FITNESS GOAL TRACKER

GROUP-02

KANIZ FATEMA(A23MJ4003)

Abdullah Mohammad Jaid (A23MJ4001)

SAUMIK HASAN ARPON (A23MJ3009)

TOPIC: Fitness Goal Tracker

Subject: System Analysis and Design (SECD2613)

Section: 15

Phase 3

1.0 Overview of the Project:

"A goal properly set is halfway reached." – Zig Ziglar. Our project with fitness goal tracking features are useful resources for anyone trying to get fitter and feel better. These projects provide users with motivational elements, individualised schedules, and thorough tracking to help them remain on track and accomplish their goals more successfully. Convenience of use, personal fitness demands are all important factors to consider. It might be difficult to have a healthy lifestyle in the fast-paced world of today. Many people find it difficult to reach their fitness objectives because they don't have the right support, incentives, or tracking systems. With the development of technology comes the chance to use mobile applications to offer a complete solution that efficiently assists users in setting, monitoring, and achieving their fitness objectives. Numerous features that address various facets of fitness, including as exercise, nutrition, sleep patterns, and general wellness, are provided by these programmes.

2.0 Problem Statement:

Careful planning, a solid grasp of user needs, and precise execution are necessary when working on a project for tracking fitness objectives. It is possible to develop a useful tool that efficiently assists users in reaching their fitness objectives by concentrating on the user experience, incorporating necessary features, and guaranteeing data privacy and security. In the ever-changing fitness industry, frequent updates and ongoing development based on user feedback will guarantee the app's relevance and usefulness.

Some potential Problems While Developing a *Fitness Goal Tracker* projects are:

- **Requirement Gathering and Scope Creep:** collecting all user requirements precisely and preventing scope creep in the development process.

- **User Experience (UX) Design Challenges:** creating an interface that is easy to use and intuitive for users of all fitness levels.

- **Integration with Wearable Devices:** guaranteeing smooth interaction with a range of fitness applications and wearable technology.

- **Data Privacy and Security:** Protecting sensitive user data (e.g., health metrics, personal information) from breaches and ensuring compliance with data protection regulations.

- **Maintaining Accurate Data Tracking:** Ensuring the accuracy of tracked data, such as calories burned, steps taken, and food intake.

- **User Engagement and Retention:** sustaining long-term user motivation and engagement to reduce high churn rates.

3.0 Proposed Solutions:

Risks can be reduced, and the project of a *fitness goal tracker* can be successfully completed by proactively addressing these possible issues with careful planning and practical solutions.

- **Requirement Gathering and Scope Creep:** Establish up front certain project goals and needs. Verify and oversee modifications on a regular basis to make sure they meet the project's goals.

- **User Experience (UX) Design Challenges:** To get input and make design iterations, conduct usability testing and user research. Use UX best practices to make sure the application is simple to use.

- **Integration with Wearable Devices:** Make use of the SDKs and standard APIs that device makers have given. Carry out comprehensive testing on various devices to guarantee compatibility.

- **Data Privacy and Security:** Adhere to laws like the CCPA and GDPR, use strong encryption techniques, and secure authentication procedures. Audit and upgrade security measures on a regular basis.

- **Maintaining Accurate Data Tracking:** Incorporate dependable algorithms and data sources. Permit users to make manual corrections to entries to fix any errors.

- **User Engagement and Retention:** Establish a positive community atmosphere, give frequent feedback and progress updates, and use gamification components (such as challenges and incentives).

4.0 Information gathering process:

Understanding user demands, establishing project objectives, and making sure the built product lives up to user expectations all depend on the information gathering process. These are a few practical techniques that can be applied.

4.1 Method used:

Questionnaires & Surveys:

Gather both quantitative and qualitative information from a big number of users.
Usage: Ask prospective customers about their exercise routines, obstacles they face, and features they would like to see in a fitness related project by using online survey platforms (such as SurveyMonkey and Google Forms).
Benefits include being affordable, having a wide audience reach, and offering statistical insights.
Cons: Responses could be shallow and have poor response rates.

Workshops and Idea Generation:

Description: Idea generation and requirement definition workshops with stakeholders and possible users.
Utilisation: Arrange workshops to generate ideas for features and rank requirements among a variety of stakeholders, including developers, designers, and users.
Benefits: Promotes teamwork and produces a variety of ideas.
Cons: May need expert facilitation and be challenging to handle.

Competitive Examining:
Examine current fitness PROJECTS to determine their features, advantages, and disadvantages.
Usage: Examine and evaluate the most popular fitness PROJECT available to find characteristics that they have in common, user feedback, and holes in the market that your app could close.
Benefits: Offers chances for distinction and insights into industry norms.
Drawbacks: Doesn't offer direct user input.

