HealthHub

PROJECT PLAN REPORT

Course Name	Software Engineering
Course Code	BLG411E
Course CRN	13330
Team Number	21
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Date	13.10.2017

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1. Introduction

"HealthHub" project aims creating a general-purpose health application on Android platform. "HealthHub" enables many functions to users. Firstly, users can keep track of a specific diet program. Secondly, the program can keep record of the medicines and medical analysis. In addition the program helps to daily life of diabetic patients. Lastly, some users can keep record of the sport programs.

1.1 Scope

The people who…

1. Keep track of a specific diet program.
2. Want to keep record of the medicines that are taken.
3. Want to keep record of their sport programs
4. Suffer from diabetes.
5. Want to keep record of the their medical analysis

1.2 Deliverables

Number	Name
1	Medicine Tracking
2	Sport program tracking
3	Diet program tracking
4	Medical Analysis
5	Diabetes
6	Account Management
7	Professional Advice

This program provides:

- Medicine tracking feature, that helps user to control their past and future medicine program
- Sport program tracking feature, that keeps record of sport exercises as well as step counter
- Diet program tracking feature, that allows users to control their diet program and record the meals they have eaten
- Medical analysis recording feature, that allows user to record their medical analysis reports with date and explanations
- Diabetes section, that allows diabetics to check the glycemic index, carbohydrate count of meals as well as record their blood sugar values and insulin doses
- Account management feature for two type of accounts: *'HealthMan's and **'Supervisor's
- Professional advice feature, that aims to consolidate the link between HealthMans and Supervisors

*HealthMan: The special name that we gave to normal users of this application.

**Supervisor: The special name that we gave to professionals such as doctors, dieticians and sport trainers of this application.

1.3 Epics

1.3.1 Epic Table

Number	Name	Deliverable
1.1	Medicine record	1. Medicine Tracking
1.2	Medicine reminder	1. Medicine Tracking
1.3	Medicine schedule	1. Medicine Tracking
2.1	Sport history	2. Sport program tracking
2.2	Sport schedule	2. Sport program tracking
2.3	Pedometer	2. Sport program tracking
3.1	Nutritional values	3. Diet program tracking
3.2	Meal table	3. Diet program tracking
3.3	Calorie values	3. Diet program tracking
4.1	Medical test record	4. Medical Analysis
5.1	Glycemic index of meals	5. Diabetes
5.2	Carbohydrate count	5. Diabetes
5.3	Insulin Doses	5. Diabetes
5.4	Blood Sugar Values	5. Diabetes
6.1	Profile Page Management	6. Account Management
6.2	Facebook and Google Login	6. Account Management
6.3	Account Authorization	6. Account Management
7.1	Access to Information	7. Professional Advice
7.2	Supervisor Comments	7. Professional Advice

1.3.2 Epic Explanations

- Medicine record: This application allows users to record the medicine which they have taken with detailed information. Users shall be able to see the medicine usage history.
- Medicine reminder: Users will be reminded when they need to take a medicine according to their medicine schedule.
- Medicine schedule: Users will be able to create their medicine program and keep track of their medicine usage easily.
- Sport history: This application allows users to record the sport exercises which they have done with detailed information. Users shall be able to see the exercise history.
- Sport schedule: Users will be able to create their sport program and keep track of their sport activities easily.
- Pedometer: Users will be able to observe the number of steps taken daily.
- Nutritional values: This application will inform users about the nutritional values of their meals.
- Meal table: Users will be able to add foods they have eaten to this table and keep track of their meals.
- Calorie values: This application will inform users about the calorie values of the foods.
- Medical test record: Users will be able to save their medical test reports (like blood analysis) and display past records via this application.
- Glycemic index of meals: This application will inform users about the glycemic index of the foods, which is important for diabetics.
- Carbohydrate count: This application allows users to see the carbohydrate count of foods, which is an essential factor for diabetics.
- Insulin Doses: Users will be able to record the insulin doses they have taken with time information.
- Blood Sugar Values: The measured blood sugar values will be able to saved by time via this application.
- Profile Page Management: Users will be able to create their own profile page and edit the information.
- Facebook and Google Login: This application allows users to sign in to the system via their Facebook or Google Accounts.
- Account Authorization: In this application there will be two types of accounts: HealthMans and Supervisors.
- Access to Information: Supervisor accounts will be able to see the information of HealthMan accounts if they are following that account.
- Supervisor Comments: Supervisor accounts will be able to give advice to accounts which they are following.

1.4 Non-functional Issues

1.4.1. Portability:

- This application should be portable for different android based devices.

