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Rafi3ah

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Abstract

Because of the problems of overweight that lead to the deterioration of health and the impediment of human movement and the loss of the ability to carry out basic tasks, so we decided to take a step to solve the problem through a program that simulates a nutrition doctor and encourages the patient to lose weight in a healthy way by using Rasa framework, Mysql database, java spring (Rest API), and Android. The app has many features like authentication, response for the user, suggesting a plan, calculating calories and motivate the user to achieve his goal in a healthy way.

Table of Contents

List of Figures

Chapter 1
Introduction

1.1 Background

A condition known as obesity involves having too much body fat. Obesity is more than simply a visual issue. It is a medical condition that raises the chance of various illnesses and conditions, including heart disease, diabetes, high blood pressure, and some malignancies. There are numerous causes why some people struggle to lose weight. Obesity typically comes from a combination of dietary, physical activity, and exercise decisions along with genetic, physiological, and environmental factors. Therefore, we try to help those people in order to make them lose their excess weight in a healthy way by making a program that simulates a nutrition doctor and has an encourager and an alarm and tells them what they should eat for breakfast, lunch, dinner and snacks that maintain their health and help them reach the ideal weight.

1.2 problem definition

The necessity to create an efficient weight loss management approach is crucial given the ongoing rise in the obesity rate. Professional dietitians now have the opportunity to offer in-depth monitoring support to their clients via a chatbot with artificial empathy thanks to the development of artificial intelligence (AI) and cognitive technologies, as well as the quick spread of messaging platforms and mobile technology with easier access to internet technology. The goal of this project was to create "Rafi3ah," a chatbot with artificial motivational support for weight loss.

1.3 Related Work

1.3.1 Similar programs

1. Lark chatbot
2. SlimMe chatbot
3. Jolt.ai chatbot

1.3.2 The main differences between them and our project

	Rafi3ah	Lark	SlimMe	Jolt.ai
Language	Arabic	English	English	English
Free	Yes	No	No	No
available	All time	7 hours per day	All time	All time
Platform	Android app	Mobile app	Mobile app	Facebook Messenger