Testing for Usability:

Description: Get user input on the usability and functionality of prototypes or current projects.
Usage: To find usability problems and get feedback, run usability tests where users complete predetermined tasks on a fitness project prototype.
Benefits: Accurately pinpoints usability problems and obtains useful input.
Cons: Needs a working prototype and may need a lot of resources.
Observation:

Description: Watch people in their natural habitat to learn about their habits and difficulties.
Cons: May require a lot of time and effort.
Benefits: Offers practical insights and contextual comprehension.
Cons: May be time-consuming and invasive.

4.2 Summary from method used (include example Interview/Questionnaire/Observation):

Watching people in their natural habitat to learn about their habits and difficulties May require a lot of time and effort. Offers practical insights and contextual comprehension May be time-consuming and invasive.
A thorough information-gathering procedure was used to create a fitness goal tracking project that works. The project requirements were defined, and insights were gathered using the following techniques:

- Interviews
- Observation
- Surveys

- **Interviews:**

  Goal: To compile comprehensive information about user requirements, obstacles, and preferences with relation to fitness tracking.

  Method:
  20 potential users, including fitness enthusiasts, novices, and trainers, were interviewed one-on-one.
  Participants were able to discuss their expectations and experiences in-depth through structured interviews with open-ended questions.

  Key Questions:
  - What are your primary fitness objectives?
  - What obstacles must you overcome to accomplish these objectives?

- Which of the current fitness monitoring features do you think is most helpful?
- What features would you like to see added to a fitness monitoring system?

Findings:

Consumers seek goal-setting tools that they can modify to suit their own requirements.

Accurate and user-friendly fitness and nutrition tracking devices are in high demand.

Users underlined the value of reminders, progress tracking, and peer support in fostering motivation.

Fitness instructors emphasised the value of customised training regimens and the capacity to monitor clients' advancement.

2. Questionnaires:
The goal is to gather quantitative information from a larger group of people to find common patterns and preferences.

Method:

200 respondents in all were reached by means of social media and fitness communities with an online survey.
The survey had open-ended, Likert scale, and multiple-choice items.

Example Questions:

1.How often do you refer to fitness related projects for tracking your fitness?

- ☐ Every Day Every Week
- ☐ Every month
- ☐ Infrequently

2.What significance do you attach to the following features? On a scale of 1 to 5, rate

- tracking of workouts
- tracking of nutrition
- Objective-setting Community attributes

3.Which of the existing fitness projects is causing you the most frustration?

Results:

Fitness projects are used weekly or daily by 65% of respondents.
More than 80% of respondents ranked goal setting and workout tracking as the most crucial components.
Inaccurate tracking data and complex interfaces were frequent sources of annoyance.
Better wearable device integration was requested by several users.

3. Observation

Goal: Through analysing users' interactions with fitness project, we hope to get insight into user behaviour and obstacles in

real-world situations.

Method:

During the course of a week, 10 participants were observed using their favourite fitness tracking applications.
captured their conversations, challenges, and comments in real time.

Areas of Observational Focus:

- How do consumers use the app and navigate it?
- What problems do people run across when they chronicle meals and exercise?
- What is their reaction when they receive alerts and reminders?
- Which features are they most likely to use?

Results:

Complicated entry procedures or inadequate food databases frequently made it difficult for users to log meals.
Because notifications were bothersome, several participants turned them off or ignored them.
The fact that users often used the goal setting and progress tracking tools shows how important they are.
The inconsistency of wearable device integration was a source of annoyance.

5.0 Requirement Analysis (based on AS-IS analysis):

Examining fitness tracking project in their existing condition (AS-IS), spotting opportunities and gaps, and establishing the specifications for the new fitness goal tracker application are all part of the requirement analysis process. The results of the AS-IS study are summarised in this part and converted into specific requirements for the new application.

The AS-IS analysis was conducted through interviews, questionnaires, and observations, revealing the following key insights:

- ◊ Customization Needs
- ◊ Tracking Inconsistencies
- ◊ Motivation and Engagement
- ◊ User Experience Challenges
- ◊ Personalization and Recommendations
- ◊ Integration Issues

5.1 Current business process (scenarios, workflow):

Several crucial scenarios and actions required for managing fitness goals within a project are included in the existing business process. Every process has advantages and disadvantages that point up possibilities for development. By addressing these issues, participants will be more engaged, tracking will be more accurate, and they will

receive a personalised and inspiring experience that will help them reach their fitness objectives.