1.4.2. Performance:

- The performance of the system should be as fast as possible when accessing different tables, logging in and adding/updating/deleting data from the tables since these functions are used most commonly.

1.4.3. Security:

- Firebase will be used for database operations. Due to the fact that firebase is backed by Google and is a Google product for Android apps, it will be a secure program.

1.4.4. Usability and Appearance:

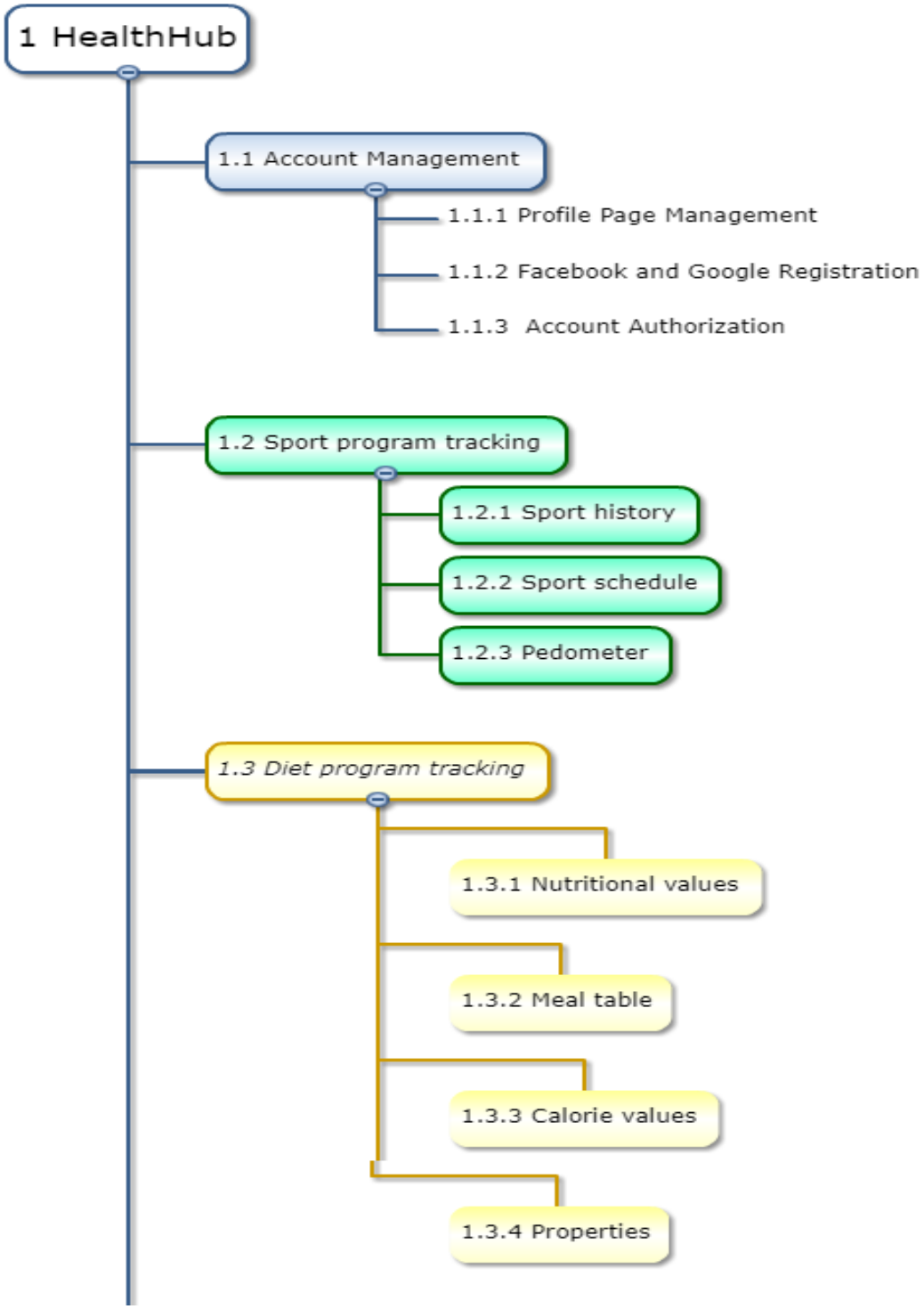
- Appearance and usability is a very important issue since this will be a mobile application.
- The appearance of the app will be as modern and user-friendly as possible.
- The developers will design the app considering users' interests and needs to have a better usability.

