FITFLEX: YOUR PERSONAL FITNESS COMPANION

NAANMUDHALVAN PROJECT REPORT

Submitted by

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MARCH - 2025

FitFlex: Your Personal Fitness Companion
Ideation Phase
Brainstorm & Idea Prioritization

Date	09 March 2025
Team ID	SWTID1741234001151740
Project Name	FitFlex
Maximum Marks	4 Marks

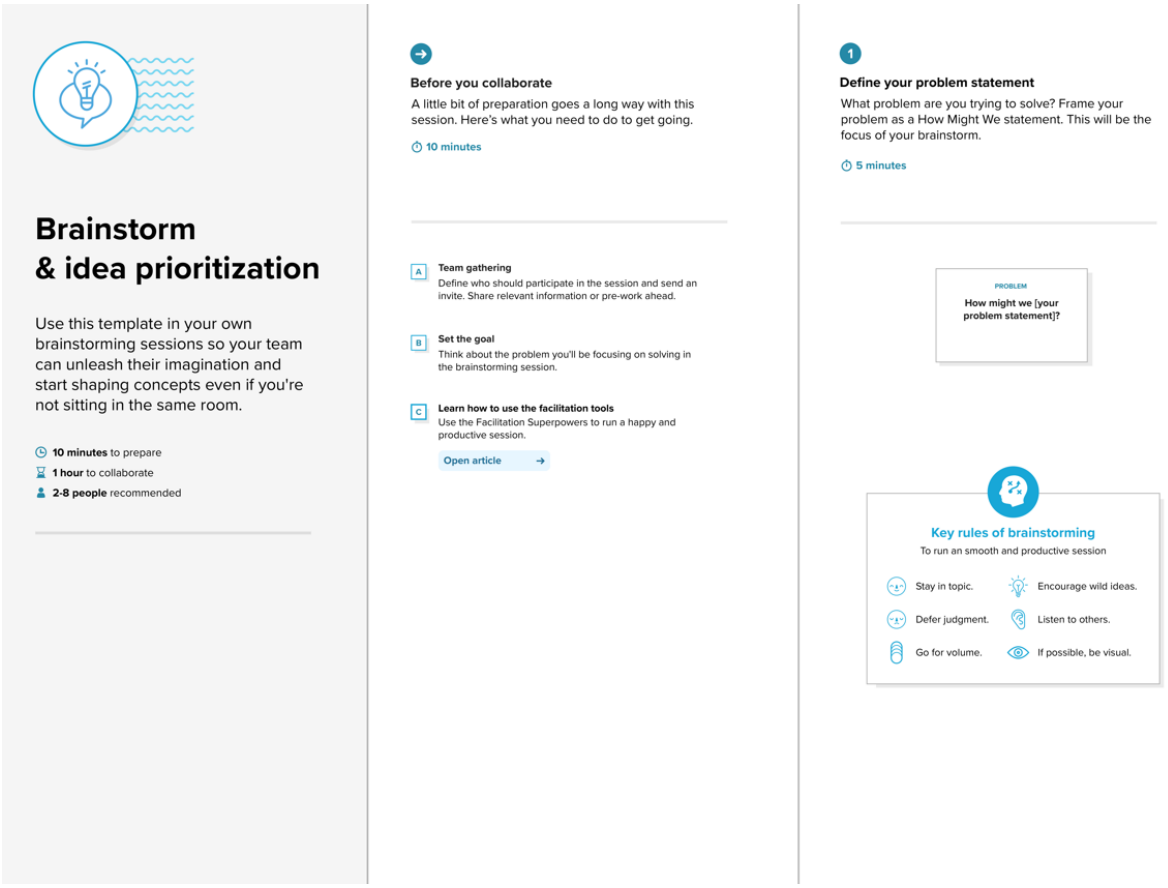
Brainstorm & Idea Prioritization Template:

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

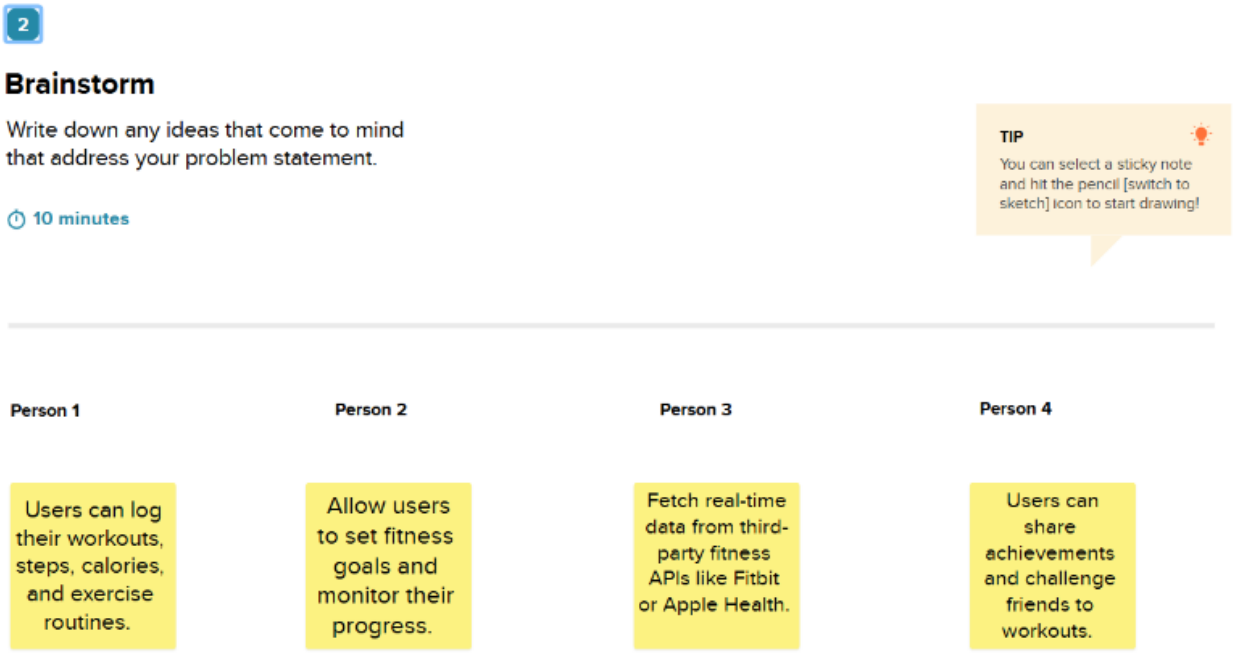
Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

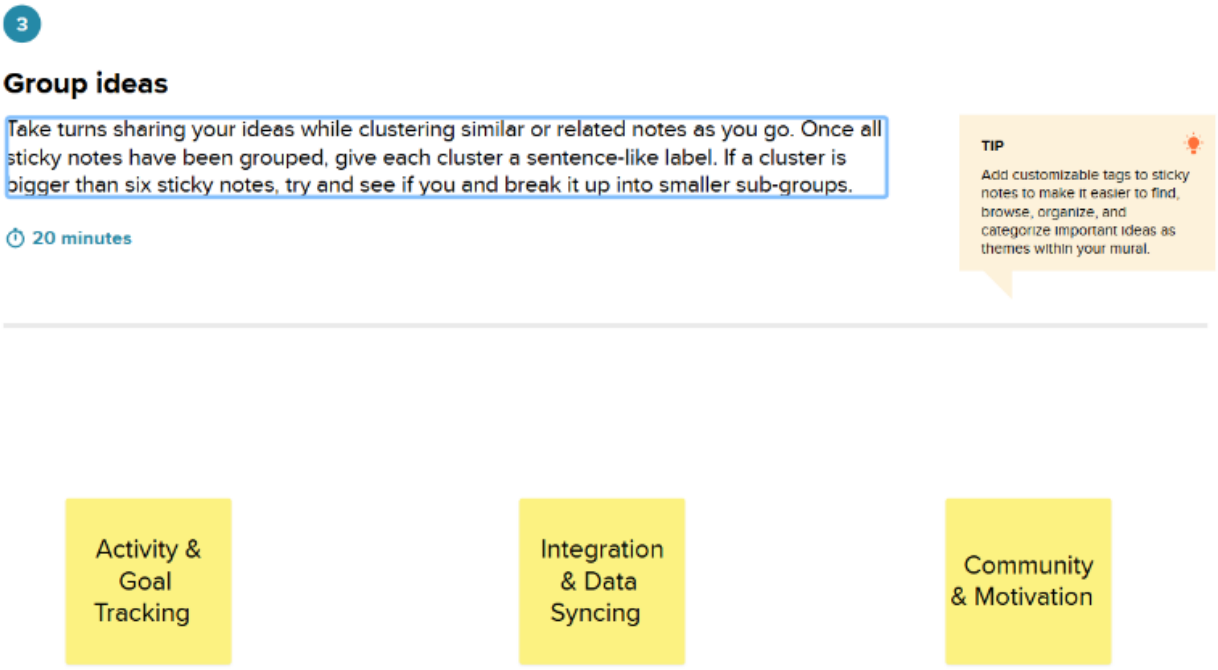
Reference: https://www.mural.co/templates/brainstorm-and-idea-prioritization