1. User Registration and Onboarding:

Scenario: The fitness monitoring project gains a new participant, who initiates the setup procedure.

Workflow:

→ Initiation
→ Registration
→ Profile Setup
→ Onboarding Tutorial
→ Goal Setting
→ Device Integration

2. Setting and Customizing Fitness Goals:

Scenario: Within the parameters of the project, a participant want to specify and personalise their fitness objectives.

Workflow:

1. Access Goal Setting
2. Select Goal Type
3. Define SMART Goals
4. Create Sub-Goals
5. Adjust Preferences

3. Tracking Workouts and Activities

Scenario: As part of the research, a participant keeps track of their daily workouts.

Workflow:

- Open Workout Log:
- Select Activity
- Log Details
- Automatic Tracking
- 10.Review Progress

4. Managing Nutrition and Diet

Scenario: As part of the research, a participant logs their food intake to control their diet.

Workflow:

- Open Nutrition Log
- Log Meals
- Track Nutrients
- Set Dietary Goals:
- Review Intak**e**

5. Motivation and Engagement

Scenario: A participant seeks motivation to maintain their fitness routine within the project.

Workflow:

- Progress Visualization
- Achievements and Badges
- Community Interaction
- Notifications and Reminders
- Personalized Feedback

6. Integration with Wearable Devices:

Scenario: A participant connects their wearable device to the project platform for automatic data syncing.

Workflow:

- Device Pairing
- Data Syncing
- Review Data
- Analyse Trends
- Adjust Goals

5.2 Functional Requirement (input, process and output) :

5.1.1 Establishing and Tailoring Objectives
FR1.1: Fitness goals must be SMART (Specific, Measurable, Achievable, Relevant, Time-bound), and users must be able to set and modify them.
FR1.2: Sub-goals and milestones should be able to be created by users of the application for thorough tracking.
FR1.3: Users ought to be allowed to revise and modify their objectives as necessary.

5.1.2 Tracking Exercise and Activities
FR2.1: The programme needs to include the ability to record and monitor different kinds of exercise (such as yoga, weight training, and cardio).
FR2.2: Through wearable device integration, users should be able to measure activities both automatically and manually.
FR2.3: The project ought to use graphs, charts, and logs to show progress.

5.1.3 Dietary Guidelines and Nutrition

FR3.1: A thorough food database containing nutritional data must be included in the application.

FR3.2: Barcode scanning and meal templates should enable users to promptly and precisely report their meals.

FR3.3: The project ought to offer customised meal plans according to the tastes and aims of the user.

5.1.4 Drive and Involvement

FR4.1: The software needs to have features like badges, achievements, and progress visualisations to inspire users.

FR4.2: Notifications and reminders for workouts, food recording, and hydration should be customisable for users.

FR4.3: Community elements that enable users to interact, exchange progress, and take part in challenges should be supported by the application.

5.1.5 Customisation and Suggestions

FR5.1: The project must provide individualised diet and exercise schedules based on users' fitness levels and goals.

FR5.2: Plans should be modified in response to user feedback and advancements.

FR5.3: Based on their data, users should receive recommendations for workouts, meals, and activities.

5.1.6 Utilising Wearable Technology

FR6.1: To automatically sync activity data, the programme needs to interface with well-known wearables (such Fitbits and Apple

Watches).
FR6.2: To ensure data accuracy, the integration should be smooth and consistent.
FR6.3: Data syncing between various platforms and devices should be possible for users.

5.3 Non-functional Requirement (performance and control)

5.2.1 Practicality
NFR1.1: The user interface of the programme must be simple to understand and easy to use.
NFR1.2: It ought to include simple menus and instructions that are straightforward to follow.
NFR1.3: The app must have the ability to quickly and precisely log meals and workouts.
5.2.2 Performance NFR2.1: The programme needs to launch rapidly and react to user input without causing appreciable lag.
NFR2.2: It must be made as user- and data-entry-friendly as possible.

5.2.3 Confidentiality and Safety
NFR3.1: The programme needs to utilise strong encryption techniques to safeguard user data.
NFR3.2: It must abide by laws pertaining to data protection, including the CCPA and GDPR.
NFR3.3: Users need to be in charge of their data and have the ability to export or remove it.
5.2.4 Trustworthiness
NFR4.1: There should be very little downtime and the application must be dependable and continuously available.
NFR4.2: To avoid data loss, it should manage backup and syncing of data effectively.

