

FITLIFE: Personalized nutritionist - Report
Musa Joshua Gideon Bashir
Group 7
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SECTION 1: Explain the Dataset

Column	Format / Description	Data Type	Attributes	Identifier Type / Sensitivity
Name	First + Last Name	String	Varies per user	Direct - High
Age	Whole Number	Integer	Range	Indirect - Medium
Location	"City, Country" e.g., "Paris, France)	String	Varies per user	Indirect - High
Gender	One Category Selection	Enum	Male, Female, Non-binary	Indirect - Medium
Weight (kg)	Whole Number. Weight in kg	Integer	Varies per user	Indirect - High
Height (cm)	Whole Number. Height in cm	Integer	Varies per user	Indirect - Medium
BMI	$(\text{Weight (kg)} / ((\text{Height (cm)} / 100)^2))$	Float	Derived value	Indirect - High
Dietary Preference	One Category selection	Enum	Paleo, Vegetarian, Gluten-free, Mediterranean, Vegan, Keto, Low-fat, Low-carb	Indirect - Medium
Allergies	One Category Selection	Enum	Gluten, Peanuts, None, Dairy, Shellfish	Indirect- High
Workout frequency	Times per Week	Integer	Range 1-7	Indirect - Medium
Workout type	One category selection	Enum	Yoga, Mixed, Strength Training, HIIT, Cardio, Running	Indirect - Medium
Workout Duration	Whole Number. Minutes per session	Integer	Varies per user	Indirect - Medium
Fitness Goals	One category selection	Enum	Flexibility, Muscle gain, Endurance, Weight loss, Cardiovascular health	Indirect - Medium
Progress	One category selection	Enum	Improved, Moderate, No change, Significant	Indirect - Medium
Features Used	One category selection	Enum	Challenges, Virtual Coach, Meal Tracker, Workout Creator, Health Stats, Progress Tracker	Indirect - Low
App time (minutes)	Whole Number. Minutes per day	Integer	Varies per user	Indirect - Medium
Interaction	One category selection	Enum	Comments, Forum, Messages, None	Indirect - Medium
Content Preference	One category selection	Enum	Workout videos, Meal plans, Articles	Indirect - Medium

SECTION 2:

The data flow diagram is shown in Figure 1.

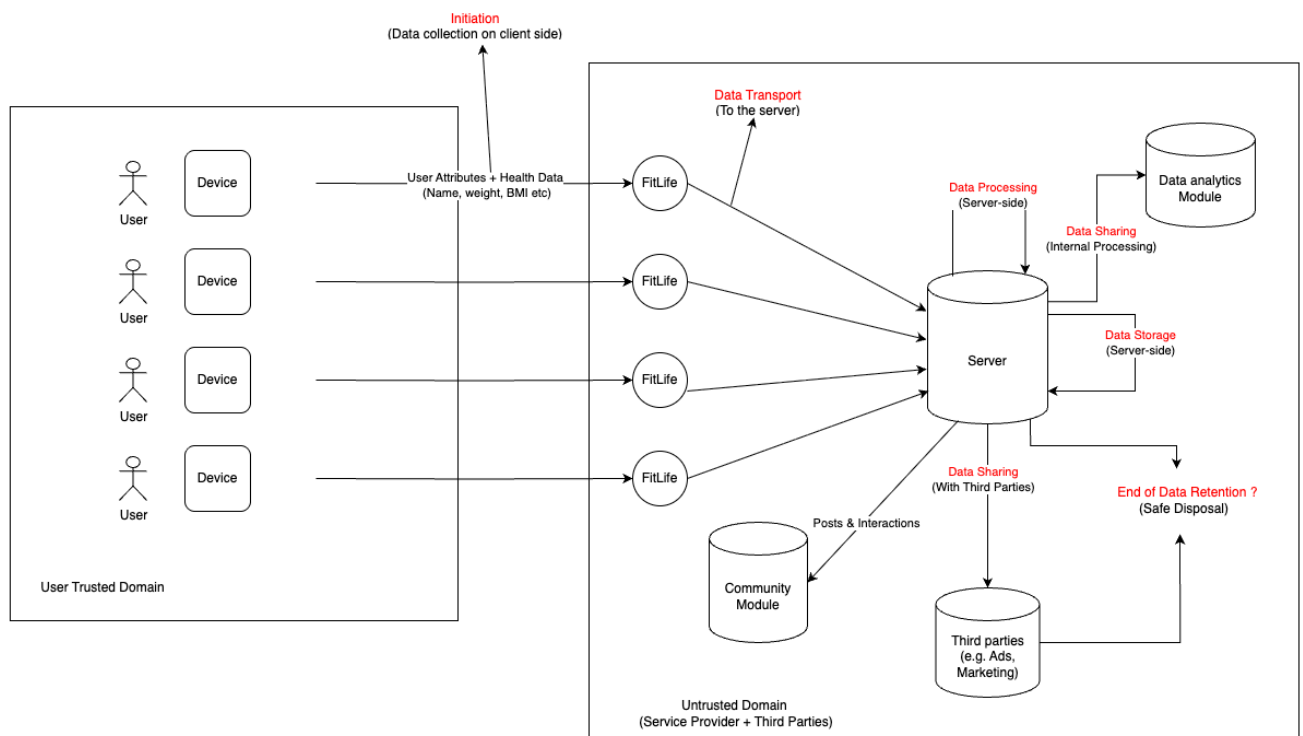


Figure 1: Data flow Diagram for FitLife system

SECTION 3:

The following threats were identified using the LINDDUN privacy threat modeling framework and are based on the hotspots visible in the above data flow diagram.

1. Linkability
 - a. Hotspot: Data Collection
 - i. Threat #1: Combining age, location, and workout type during collection can link multiple sessions to the same user
 - b. Hotspot: Community Module
 - i. Threat #2: Public posts & interactions can be linked back to user identities over time
2. Identifiability
 - a. Hotspot: Data Processing (Server)
 - i. Threat #3: Using real names and location makes the user easily identifiable in server records.
 - b. Hotspot: Data Storage

- i. Threat #4: A combination of weight, Height, BMI, Allergies, and fitness goals can reveal the user if leaked.
- 3. Non-repudiation
 - a. Hotspot: Community Module
 - i. Threat #5: Persistent logs of comments and messages make it hard for users to later deny specific actions.
 - b. Hotspot: Data Storage
 - i. Threat #6: Stored history of workout duration, progress, and interaction prevents the user from denying actions later.
- 4. Detectability
 - a. Hotspot: Data Transport
 - i. Threat #7: Network observers can detect when a user is active or exercising from the time of uploads and engagements.
- 5. Disclosure of Information
 - a. Hotspot: Data Transmission
 - i. Threat #8: Without proper encryption, personal health data may be exposed during transfer
 - b. Hotspot: Data Storage
 - i. Threat #9: Without proper encryption, personal health data may be exposed when stored data is leaked.
- 6. Unawareness
 - a. Hotspot: Data Analytics Module
 - i. Threat #10: Users may not be aware that app time, content preference, and features used are continuously being recorded and tracked.
- 7. Non-compliance
 - a. Hotspot: Data Collection
 - i. Threat #11: Collecting more Data than necessary may violate regulatory body principles
 - b. Hotspot: Data Sharing with third parties
 - i. Threat #12: Sharing fitness attributes with advertising partners without clear consent violates regulatory body rules (GDPR)