

Software Design Document (SDD)

October 28, 2019

1 Introduction

1.1 Design Overview

We are going to use an object-oriented approach towards development of various design components for various features like GPS based virtual tracking, Reminders and schedulers, motivational quotes, analytics based on calorie and food intake,danger alerts,etc.

1.2 Requirements Traceability Matrix

A matrix showing where each feature identified in the SRS is supported by the design components is displayed below.

	Menu Bar	DateTimePicker	MLEngine	Graphs
Reminders and Schedulers	X	X		
Recommendations	X		X	
Motivational Quotes	X			
Analytics				X

2 SYSTEM ARCHITECTURAL DESIGN

2.1 Chosen System Architecture

We will use client-server architecture for our fitness management system as it splits the processing of application across multiple machines and allows easier sharing of resources from client to servers.

2.2 Discussion of Alternative Designs

The alternative is peer-to-peer networking where every computer is "equal" and every computer is both a client and a server but it wont serve our purpose in the first sense.

2.3 System Interface Description

Amazon Sagemaker will be used as an ML Engine. GraphQL library will be used to draw various charts and graphs. The system clock will be used to set reminders and schedulers and various motivational quotes will be generated based on user likes and preferences.

3 DETAILED DESCRIPTION OF COMPONENTS

3.1 Component-1

Menu bar It will contain all the major functionalities of the website including but not limited to Reminders and Schedulers , Recommendations , Motivational Quotes ,etc One of the major constraint is it is to be designed using the bootstrap library.

3.2 Component-2

ML Engine: The amazon web services sagemaker will be used as an ML Engine to cater to one of our functionalities of recommendation system.

3.3 Component-3

DateTimePicker: The latest Bootstrap 4 DateTimePicker will be used that will provide us with a beautiful and intuitive time system .

3.4 Component-4

Graphs: The d3.js and chart.js library will be used to represent various graphs that will track user workout routine and provide detailed and analysed reports to the user.

4 USER INTERFACE DESIGN

In this section describe the design of the user interface in detail.

4.1 Description of the User Interface

4.2 Objects and Actions

Objects: Challenges, Reminders and Schedulers, Chat system, Login, Logout, etc
Actions: Start challenge, End Challenge, Chat, Login, Logout, etc.

5 System Architecture

5.1 Chosen System Architecture

Client/server architecture is a computing model in which the server hosts, delivers and manages most of the resources and services to be consumed by the client. This type of architecture has one or more client computers connected to a central server over a network or internet connection. This system shares computing resources.

Use Case ID: 1 Use Case name: Signup/Login

Created by: SF Team

Last Updated by: SF Team

Created on: 30/08/2018

Last Updated on: 15/10/2018

Primary Actor: User

Secondary Actor: -

Description: This is used for registering new user into the system through Signup option or log into account through Login option if already a user.

Trigger: When user lands on the website or is logged out of system.

Preconditions: -

Postconditions: A new user is registered or gets redirected to the workouts page.

Normal flow:

- User Logs in.
- The user will be taken to the workouts page.
- Then there will be an option for QA Forum.

Alternative flows: -

Exceptions: -

Includes: -

Priority: high

Frequency of use: Moderate

Special Requirements: - None

Open Issues: - None

Assumptions: -None

Use Case ID: 2 Use Case name: Challenges

Created by: SF Team

Last Updated by: SF Team

Created on: 12/09/2018

Last Updated on: 15/10/2018

Primary Actor: User

Secondary Actor: -

Description: Used to perform challenges

Trigger: User needs to click on the challenges link.

Preconditions: -User must be logged in

Postconditions: Database is updated

Normal flow:

- User can directly access challenges by clicking on challenges link on the navbar of homepage. If the user is registered then he can access the challenges page and his progress will be stored.

Alternative flows: -

Exceptions: -

Includes: -

Priority: moderate

Frequency of use: moderate

Special Requirements: - None

Open Issues: - None

Assumptions: -None

Use Case ID: 3 Use Case name: Workout

Created by: SF Team

Last Updated by: SF Team

Created on: 12/08/2018

Last Updated on: 15/10/2018

Primary Actor: User

Secondary Actor: -

Description: User will be given a workout plan based on his/her fitness goal.

Trigger: As soon as the user signs up or logs in.

Preconditions: -User must be logged in

Postconditions: Progress report is updated.

Normal flow:

- User lands on the sign up or login page and enters his/her details.
- After all details are validated the workout page will be shown.

Alternative flows: -

Exceptions: -

Includes: -

Priority: high

Frequency of use: high

Special Requirements: - None

Open Issues: - None

Assumptions: -None

Use Case ID: 4 Use Case name:Chat

Created by: SF Team

Last Updated by: SF Team

Created on: 20/08/2018

Last Updated on: 15/10/2018

Primary Actor: User

Secondary Actor: -

Description: : User will be able to initiate personal chat with trainer.
Trigger: User clicks on Chat with Trainer link in the drop down menu.
Preconditions: -User is Logged in
Normal flow:

- User Logs in.
- The user will be taken to the workouts page.
- Then there will be an option to Chat with Trainer.

Alternative flows: -

Exceptions: -

Includes: -Complete Login

Priority: High

Frequency of use: High

Special Requirements: - None

Open Issues: - None

Assumptions: -None

Use Case ID: 5 Use Case name: Forum Created by: SF Team

Last Updated by: SF Team

Created on: 20/08/2018

Last Updated on: 15/10/2018

Primary Actor: User

Secondary Actor: -

Description: User can Post and view questions answers.

Trigger: User clicks on Forum

Preconditions: -User must be logged in

Postconditions: Database is updated.

Normal flow:

- User Logs in.
- The user will be taken to the workouts page.
- Then there will be an option for QA Forum.

Alternative flows: -

Exceptions: -

Includes: -

Priority: Moderate

Frequency of use: High

Special Requirements: - None

Open Issues: - None

Assumptions: -None

Use Case ID: 6 Use Case name: Report Diet chart

Created by: SF Team

Last Updated by: SF Team

Created on: 22/08/2018

Last Updated on: 15/10/2018

Primary Actor: User

Secondary Actor: -

Description: User can view his progress through the reports page and can also view diet plans.

Trigger: User clicks on View Reports.

Preconditions: - User must be logged in

Postconditions: Database is updated.

Normal flow:

- User Logs in.
- The user will be taken to the workouts page.
- Then there will be an option for QA Forum.

Alternative flows: -

Exceptions: -

Includes: -

Priority: Moderate

Frequency of use: High

Special Requirements: - None

Open Issues: - None

Assumptions: - None

6 Data flow specifications

DFD is created from the SRS document provided.

6.1 Level 0 DFD with description

The customer interacts with the fitness management system whereas the trainer and the database administrator control the system in return.

6.2 Level 1 DFD with description

The customer can perform various operations like registering, performing challenges, requesting a chat session, etc. The trainer can approve the chat request, send various workout plans, do fitness analysis based on the person's data, etc.