5.4 Logical DFD AS-IS system (Context Diagram, Diagram 0)

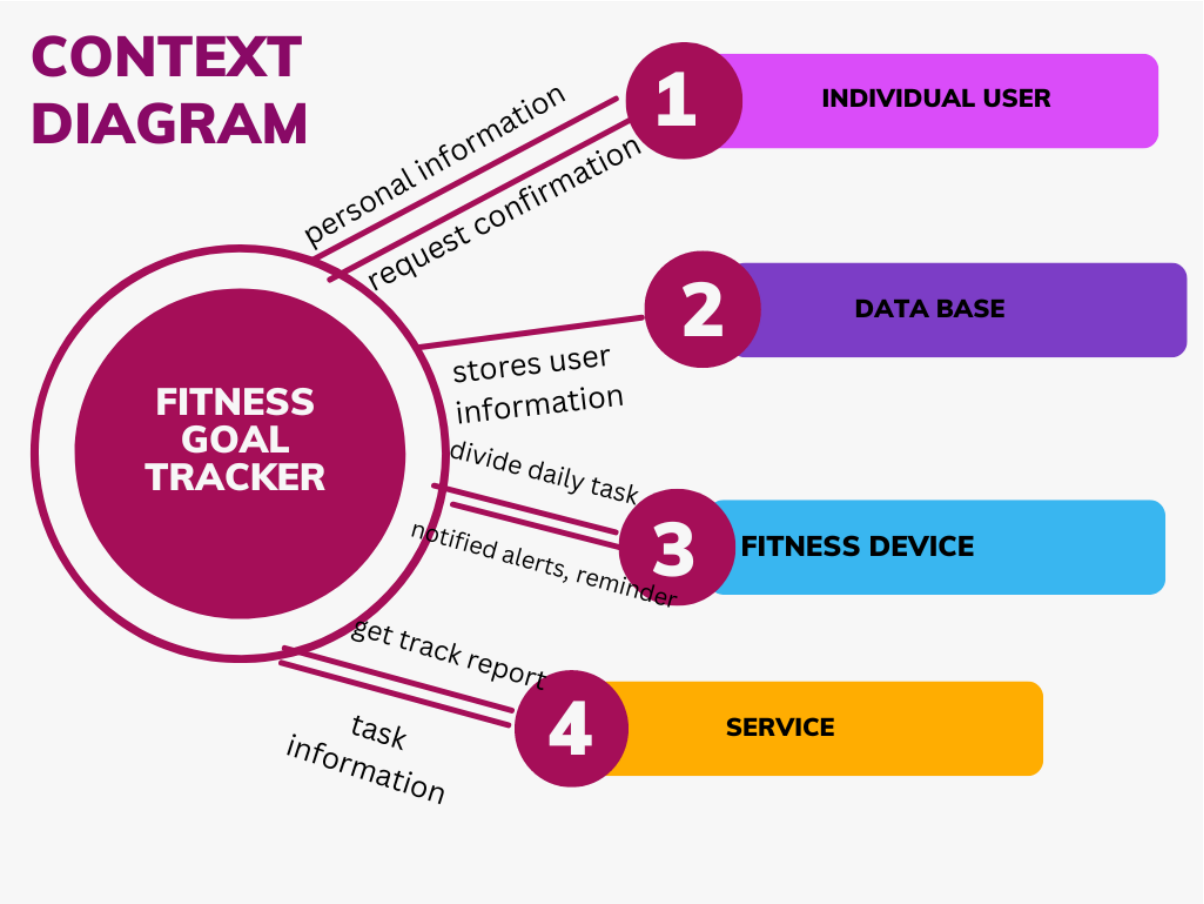


Figure5.4.1: Context diagram.

