easy Accessibility:

Records can be easily accessed and store and other information respectively.

3) User Friendly:

The Website will be giving a very user friendly approach for all user

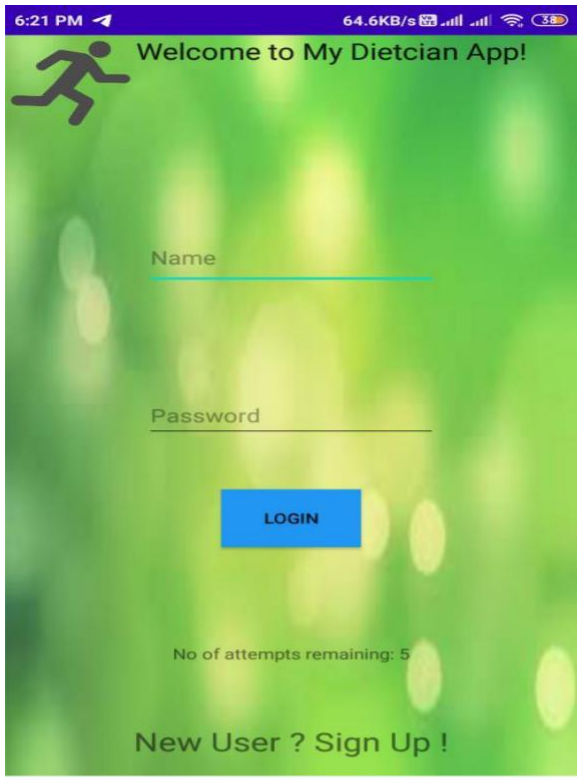
4) Efficient and reliable:

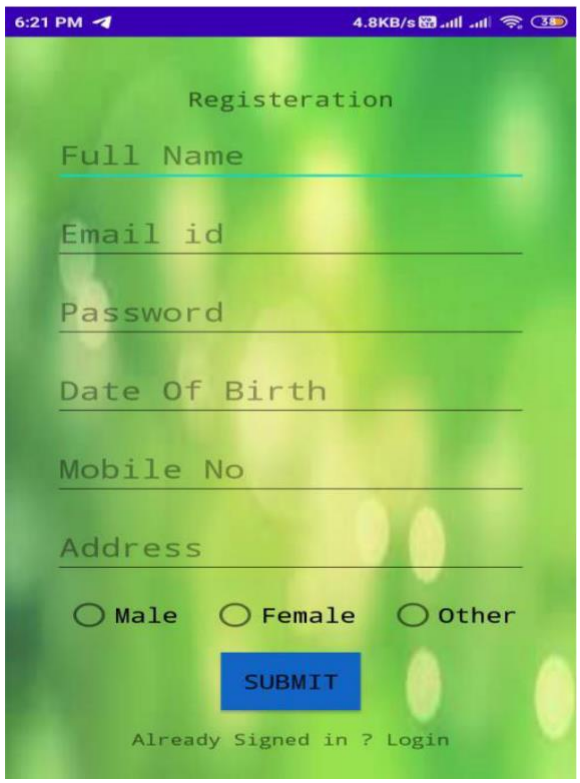
Maintaining the all secured and database on the server which will be accessible according the user requirement without any maintenance cost will be a very efficient as compared to storing all the customer data on the spreadsheet or in physically in the record books.

5) Easy maintenance:

Artificial Intelligence Diet website is design as easy way. So maintenance is also easy.

8. Expected Results


6:21 PM
64.6KB/s
Welcome to My Dietcian App!
Name
Password
LOGIN
No of attempts remaining: 5
New User ? Sign Up !


6:21 PM
4.8KB/s
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Full Name
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Password
Date Of Birth
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Address
Male
Female
Other
SUBMIT
Already Signed in ? Login

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weight
weight
height
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CALCULATE BMI
BODY MASS INDEX
WOMEN
NORMAL WEIGHT
Age BMI
19-24 19-24
25-34 20-25
35-44 21-26
45-54 22-27
55-64 23-28
AB 65 24-29
MEN
Underweight <18.5
Healthy 18.5-24.9
Overweight 25.0-29.9
Obese >40.0

6:21 PM
2.4KB/s
weight
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height
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NORMAL WEIGHT
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35-44 21-26
45-54 22-27
55-64 23-28
AB 65 24-29
MEN
Underweight <18.5
Healthy 18.5-24.9
Overweight 25.0-29.9
Obese >40.0


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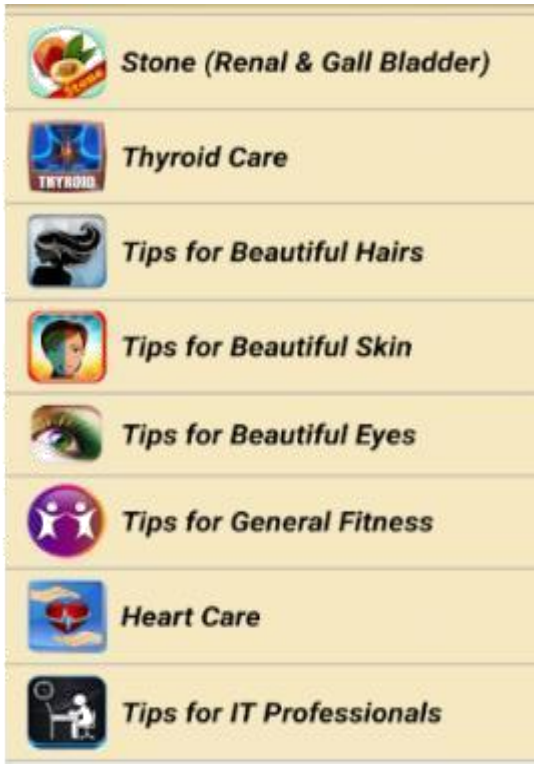
Text Here


Stone (Renal & Gall Bladder)
Thyroid Care
Tips for Beautiful Hairs
Tips for Beautiful Skin
Tips for Beautiful Eyes
Tips for General Fitness
Heart Care
Tips for IT Professionals


Anemia Care
Digestion & Metabolism Tips
Celiac Disease & Wheat Allergy
Diabetes Care
Hypertension (High BP)
Hypotension (Low BP)
Weight loss Tips

9.CONCLUSION

Artificial Intelligence and the technology are one side of the life that always interest and surprise us with the new ideas, topics, innovations, products …etc. AI is still not implemented as the films representing it (i.e. intelligent robots), however there are many important tries to reach the level and to compete in market, like sometimes the robots that they show in TV. Nevertheless, the hidden projects and the development in industrial companies.

At the end, we've been in this research through the AI definitions, brief history, and applications of AI in public, applications of AI in military, ethics of AI, and the three rules of robotics. This is not the end of AI, there is more to come from it, who knows what the AI can do for us in the future, maybe it will be a whole society of robots.

10. REFERENCE

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