Chapter 2
project specification

2.1 System Architecture

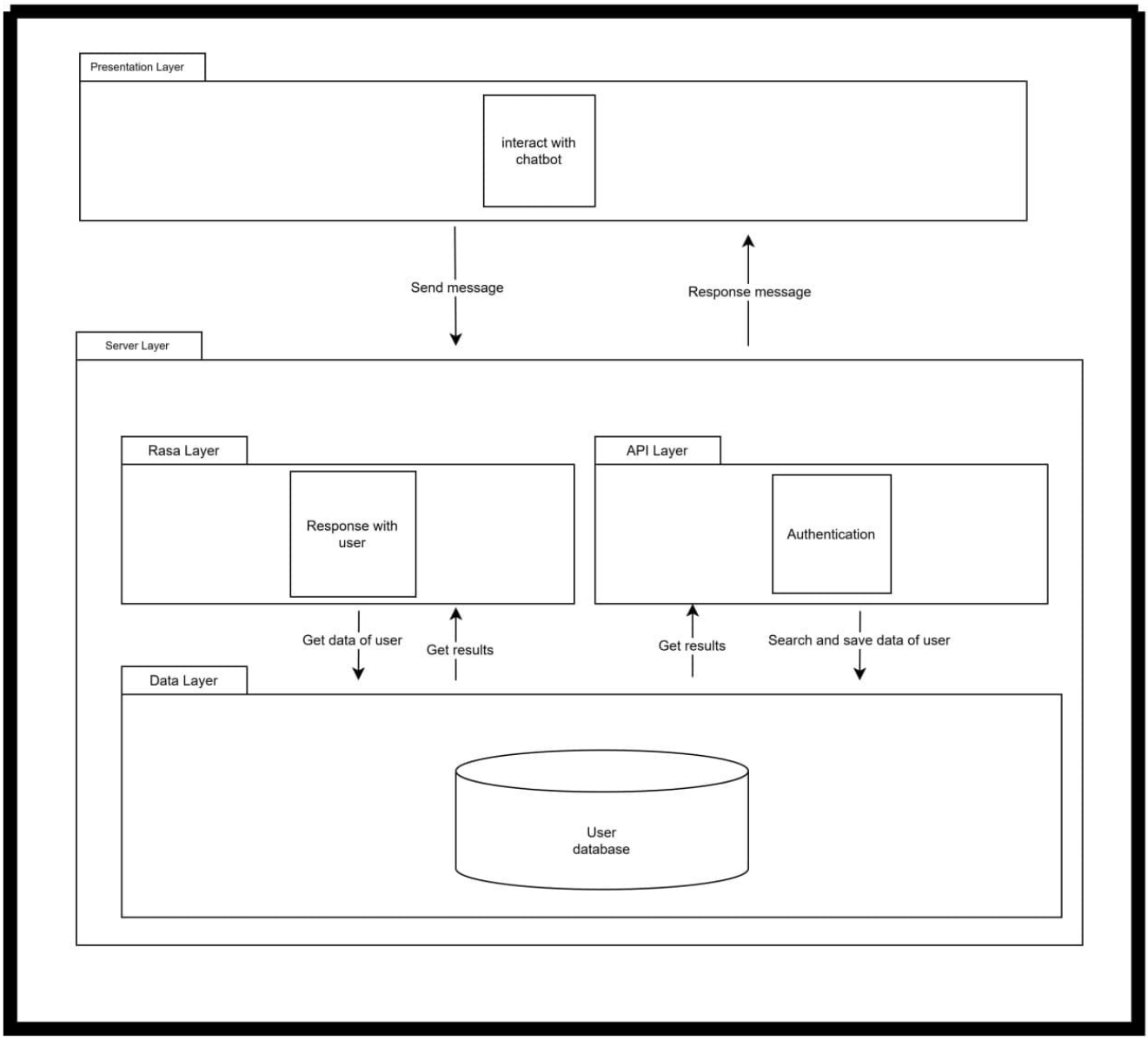


Fig 2.1 System Architecture

2.2 Stakeholders

1. users (Adults): interact with chatbot
2. Developers: implement the system
3. nutrition expert: give us advices about what is the data should collect from user and The steps we will use to determine the user plan

2.3 Functional Requirements

- user should register first in the application.
- user enter the data (name – email – password – age – weight – height – activation rate) to his profile.
- user login by email and password.
- the API calculate the daily calories that the user will need.
- Rasa chatbot start the conversation with the user.
- User can ask chatbot about the (breakfast – launch – dinner – snacks) plan every day.
- User can update his weight.
- Chatbot can notify the user by messages to remind and motivate him.
- Chatbot can count the steps of the user.
- Chatbot intelligent conversional rather than fixed conversational.
- Rasa system analyses the user information to give him a customized diet plan.
- User can ask Rasa chatbot about any food/drink calories and rasa calculates it.
- User can ask Rasa chatbot about some exercises.
- User can ask Rasa chatbot about how to made a meal.
- Save the conversation between the user and Rasa chatbot.

2.4 Non-Functional Requirements

- ❖ Security
  - Password generation: An application may not grant access until the user. creates a strong password. For example, a strong password might contain a certain number of characters and a capital letter.
  - Email validation: API check the email of the user if it is valid or not.
  - Database protection.
- ❖ Portability
  - android mobile application.
  - WhatsApp.
- ❖ Reliability