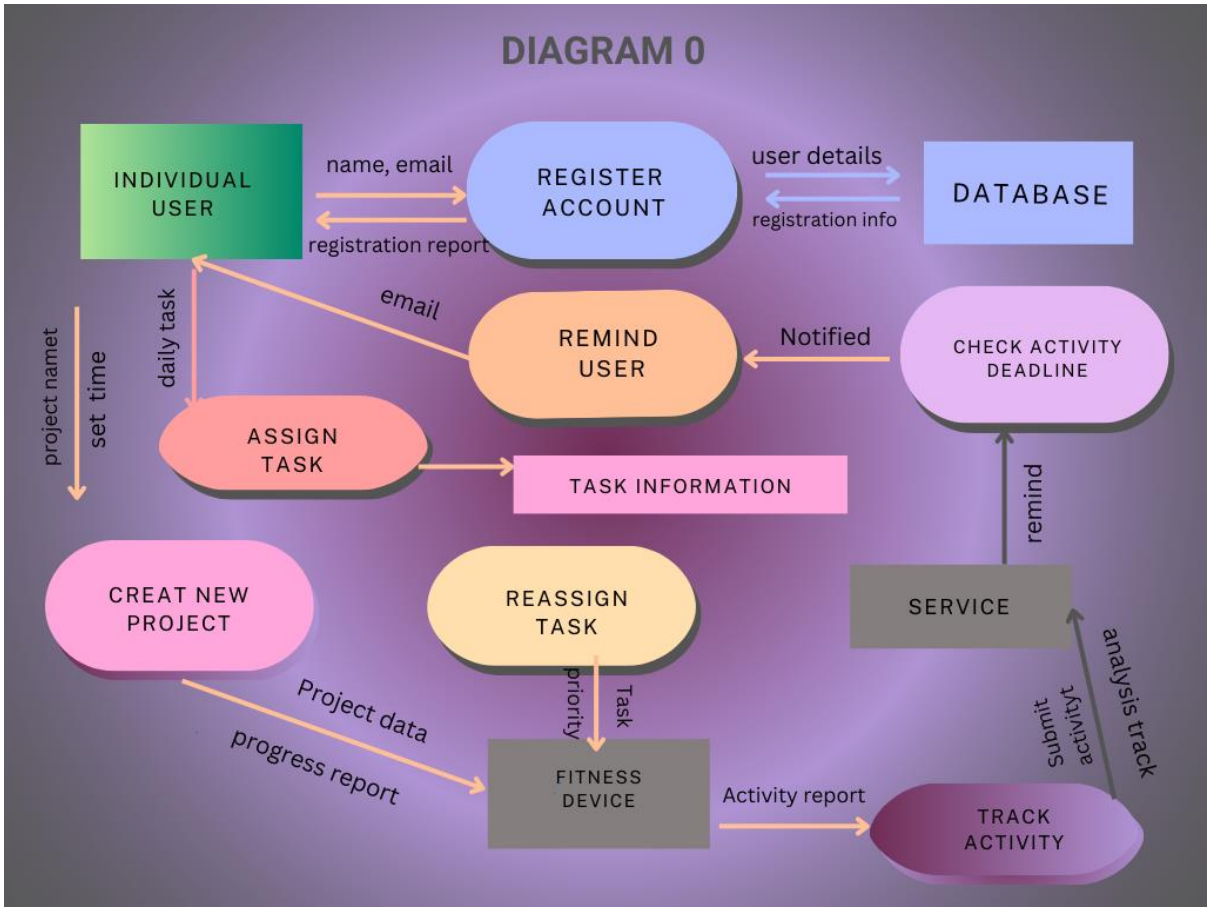


Figure5.4.2: Diagram 0

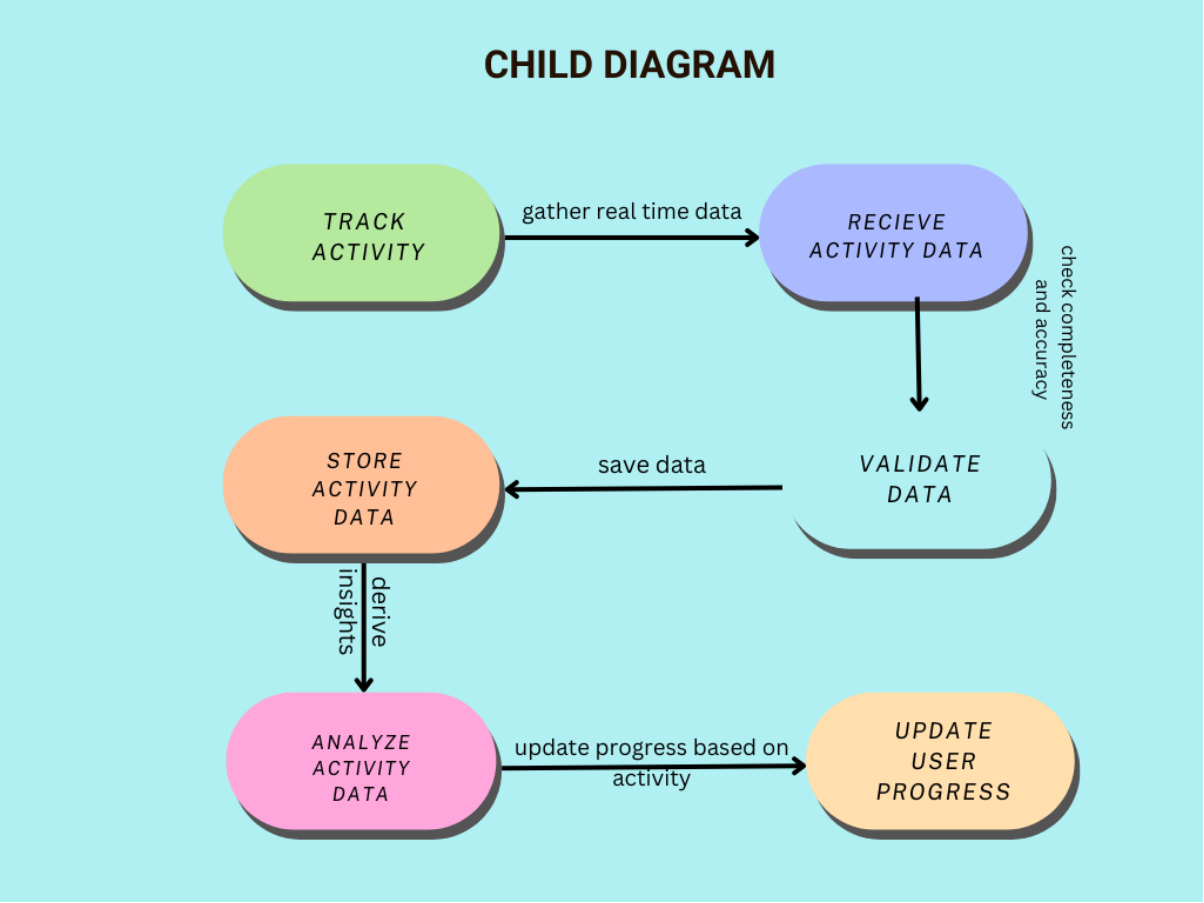