14.5. Reusability:

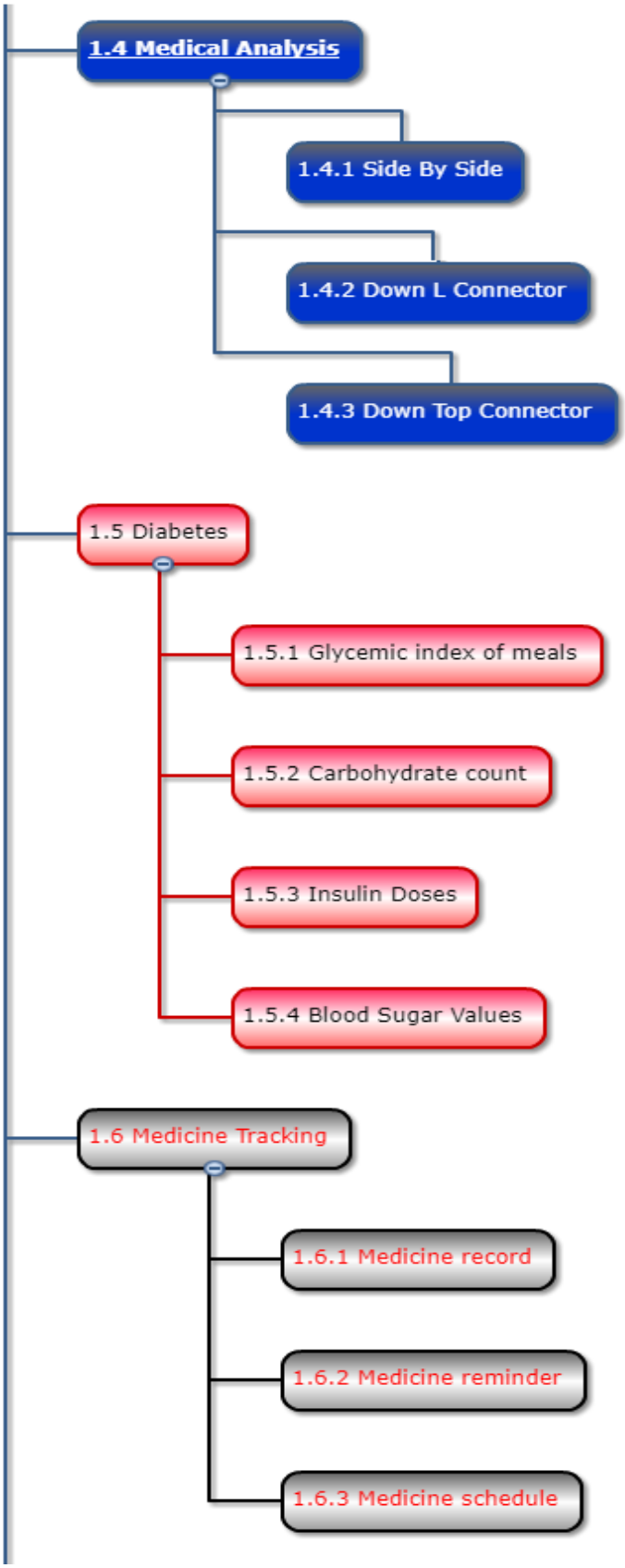
- Functions for logging in, getting from or writing into the database, table views can be used for other projects.