Step-1: Team Gathering, Collaboration and Select the Problem Statement



Step-2: Brainstorm, Idea Listing and Grouping





Step-3: Idea Prioritization

4

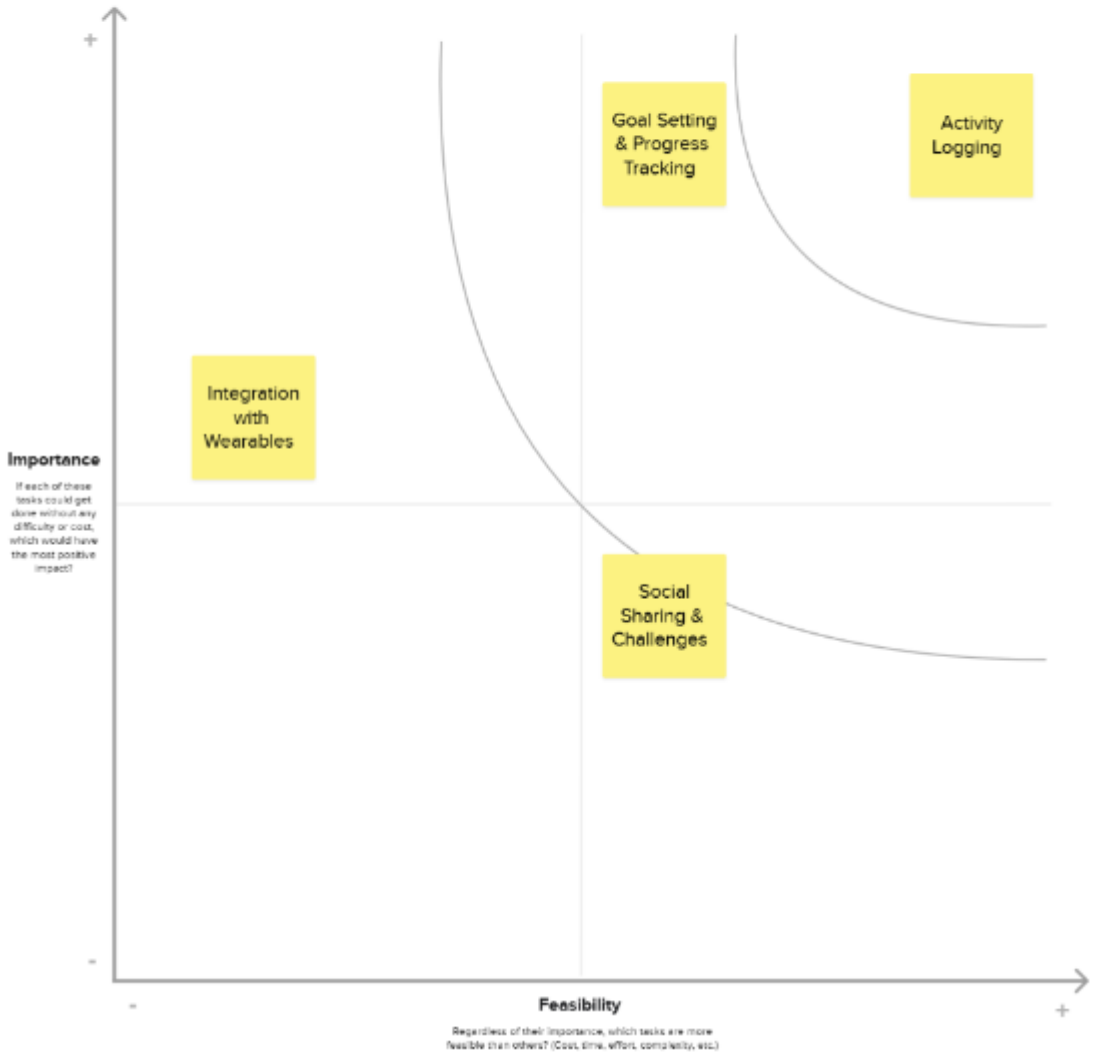
Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes

TIP

Participants can use their cursors to point at where sticky notes should go on the grid. The facilitator can confirm the spot by using the laser pointer holding the **H key** on the keyboard.



FitFlex: Your Personal Fitness Companion

Ideation Phase
Define the Problem Statements

Date	09 March 2025
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Customer Problem Statement Template:

Create a problem statement to understand your customer's point of view. The Customer Problem Statement template helps you focus on what matters to create experiences people will love.

A well-articulated customer problem statement allows you and your team to find the ideal solution for the challenges your customers face. Throughout the process, you'll also be able to empathize with your customers, which helps you better understand how they perceive your product or service.