Figure5.4.3: Child diagram.

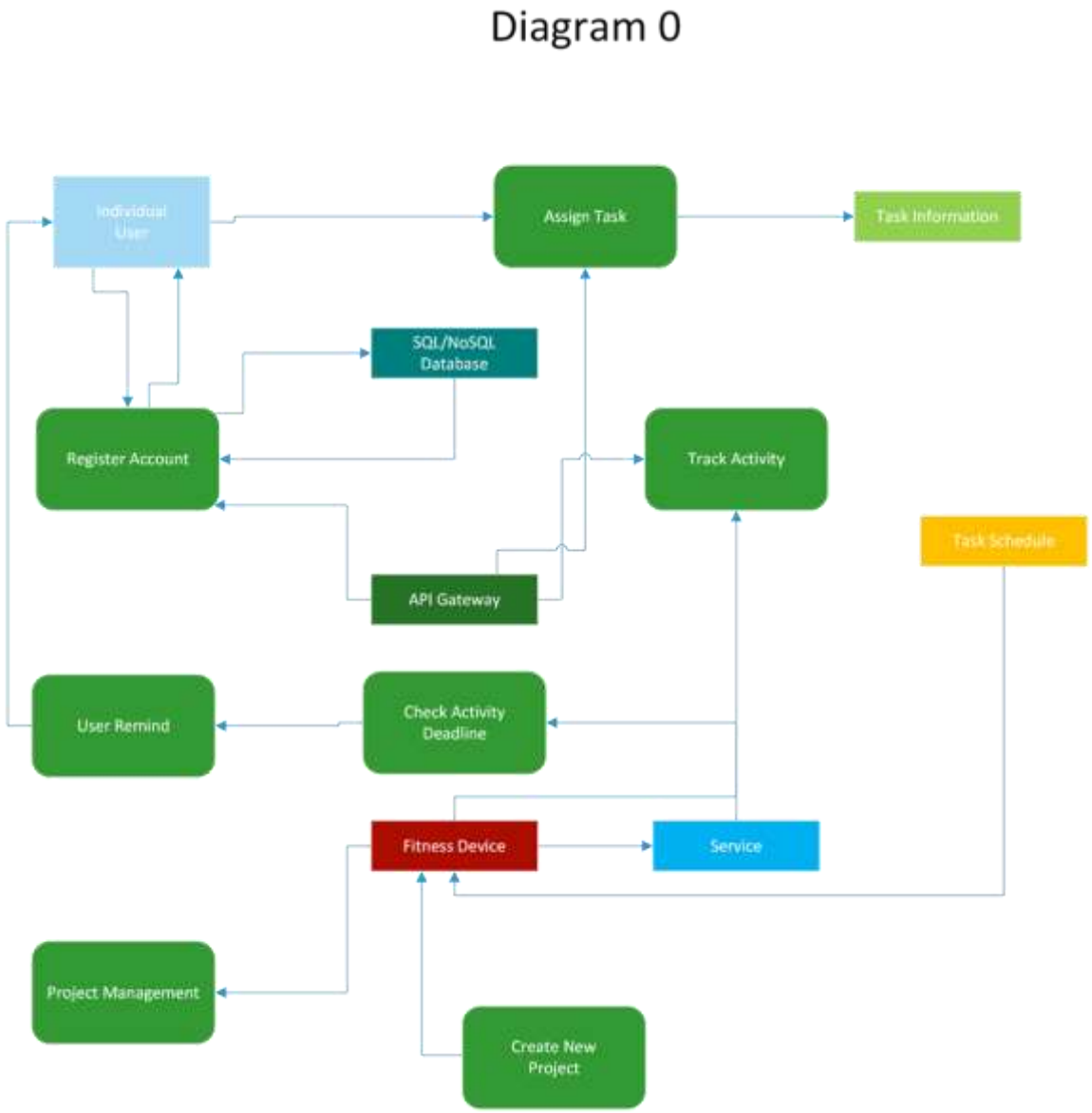
6.0 Summary of Requirement Analysis process:

The essential features and functionalities required for the new fitness goal tracker project have been discovered by the requirement analysis, which is based on the AS-IS analysis. This application attempts to offer a complete, user-friendly, and inspiring solution to assist users efficiently reach their fitness objectives by filling in the gaps and fixing the issues with other apps.

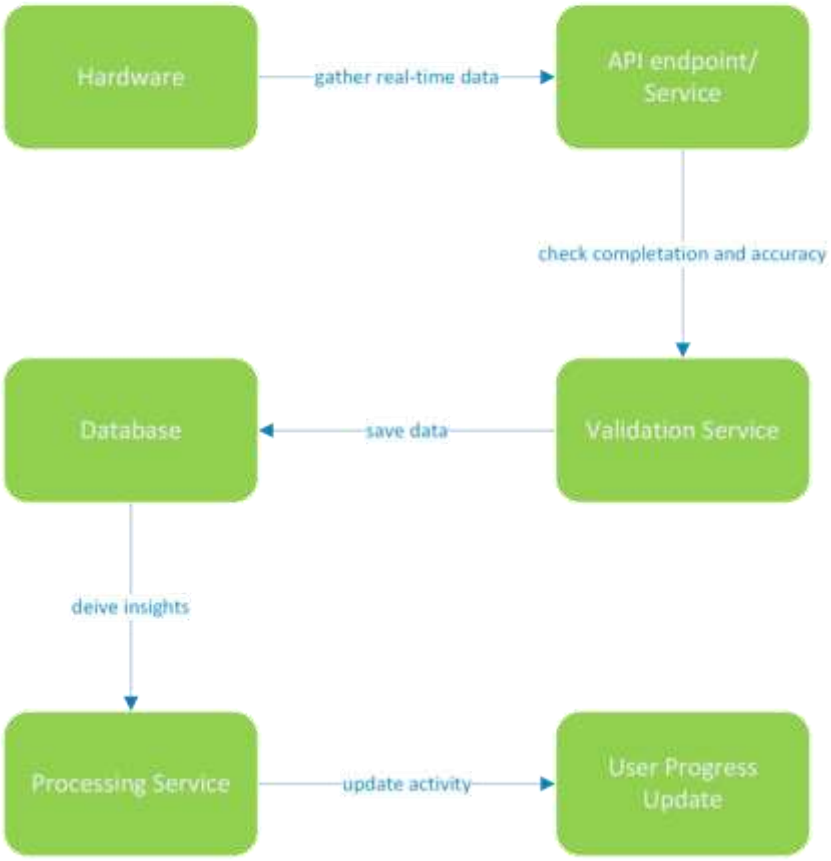
Through requirement analysis, the essential features and functionalities required to create a user-focused fitness goal tracker application were successfully discovered. The new project seeks to

offer a comprehensive, motivated, and personalised experience to assist users effectively accomplish their fitness goals by filling in the gaps and fixing the issues with the current apps.

7.0 Physical System Design



Physical Child Diagram



CRUD Matrix

Entities	Create	Read	Update	Delete
User	C	R	U	D
Fitness Goal	C	R	U	D
Workout	C	R	U	D
Nutrition	C	R	U	D
Device	C	R	U	D
Notification		R		D

Event Response Table

Event	Trigger	Response
User Sign-Up	User submits registration form	Create user profile, send confirmation email
User Login	User submits login form	Authenticate user, load profile data
Set Fitness Goal	User sets a goal	Save goal, update goal tracking
Log Workout	User logs workout	Save workout data, update activity tracking
Log Food Intake	User logs food	Save nutrition data, update nutrient tracking

Sync Device Data	Device syncs data	Update activity and health data
Send Notification	Scheduled event	Send notification to user

