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Software Architecture and Design

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***Use Case (UC1):***

View Graphs

**Scope:**

The current User using the activity tracker software

**Level:**

To allow a user to view their graphs in real time

**Actor:**

User, System

**Stakeholders:**

User: Wants to be able to view their graphs accordingly and properly.

**Preconditions:**

Data exists for system to display graphs

**Postconditions:**

System displays graphs for user, then returns to default screen when user exits.

**Main Success Scenario:**

(UC1main):

1. User chooses view graphs

2. System collects necessary data

3.  System generates live graphs

4. User can easily select which graph to view

5. User can swap graphs with a single button press

6. System updates charts as new data is retrieved

**Extensions:**

(UC1a): UI does not allow for easy graph selection during exercise

(UC1b): System generates graphs with incorrect data

(UC1c): Graphs are not easily readable (unlabeled axes, bad scale, etc.)

(UC1d): Graphs do not update with live data

**Special Requirements:**

User must have logged some data in order to view graphs

**Variations in Tech and Data:**

Users all have unique data, tech is consistent

**Frequency of Occurrence:\**

Many times a day

**Miscellaneous:**

N/A

***Use Case (UC2):***

Set New Activity Goal

**Scope:**

The current User using the activity tracker software

**Level:**

User chooses a new goal value and timeline on which to achieve said goal

**Actor:**

User, System

**Stakeholders:**

User: Wants to be able to set a new activity goal

**Preconditions:**

User must know the goal and timeline to enter the data

**Postconditions:**

System must graph goal line based on input values

**Main Success Scenario:**

(UC2main):

1. User selects “Set New Goal”
2. System prompts user to choose which category to set a new goal in
3. User selects a category (Sleep, steps, heart rate, etc.)
4. System asks user what the new goal should be
5. System asks user when the user wants to achieve this goal by
6. User selects a timeline on which to complete the goal
7. System records new goal and timeline
8. System displays live chart with goal line graphed

**Extensions:**

(UC2a): System does not allow for goal setting

(UC2b): System fails to capture necessary data to graph goal line

(UC2c): Graph is cluttered, incorrect, or unreadable

(UC2d): Goal line is not distinguished from actual values

(UC2e): System does not update live charts with goal line

**Special Requirements:**

User must have a goal in mind and timeline

**Variations in Tech and Data:**

All data is unique to users, tech is consistent

**Frequency of Occurrence:**

Varies, infrequently to multiple times per day

**Miscellaneous:**

N/A

***Use Case (UC3):***

Stop recording data

**Scope:**

The current User using the activity tracker software

**Level:**

User selects stop recording from the interface

**Actor:**

User, System

**Stakeholders:**

User: Wants to be able to stop recording data

**Preconditions:**

User must be already recording data for the stop recording data button to be present

**Postconditions:**

System must not log any data from sensors

**Main Success Scenario:**

(UC3main):

1. User selects “Stop Recording Data”
2. The system alerts the array sensor to stop recording data
3. The system alerts the user that no data is being recorded
4. An icon that represents the Stop Recording Data state is persistent on the interface while the system is not recording data

**Extensions:**

(UC3a): System fails to stop recording data

(UC3b): System fails to notify user that “Stop Recording Data” button press was successful

(UC3c): Icon notifying user of not recording data is not persistent on screen

**Special Requirements:**

User must already be recording data in order for “Stop Recording Data” button to be present

**Variations in Tech and Data:**

All data is unique to users, tech is consistent

**Frequency of Occurrence:**

Varies, infrequently to multiple times per day

**Miscellaneous:**

N/A

***Use Case (UC4):***

Log a new session

**Scope:**

The current User using the activity tracker software

**Level:**

User selects “New Session” from main menu

**Actor:**

User, System

**Stakeholders:**

User: Wants to be able to record new activity session

**Preconditions:**

User must have set up the activity tracker by inputting their basic data (height, weight, resting heart rate)

**Postconditions:**

System must have initialized a new session

**Main Success Scenario:**

(UC4main):

1. User selects “New Session” from main menu
2. System prompts user for name of session
3. System prompts user for which sensors to record data from
4. System prompts user with “Begin Session” and “Cancel” options
5. User selects “Begin Session” and the session is initialized

**Extensions:**

(UC4a): System fails register button press

(UC4b): System fails to prompt user with name of session and data to record

(UC4c): System adds data to existing session or does not record data in new session

**Special Requirements:**

User must have set up basic information (height, weight, age, resting heart rate)

**Variations in Tech and Data:**

All data is unique to users, tech is consistent

**Frequency of Occurrence:**

Varies, infrequently to multiple times per day

**Miscellaneous:**

N/A

***Use Case (UC5):***

View data

**Scope:**

The current User using the activity tracker software

**Level:**

User selects “View Data” from main menu

**Actor:**

User, System

**Stakeholders:**

User: Wants to be able to view logged data

**Preconditions:**

User must have some data logged in the System

**Postconditions:**

System must not have changed any of the data

**Main Success Scenario:**

(UC5main):

User selects “View Data” from main menu

System prompts User for which category they would like to view

User selects a category

System displays data from specified category

**Extensions:**

(UC5a): System fails to register button press

(UC5b): System fails to prompt user with category options

(UC5c): System fails to display or displays incorrect data

**Special Requirements:**

User must have some data logged in System

**Variations in Tech and Data:**

All data is unique to users, tech is consistent

**Frequency of Occurrence:**

Varies, infrequently to multiple times per day

**Miscellaneous:**

N/A

***Use Case (UC6):***

Input data

**Scope:**

The current User using the activity tracker software

**Level:**

User selects “Input Data” from main menu

**Actor:**

User, System

**Stakeholders:**

User: Wants to be able to input new data

**Preconditions:**

User must have set up basic information (age, weight, resting heart rate)

**Postconditions:**

System must have recorded new data input

**Main Success Scenario:**

(UC5main):

1. User selects “Input Data” from main menu
2. System prompts User for name of new data to be entered
3. User selects a name
4. User inputs data to be logged

**Extensions:**

(UC5a): System does not allow new data to be input

(UC5b): System fails to store data input by User

(UC5c): System does not allow access to data after entry

**Special Requirements:**

User must have set up basic information (height, weight, age, resting heart rate)

**Variations in Tech and Data:**

All data is unique to users, tech is consistent

**Frequency of Occurrence:**

Varies, infrequently to multiple times per day

**Miscellaneous:**

N/A