I am	Describe customer with 3-4 key characteristics - *who are they?*	Describe the customer and their attributes here
I'm trying to	*List their outcome or "job" the care about - what are they trying to achieve?*	List the thing they are trying to achieve here
but	Describe what problems or barriers stand in the way – *what bothers them most?*	Describe the problems or barriers that get in the way here
because	Enter the "root cause" of why the problem or barrier exists – *what needs to be solved?*	Describe the reason the problems or barriers exist
which makes me feel	Describe the emotions from the customer's point of view – *how does it impact them emotionally?*	Describe the emotions the result from experiencing the problems or barriers

Reference: https://miro.com/templates/customer-problem-statement/

Example:

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	A fitness enthusiast	Track my daily workouts and progress	Most apps are cluttered or require premium subscriptions	I need a simple, free, and user-friendly way to log my activities	Frustrated and discouraged from tracking my fitness journey
PS-2	A beginner in fitness	Start a workout routine and stay consistent	Existing fitness apps are too complicated or overwhelming	I need an easy-to-use interface with basic tracking features	Confused and unmotivated to continue
PS-3	A busy professional	Monitor my steps and calories without manual input	Some fitness apps require too much manual data entry	I need automatic tracking with minimal effort	Annoyed and less likely to maintain consistency
PS-4	A goal-oriented user	Set fitness goals and measure my progress	Most apps lack personalized goal tracking	I want a dashboard that visualizes my improvements over time	Uncertain about my progress and less motivated

FitFlex: Your Personal Fitness Companion
Ideation Phase
Empathize & Discover

Date	09 March 2025
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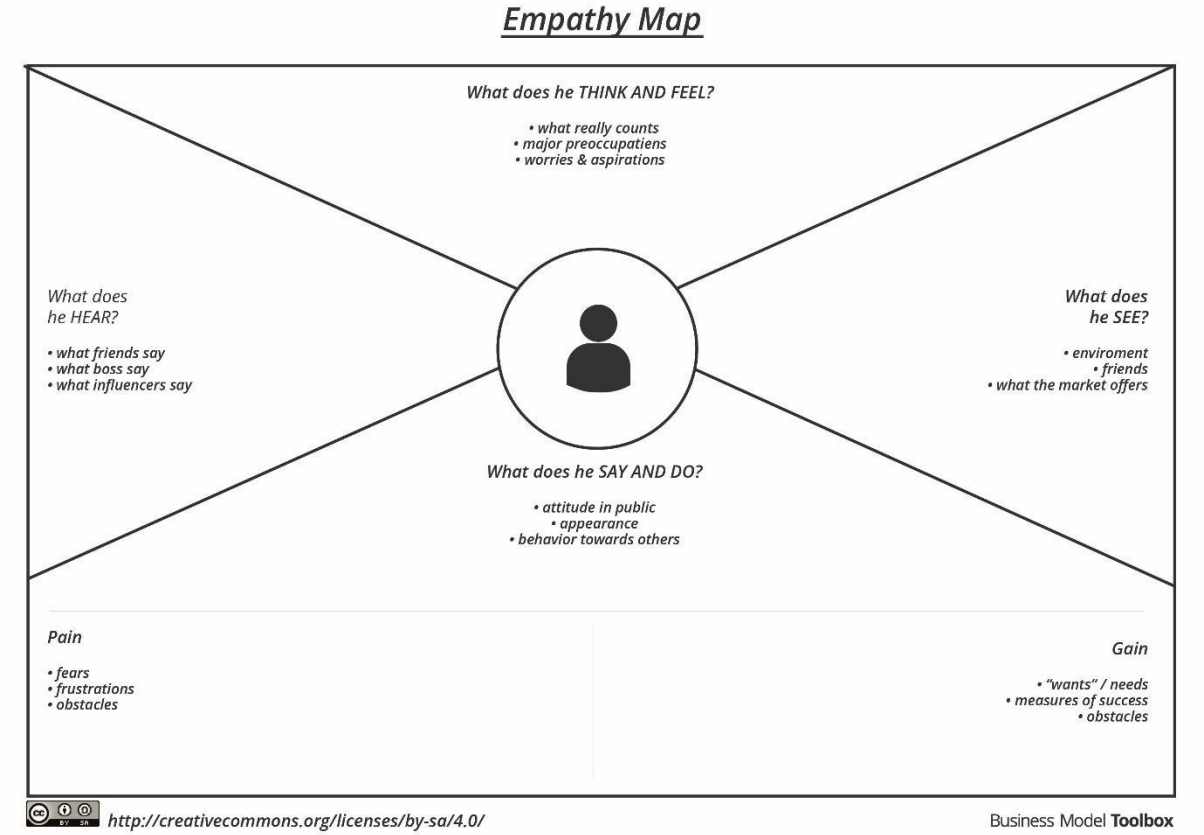
Project Name	FitFlex
Maximum Marks	4 Marks

Empathy Map Canvas:

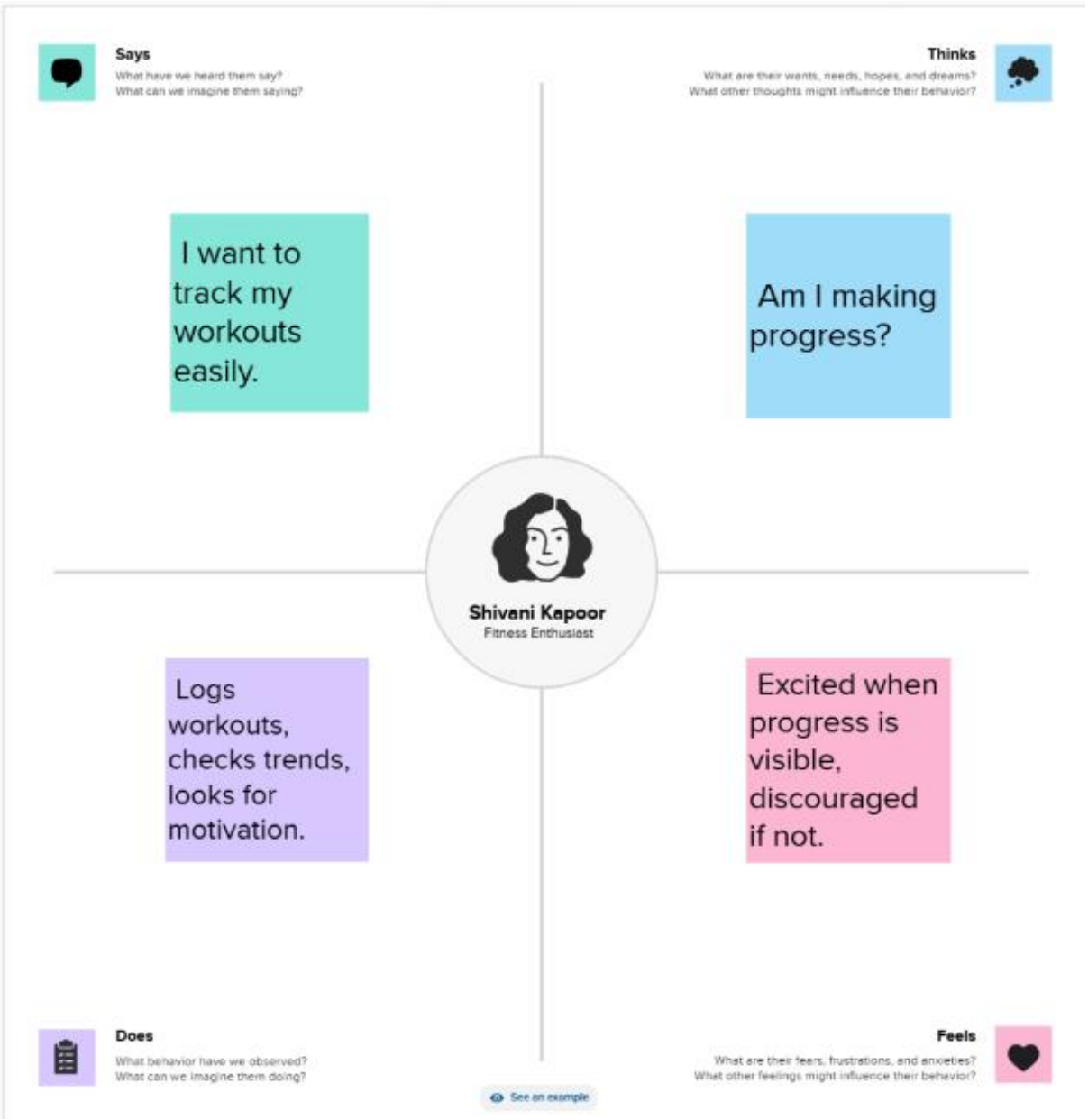
An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviours and attitudes.

It is a useful tool to helps teams better understand their users.
Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.

Example:



Reference: https://www.mural.co/templates/empathy-map-canvas



Project Design Phase II

Data Flow Diagram & User Stories

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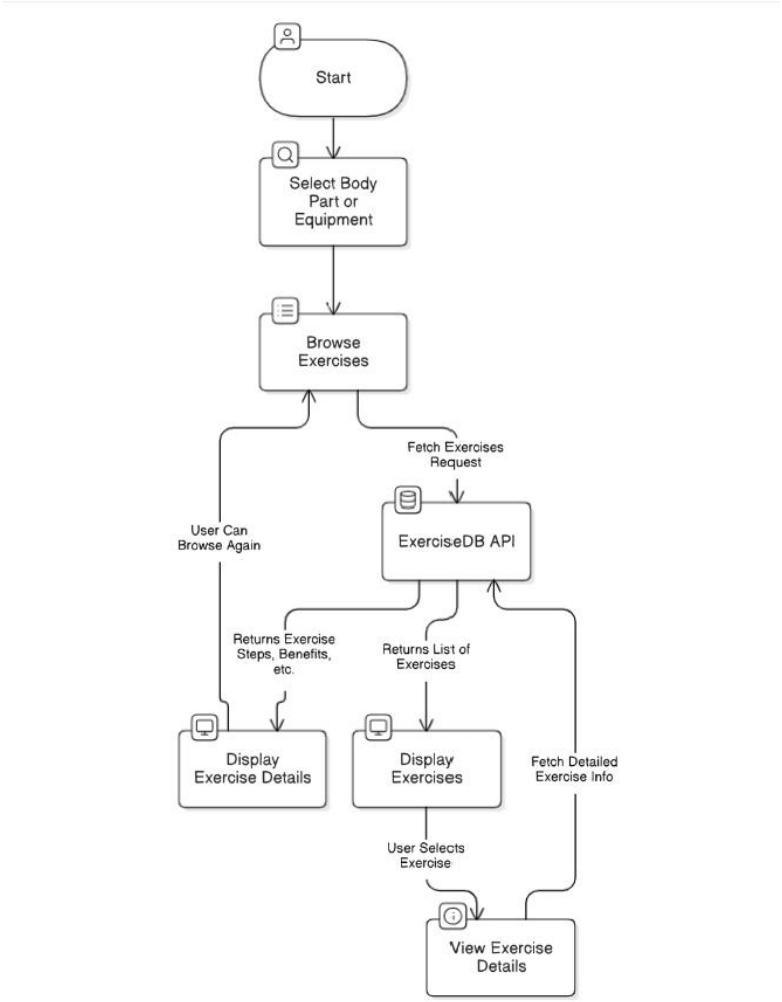
Maximum Marks	4 Marks

Data Flow Diagrams:

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is



stored.

1. The User selects a body part or equipment.
2. The request is sent to Browse Exercises, which fetches relevant data from ExerciseDB API.
3. The API returns a list of exercises, which is displayed to the User.
4. The User selects a specific exercise, triggering the View Exercise Details process.
5. The ExerciseDB API provides detailed exercise information.
6. The app displays the details, and the User can either browse more exercises or select another one.

User Stories:

User Type	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Web User)	USN-1	As a User, I can browse exercises by selecting a body part.	I can see a list of exercises related to the selected body parts.	High	Sprint-1
Customer (Web User)	USN-2	As a user, I can browse exercise by selecting equipment.	I can see a list of exercises related to the selected equipment.	High	Sprint-1
Customer (Web User)	USN-3	As a user, I view detailed explanations about exercise.	I can see exercise images, steps and target muscles	High	Sprint-1
Customer (Web User)	USN-4	As a user, I can see related Youtube videos.	I can navigate to the related videos on Youtube.	Low	Sprint-2
Customer (Web User)	USN-5	As a user, I can easily navigate to the home page.	I can click the home button and return to the home page.	High	Sprint-1

Project Design Phase-II

Solution Requirements (Functional & Non-functional)

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Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Browsing Exercises	Browse Exercise by Body Parts Browse Exercise by Equipment Browse Exercise by Popular
FR-2	Exercise Details	View exercise GIF, Target muscles, secondary muscles. Confirmation via OTP
FR-3	User Experience	Navigate Back to Home page.

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The User Interface (UI) should be easy to navigate for all users of all skill levels.
NFR-2	**Security**	API requests must be secure.
NFR-3	**Reliability**	The system should handle API failures gracefully.
NFR-4	**Performance**	The application should load data quickly.
NFR-5	**Availability**	The system should maintain an uptime of at least 99.9%, ensuring accessibility across different time zones.
NFR-6	**Scalability**	The app should handle increasing numbers of users and concurrent streams efficiently without performance degradation. The architecture should support future feature expansion.

Project Design Phase-II

Technology Stack (Architecture & Stack)

Date	09 March 2025
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Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application	ReactJS, CSS, React Fa icons
2.	Application Logic-1	Logic for fetching and displaying data	JavaScript, ReactJS
3.	Application Logic-2	API requests handling and error handling	Axios for HTTP requests
4.	External API-1	Fetching ExerciseDB data	ExerciseDB API (via RapidAPI)

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	ReactJS, Axios
2.	Security Implementations	Securing API calls and access controls	HTTPS, API key authentication (RapidAPI)

Project Planning Phase

Project Planning Template (Product Backlog, Sprint Planning, Stories, Story points)

Date	09 March 2025
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Project Name	FitFlex
Maximum Marks	5 Marks

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Use the below template to create product backlog and sprint schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	UI Setup	USN-1	Set up React.js project structure with necessary dependencies	7	High	Bhanu
Sprint-1	Home Page & Navigation	USN-2	Create a homepage where users can browse by body part or equipment	7	High	Bhanu
Sprint-1	API Integration	USN-3	Fetch exercise data from ExerciseDB API & display body parts	6	High	Bhanu
Sprint-2	Exercise Listing	USN-4	List exercises dynamically based on body part selection	7	High	Bhanu
Sprint-2	Exercise Details Page	USN-5	Create a detailed page for each selected exercise	7	High	Bhanu
Sprint-2	Filtering Feature	USN-6	Enable filtering of exercises based on equipment used	6	High	Bhanu
Sprint-3	UI Enhancement	USN-7	Improve UI/UX with React Icons and better styling	10	Medium	Bhanu
Sprint-3	Error Handling	USN-8	Implement error handling for failed API requests	10	Medium	Bhanu
Sprint-4	Search Feature	USN-9	Allow users to search exercises by keyword	10	High	Bhanu
Sprint-4	Responsive Design	USN-10	Ensure responsiveness for mobile & tablet views	10	Medium	Bhanu