2.5 Use Case Diagram

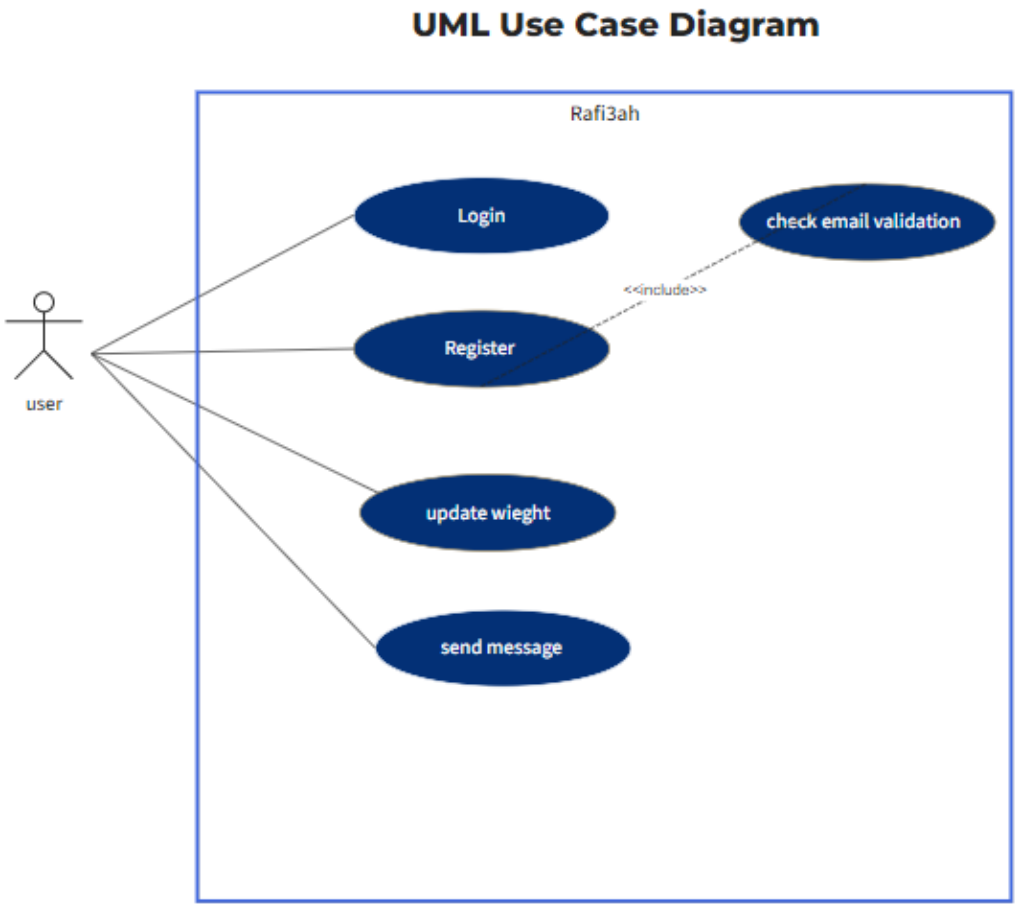