2. Project Plan

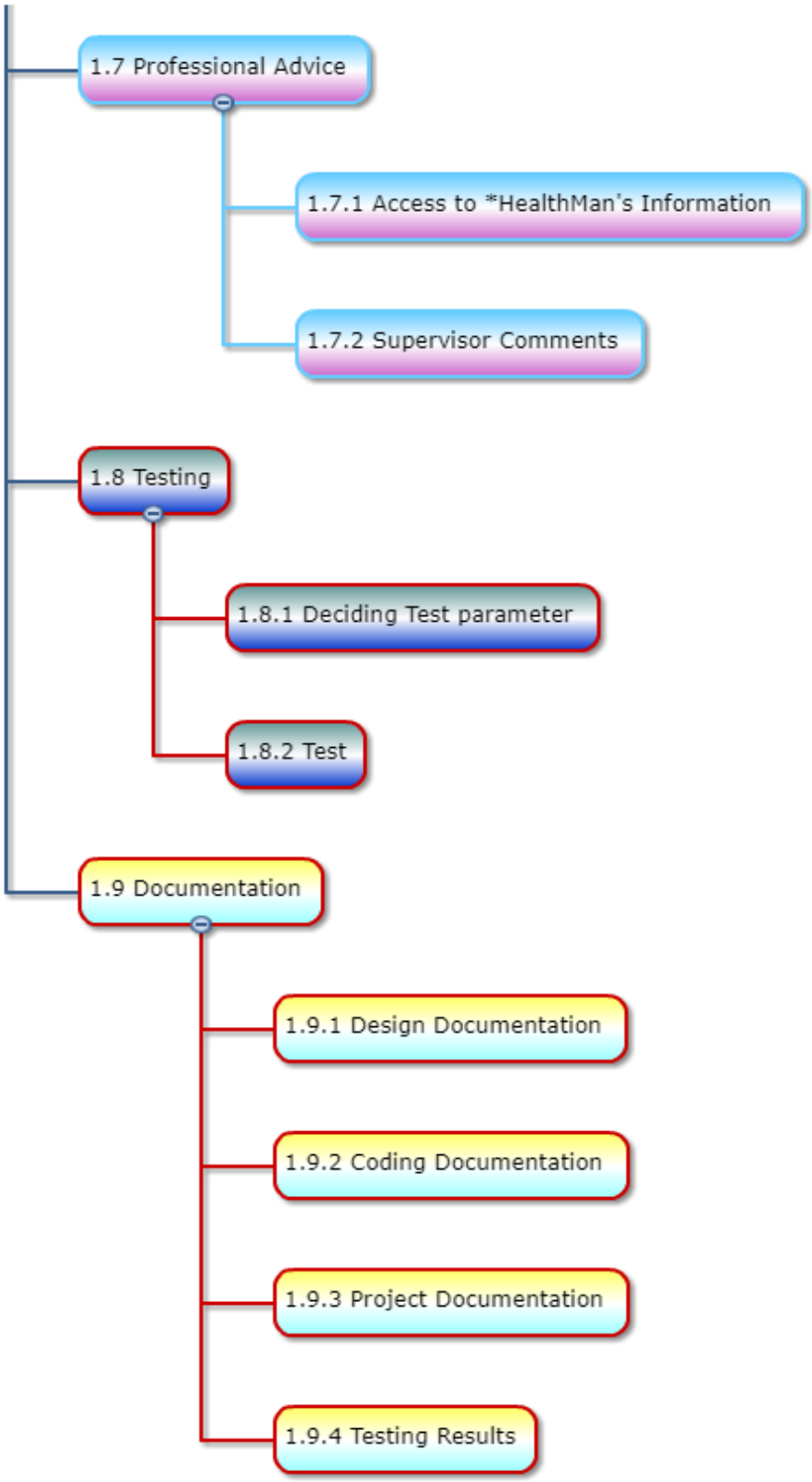
2.1 Work Breakdown Structure



WBS - PART 1


1.4 Medical Analysis
1.4.1 Side By Side
1.4.2 Down L Connector
1.4.3 Down Top Connector
1.5 Diabetes
1.5.1 Glycemic index of meals
1.5.2 Carbohydrate count
1.5.3 Insulin Doses
1.5.4 Blood Sugar Values
1.6 Medicine Tracking
1.6.1 Medicine record
1.6.2 Medicine reminder
1.6.3 Medicine schedule

WBS - PART 2


1.7 Professional Advice
1.7.1 Access to *HealthMan's Information
1.7.2 Supervisor Comments
1.8 Testing
1.8.1 Deciding Test parameter
1.8.2 Test
1.9 Documentation
1.9.1 Design Documentation
1.9.2 Coding Documentation
1.9.3 Project Documentation
1.9.4 Testing Results

WBS - PART 3

2.2 Components

1. Medicine Tracking: XL
    1.1. Medicine Record: L
        1.1.1. Medicine Information: M
        1.1.2. Medicine History: M
    1.2. Medicine reminder: L
        1.2.1. Medicine Time: M
        1.2.2. Medicine Remind: M
    1.3. Medicine schedule: L
        1.3.1. Future Medicine Info: M
        1.3.2.Display Future Medicine: M

2. Sport program tracking: XL
    2.1. Sport history: L
        2.1.1. Sports Info: M
        2.1.2. Sports Records: M
    2.2. Sport schedule: L
        2.2.1. Future Sports: M
        2.2.2. Display Future Information: M
    2.3. Pedometer: L
        2.3.1. Step Counter: M
        2.3.2. Step Record: M
        2.3.3. Display Steps: M

3. Diet program tracking: XL
    3.1. Nutritional Values: L
        3.1.1. Nutritional Info: M
        3.1.2. Display Nutritions: M
    3.2. Meal Table: L
        3.2.1. Add Meal: M
        3.2.2. Display Meal: M
    3.3. Calorie Values: L
        3.3.1. Record Calories: M
        3.3.2. Display Daily Calorie: M

4. Medical Analysis: XL
    4.1. Medical test record: L
        4.1.1. Save medical test: M
        4.1.2. Display medical test: M