Project Tracker, Velocity & Burndown Chart: (4 Marks)

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	1 Mar 2025	2 Mar 2025	20	2 Mar 2025
Sprint-2	20	6 Days	3 Mar 2025	4 Mar 2025	20	4 Mar 2025
Sprint-3	20	6 Days	5 Mar 2025	6 Mar 2025	20	6 Mar 2025
Sprint-4	20	6 Days	7 Mar 2025	8 Apr 2025	20	8 Apr 2025

Project Design Phase

Problem – Solution Fit Template

Date	09 March 2025
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Maximum Marks	2 Marks

Problem – Solution Fit Overview:

The **Problem-Solution Fit** ensures that the identified problem aligns with the needs of users and that the proposed solution effectively addresses it. This concept helps developers, marketers, and business strategists validate the **necessity and effectiveness** of their solution before further development.

Purpose:

- Address the **lack of a structured and interactive fitness guidance platform** for users who seek customized exercises based on body parts or equipment.
- Provide an intuitive and engaging experience for users to **discover exercises quickly** without the need for manual research.
- Offer seamless navigation and **real-time data retrieval** from **ExerciseDB API** to enhance user experience.
- Improve accessibility and engagement through an **interactive UI, responsive design, and well-structured data flow**.

Problem Statement:

Many users struggle to find **relevant and structured exercise information** online, leading to frustration and inconsistency in their fitness journey. Most available platforms either require paid memberships or provide unstructured exercise listings without filtering options based on equipment or body parts.

Solution:

- A **React.js-based Fitness Web Application** that provides users with an easy-to-navigate interface to explore exercises by **body parts and equipment**.
- Integration with **ExerciseDB API** ensures users get **up-to-date and detailed exercise information** with images and descriptions.
- **Axios-powered API requests** ensure smooth data retrieval with minimal delays.
- **Categorization and search functionalities** improve accessibility and user engagement.
- A scalable and **responsive UI design** ensures seamless experience across different devices.

Project Design Phase

Proposed Solution Template

Date	09 March 2025
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Project Name	FitFlex
Maximum Marks	2 Marks

Proposed Solution Template:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Many users struggle to find structured, easy-to-follow workout plans tailored to their needs (body parts, available equipment). Existing resources are either scattered, unstructured, or behind paywalls.
2.	Idea / Solution description	A React.js-based fitness web application that allows users to discover exercises categorized by body parts and equipment. The application integrates with ExerciseDB API to provide real-time workout information, images, and descriptions.
3.	Novelty / Uniqueness	Free and structured access to categorized workouts.

Project Design Phase

Solution Architecture

Date	09 March 2025
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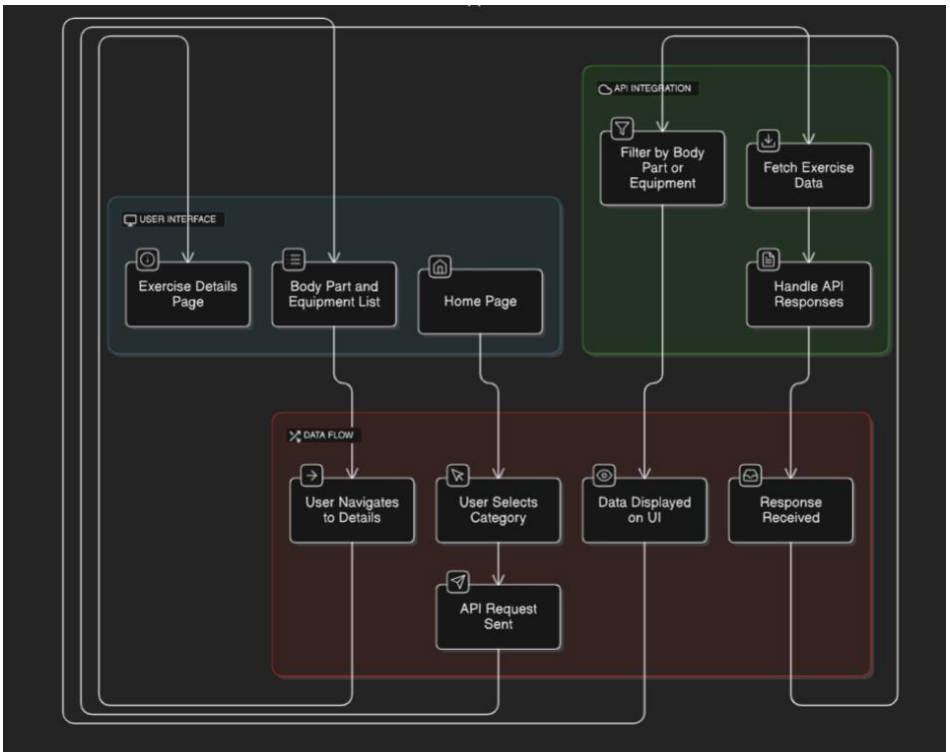
Maximum Marks	4 Marks