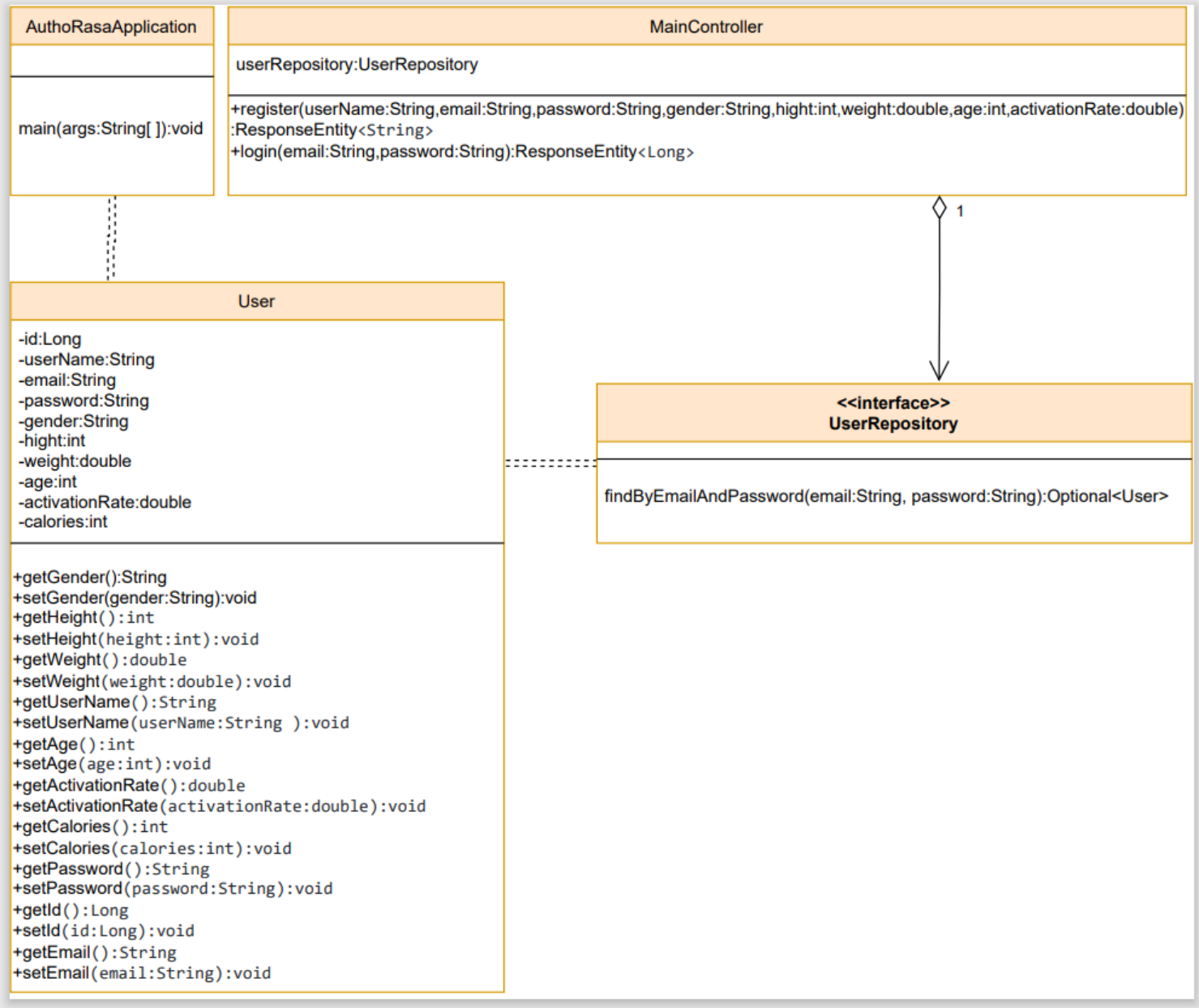


