

## **REST API Requirements Specification**

### **1. Functional Requirements for Existing Functionality:**

#### **1.1 User Retrieval**

The system shall allow users to retrieve a list of all users stored in the database through a GET request to the user endpoint.

#### **1.2 User Creation**

The system shall enable the creation of new user records by accepting POST requests to the user endpoint with a JSON payload containing the user's details.

#### **1.3 User Deletion**

The system shall provide the capability to delete a specific user record by accepting a DELETE request to the user endpoint.

### **2. Functional Requirements for New Functionality**

#### **2.1 Maximum Calories burnt**

The system shall implement an analysis on calculating the maximum calories burnt

#### **2.2 Average Heart rate in the session**

The system shall allow implementation of calculating the average heart rate of every individuals in the session.

#### **2.3 Getting all the individuals from their heart-rate and duration of the session**

The system shall identify all the individuals with their specific duration and heart-rate.

### **3. Non-Functional Requirements**

#### **3.1 Performance**

The system shall respond to all API requests within 200 milliseconds under a load of up to 1000 concurrent users.

#### **3.2 Security**

The system shall encrypt all sensitive data, including passwords and personal information, using industry-standard encryption algorithms before storing in the database.

#### **3.3 Scalability**

The system shall be designed to handle a 300% increase in user base without degradation in performance, supporting horizontal scaling through containerization and load balancing.