Solution Architecture:

The solution architecture for the Fitness Web Application ensures a scalable, efficient, and user-friendly platform for discovering and accessing exercise routines based on body parts and equipment.

Goals of the Solution Architecture:

- Identify the Best Tech Solution: Utilize modern front-end frameworks and APIs to provide a seamless fitness discovery experience.
- Define Structure & Characteristics: Ensure modular, scalable, and maintainable software architecture for future enhancements.
- Outline Features & Development Phases: Clearly structure project milestones for effective development and deployment.
- Establish Specifications for Development & Delivery: Provide well-defined guidelines for the system's architecture, API integration, and data flow.


API INTEGRATION
Filter by Body Part or Equipment
Fetch Exercise Data
USER INTERFACE
Exercise Details Page
Body Part and Equipment List
Home Page
Handle API Responses
DATA FLOW
User Navigates to Details
User Selects Category
Data Displayed on UI
Response Received
API Request Sent

User Acceptance Testing (UAT) Template

Date	09 March 2025
Team ID	SWTID1741234001151740
Project Name	FitFlex
Maximum Marks	

Project Overview

Project Name: FitFlex
Project Description: A React-based music streaming application that allows users to search, play, and manage music using a third-party API. Features include user authentication, search, playback, playlists, and profile management.
Project Version: v1.0
Testing Period: March 1, 2025 - March 8, 2025

Testing Scope

Features and Functionalities to be Tested

- ✅ **Home Page & Navigation**
- ✅ **Exercise Search & Discovery**
- ✅ **API Integration for Exercise Data**
- ✅ **Filtering Exercises by Body Part & Equipment**
- ✅ **Viewing Exercise Details**
- ✅ **UI/UX Testing (Responsiveness, Icons, Styling)**
- ✅ **Error Handling & Performance Testing**

User Stories or Requirements to be Tested

- 📌 **Searching & Viewing Exercises**
- 📌 **Filtering Exercises by Body Part & Equipment**
- 📌 **Displaying Exercise Details with Instructions**
- 📌 **Responsive UI across Mobile, Tablet, and Desktop**
- 📌 **Handling API Errors Gracefully**

Test Cases

Test Case ID	Test Scenario	Test Steps	Expected Result	Actual Result	Pass/Fail
TC-001	Load Homepage	1. Open the application 2. Homepage loads	Homepage should display the Navbar, About, Hero, Search components	[Actual Result]	[Pass/Fail]
TC-002	Search for an Exercise	1. Browse and choose from the options in the search bar 2. Click search	Matching exercises should be displayed	[Actual Result]	[Pass/Fail]
TC-003	Filter by Body Part	1. Select a body part from the filter 2. View filtered exercises	Exercises should be displayed for the selected body part	[Actual Result]	[Pass/Fail]
TC-004	Filter by Equipment	1. Select an equipment type 2. View filtered exercises	Exercises should be displayed based on selected equipment	[Actual Result]	[Pass/Fail]
TC-005	View Exercise Details	1. Click on an exercise 2. View details (GIF, instructions, muscles targeted)	Playlist should be created successfully	[Actual Result]	[Pass/Fail]
TC-006	Mobile Responsiveness	1. Open the app on a mobile device 2. Navigate through pages	UI should be responsive and properly displayed	[Actual Result]	[Pass/Fail]

Bug Tracking

Bug ID	Bug Description	Steps to Reproduce	Severity	Status	Additional Feedback
BG-001	Search results take too long to load	1. Search for exercises 2. Observe slow loading	High	Open	Need API response optimization

BG-002	Filtering feature not working correctly	1. Observe incorrect results	Medium	In Progress	Filtering logic needs debugging
BG-003	UI overlaps on small screen devices	1. Open app on small devices (iPhone SE) 2. Observe UI distortion	Low	Open	Adjust CSS for better responsiveness

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Sign-off

Tester Name: [Enter Name]
Date: [Enter Date of Completion]
Signature: [Enter Signature]

Notes

- **Ensure testing covers both positive & negative cases**
- **Bug tracking should include severity levels & reproduction steps**
- **Final sign-off required before deployment**