Fig 2.5 Use Case Diagram

2.6 Class Diagram



2.7 Sequence Diagrams

1. Register sequence diagram

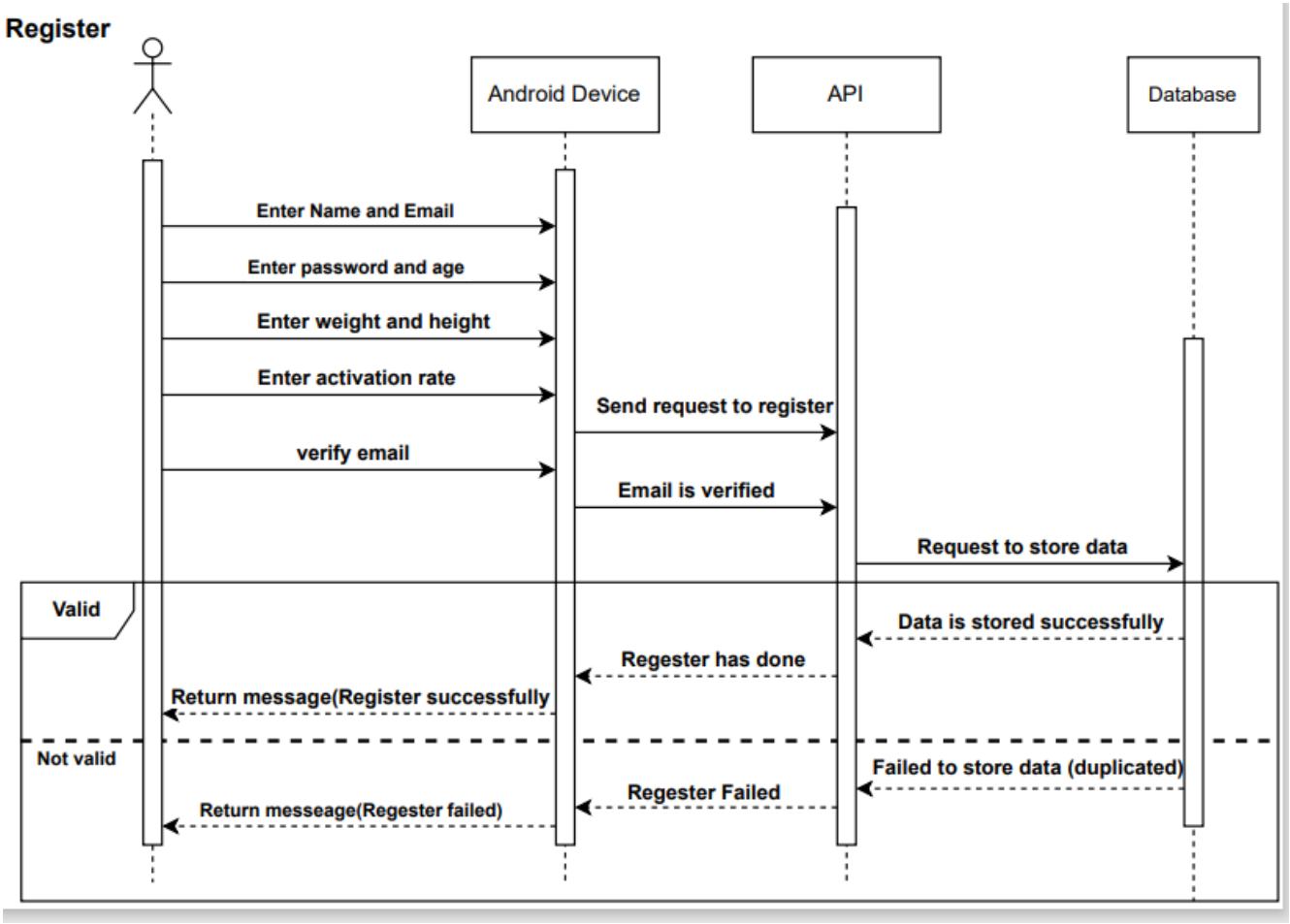


Fig 2.6.1 Register sequence diagram

2. Login sequence diagram

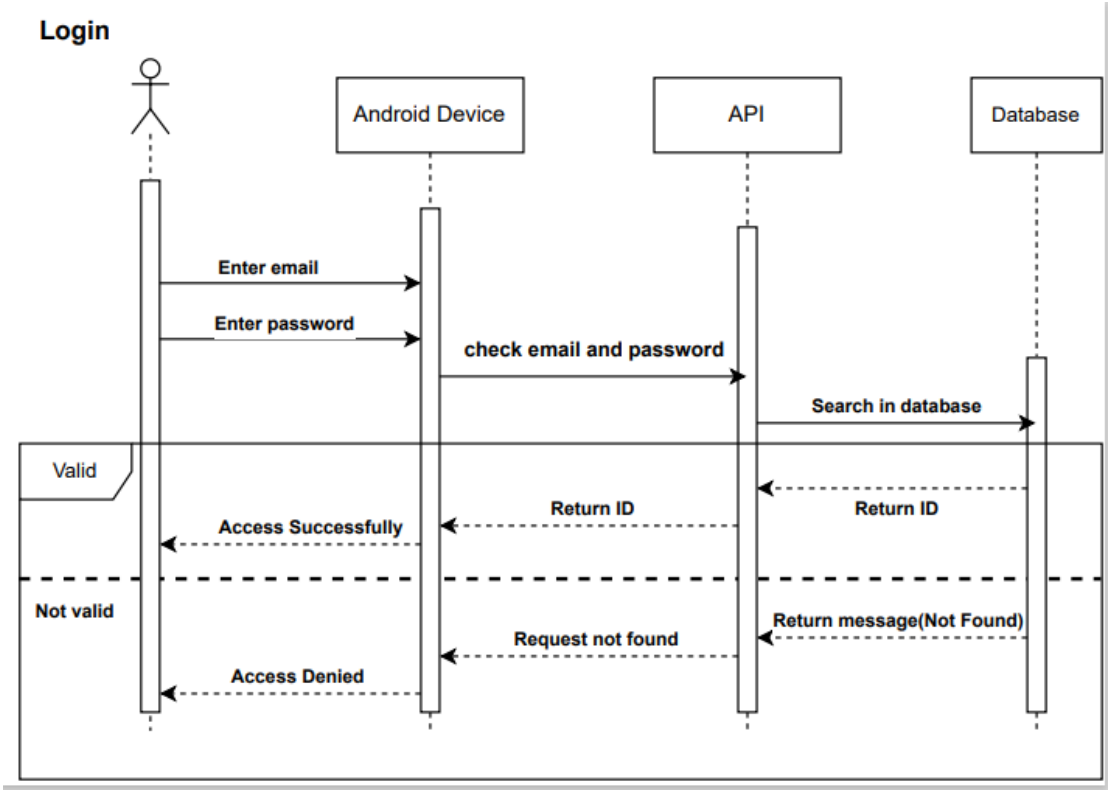


Fig 2.6.2 Login sequence diagram

3. Send Message sequence diagram

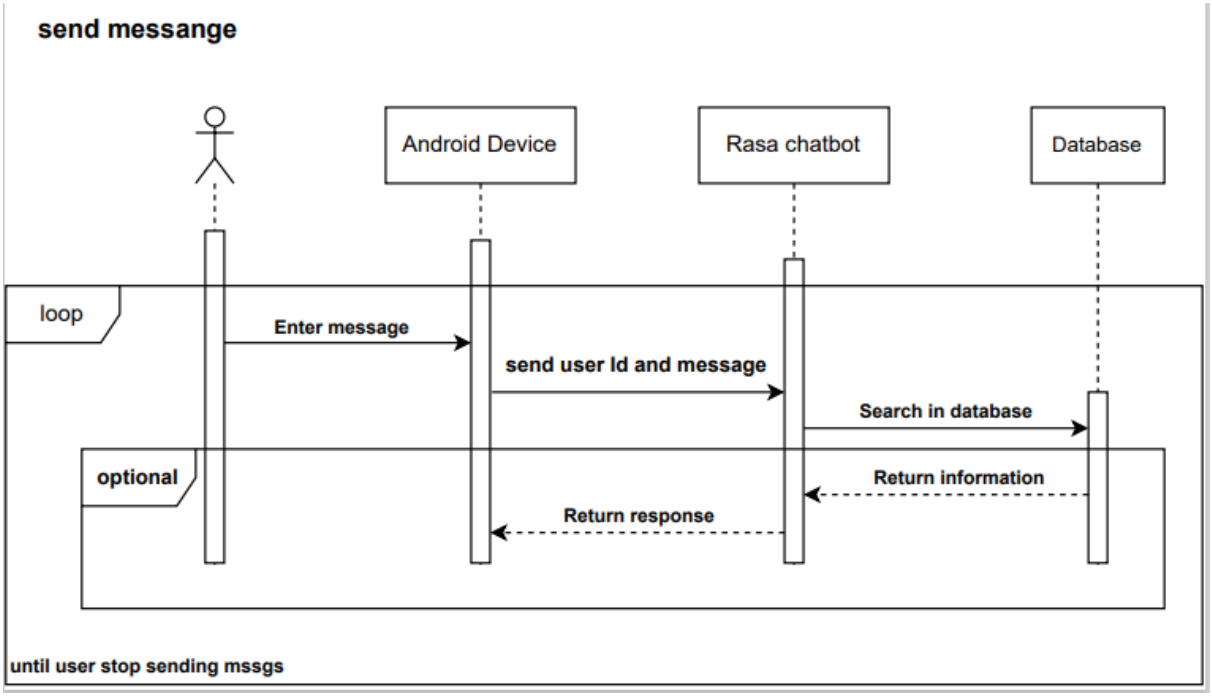


Fig 2.6.3 Send Message sequence diagram

2.8 ERD Diagram

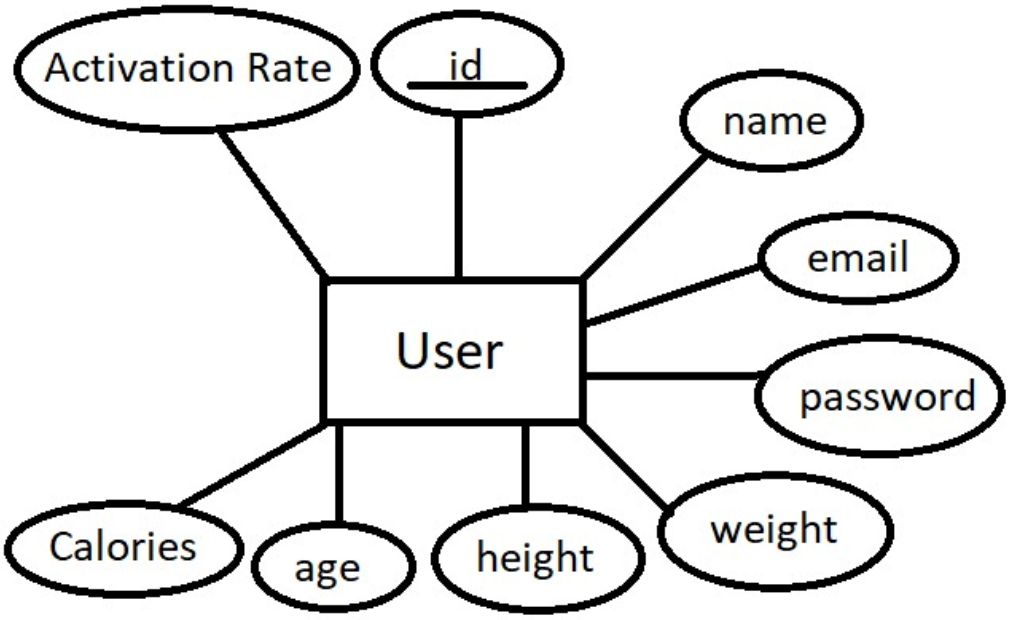


Fig 2.7 ERD Diagram

2.9 Tools and Technology

Tool / Technology	Usage
Andriod (in cotlin)	Using android to build an application which connect to the server
Rasa framework	Is used for building a conversational chatbot to interact with user
REST API	Is used for sending & receiving requestes such as login & register process
Mysql Database	Is used for storing data and making queries on data
Draw.io	Is used for making the diagrams

Chapter 3

3.1 Work Plan

Task	Task Title	Description	Task status (completed/expected in time)