Structure Chart

1. **Main Menu**
    - User Management
        - Create User
        - Read User
        - Update User
        - Delete User
    - Fitness Goal Management
        - Create Fitness Goal
        - Read Fitness Goal
        - Update Fitness Goal
        - Delete Fitness Goal
    - Workout Management
        - Create Workout
        - Read Workout
        - Update Workout
        - Delete Workout
    - Nutrition Management
        - Create Nutrition Entry
        - Read Nutrition Entry
        - Update Nutrition Entry
        - Delete Nutrition Entry
    - Device Management
        - Pair Device
        - Sync Device Data
        - Read Device Data
        - Delete Device Pairing
        - Notification
            - Read By user
            - Delete By User

8.0 System Wireframe (Input Design, Output Design)

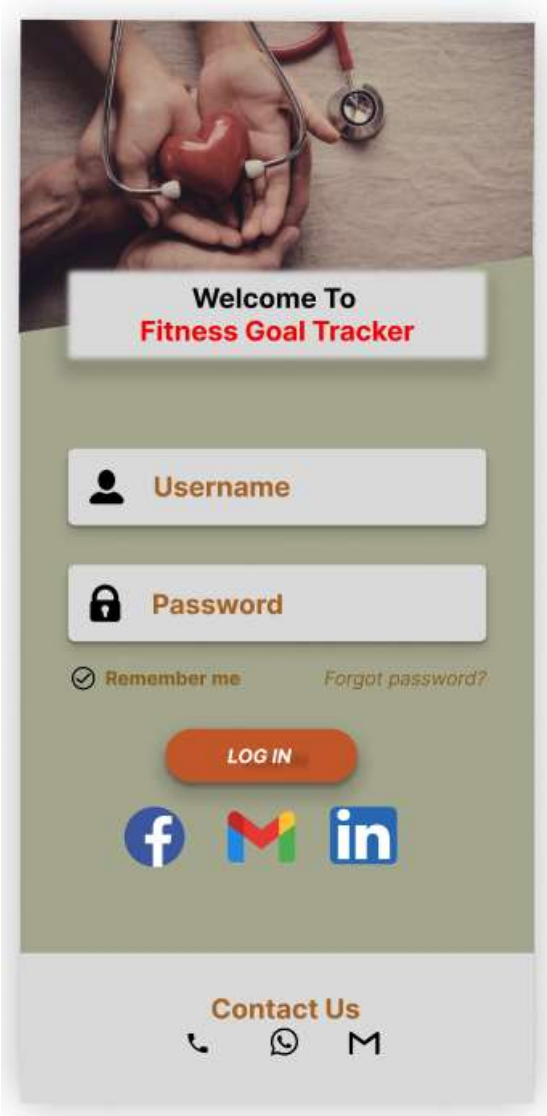
Input Design

1. Login Page:

Components:

- App Name
- Email Input Field
- Password Input Field
- Login Button
- "Forgot Password" Link

Wireframe:



2. Menu Bar:

Components:

- BPM (Beats Per Minute) Button
- Workout Plans Button
- Steps Taken Button
- Calories Burned Button
- Weight Lost Button

Wireframe:

3. Workout Plan Customization:

Components:

- Workout Type Dropdown (Cardio, Strength, Flexibility)
- Exercise Input Field
- Duration Input Field

Wireframe:

5. Chat with Doctor:

Components:

- Doctor's Name and Profile Picture
- Chat History Display
- Text Input Field for New Messages
- Send Button

Wireframe:

These wireframes provide a visual guide for the input and output designs of the "Life-Fit Monitor" app, ensuring a clear and user-friendly interface.

9.0 Summary of the proposed system

The Life-Fit Monitor is an advanced health and fitness app designed to help users achieve their wellness goals through personalized diet and workout plans, progress tracking, and real-time data integration with wearable devices. Key features include:

1. **Personalized Diet Plans:**
    - Tailored meal plans considering dietary preferences and allergies.
    - Optional additional diet plans for user selection.
2. **Reminder System:**
    - Timely reminders for water intake and medication adherence.
3. **Customized Workout Plans:**
    - Daily fitness goals and customized workouts.
    - Tracking of workout sessions and walking distances.
4. **Progress Tracking and Analysis:**
    - Virtual trainer for monitoring progress and updating goals.
    - Detailed progress reports and performance metrics.
5. **Fitness Challenges and Rewards:**
    - Earn points and badges for achieving milestones, visible in community events.
6. **Telemedicine:**
    - Chat with doctors for health advice and consultations.

The app aims to provide a comprehensive, user-friendly platform for managing health and fitness effectively.