1	learn of the rasa framework	we need to learn: ✓ Basics of rasa ✓ Train the chat bot ✓ Custom action • Custom machine learning • Slots	In March
2	welcome message	✓welcome message by chatbot in Arabic	Completed
3	Run rasa on the server	✓Test requests on PostMan	Completed
4	Build a database	✓Build database and make rasa access it	Completed
5	Build Rest API	✓Build Rest API by java spring (Login & Register)	Completed
6	Make a plan for 1000 calories in excel sheets	✓ Make a plan for 1000 calories in excel sheets and rasa use the sheet to show the plan for the user	Completed
7	Integrate rasa with android mobile application	✓ Build the UI and implement it on the android , then integrate rasa with this app	Completed
8	Update in Rest API	• Update user's information in database	In 27 of March
9	Rasa send notifications	• Rasa send notification to user to remind him time of meals and motivate him by quotes	In 2 April
10	Make Rasa chat bot more Intelligent	• Make Rasa response to the user in a smarter responses	In 25 April
11	Customize the diet plan	• Rasa customize the diet plan according to the data of the user ex. If he has a disease	In 25 March

3.2 Refrences

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2. https://www.youtube.com/watch?v=lWP1K-IcAN4&t=5s
3. https://www.youtube.com/watch?v=8gvGh6H2NO0&t=4s
4. Frontiers | SlimMe, a Chatbot With Artificial Empathy for Personal Weight Management: System Design and Finding (frontiersin.org)
5. Do Chatbots for Dieting Work? - Lark Health
6. https://www.youtube.com/watch?v=VcbfcsjBBIg
7. Achieve Your Fitness Goals with the Help of Jolt.ai - Singapore Chatbots
8. https://1-a1072.azureedge.net/health/2015/8/30/%D9%85%D8%A7-%D9%87%D9%8A-%D9%85%D8%B9%D8%A7%D8%AF%D9%84%D8%A9-%D9%87%D8%A7%D8%B1%D9%8A%D8%B3-%D8%A8%D9%8A%D9%86%D8%AF%D9%8A%D9%83%D8%AA
9. https://spring.io/guides/
10. https://developer.android.com/guide

* Our GitHub project :

https://github.com/mazen20-mohamed/Lose-Weight-Arabic-Rasa-Chatbot-