5. Diabetes: XL
    5.1. Glycemic index of meals: L
        5.1.1. Glycemic Values: M
        5.1.2. Display glycemic Range: M
    5.2. Carbohydrate count: L
        5.2.1. Carbohydrate Values: M
        5.2.2. Display Carbohydrate Count: M
    5.3. Insulin Doses: L
        5.3.1. Save Injected Insulin: M
        5.3.2. Display Injected Insulin: M
    5.4. Blood Sugar Values: L
        5.4.1. Save blood sugar values: M
        5.4.2. Display blood sugar values: M

6. Account Management: XL
    6.1. Profile Page Management: L
        6.1.1. Account Creation: M
        6.1.2. Account Edit: M
    6.2. Facebook and Google Login: L
    6.3. Account Authorization: L
        6.3.1. HealthMan: M
        6.3.2. Supervisor: M

7. Professional Advice: XL
    7.1. Access to Information: L
        7.1.1. Diet Info: S
        7.1.2. Sport Info: S
        7.1.3. Medicine Info: S
    7.2. Supervisor Comments: L
        7.2.1. Advice Medicine recipe: M
        7.2.2. Advice a sport schedule: M
        7.2.3. Advice a diet program: M
        7.2.4. Share opinions: S

3. Estimates

- We have calculated the estimates by using the function point method.
- In the function point method, there are 4 steps.

1. Counting Data Functions and Transactional Functions
   1.1. Data Functions
      1.1.1. Internal Logical Files(ILF)

ILF	**Complexity Value**
Users file	7
Medicines file	7
Foods file	7
Medical analysis file	10

      1.1.2. External Interface Files(EIF)

   1.2. Transactional Functions
      1.2.1. External Inputs(EI)

EI	**Complexity Value**
Medicine transaction buttons	4
Medicine information input area in the screen for adding/editing data	4
Navigation panel buttons	6
Sport program transaction buttons	4
Sport program information input screen for adding/editing data	4
Diet program transaction buttons	4
Food information input area in the screen for adding/editing data	4
Former medical analysis input screen	3
Medical analysis selection transaction buttons	4
Insulin dose transaction buttons	4
Insulin dose information input area	4
Blood sugar values input screen	4
Profile page information area	6
Profile page transaction buttons	6
Facebook and Google login	6
Follow button for pro users to follow normal users	6
Accept/reject button for the following	6
Show professionals button to show the follower professionals to the normal users	6

1.2.2. External Outputs(EO)

EO	Complexity Value
Total calorie values	5
Total nutritional values(protein, carbohydrate, fat)	5
Total carbohydrate count (on the diabetes page only)	5
Total insulin doses	5

1.2.3. External Inquiries(EQ)

EQ	Complexity Value
Medicine program screen	4
Sport program screen	4
Diet program screen	4
Showing medical analysis	6
Profile page screen	6
Diabetes insulin doses/blood sugar values/diet program screen(all in the same table)	6
Following notifications	4
Pedometer result	6
Follower professionals screen	6

2. Calculating Unadjusted Function Point

Type of Component	**Complexity of Components**			
	Low	**Average**	**High**	**Total**
EI	1x3	10x4	7x6	85
EO	0x4	4x5	0x7	20
EQ	0x3	4x4	5x6	46
ILF	3x7	1x10	0x15	31
Unadjusted Function Points: 182				

3. Calculating Value Adjustment Factor (VAF)

- VAF consists of 14 General System Characteristics (GSC)

- Each GSC can take values from 0 to 5

Description	**Rating**
No influence	0
Incidental	1
Moderate	2
Average	3
Significant	4
Essential	5

GSC	**Rating(0-5)**
Data communications	5
Distributed data processing	1
Performance	4
Heavily used configuration	2
Transaction rate	5
On-Line data entry	5
End-user efficiency	5
On-Line update	4
Complex processing	1
Reusability	5
Installation ease	4
Operational ease	4
Multiple sites	1
Facilitate change	3
	Total = 49

- VAF = 0.65 + (Sum of all GSC factors) * 0.01)
- VAF = 0.65 + (49 * 0.01)
- VAF = 1.14

4. Calculating Adjusted Function Point

- Adjusted FP = VAF * (Total Unadjusted FP)
- Adjusted FP = 1.14 * 182
- Adjusted FP = 207.48

The program will be implemented in Android platform. The Android platform and Java has a standard rate of 53 LOC/ FP averagely.

207.48*53 = 10996,48 lines of code

We assume a programmer will study 7 function points per day.
That means the program will be completed in 207.48 / 7 = 30 days.

4. Resources

4.1 Team Structure

Members	Roles
Hakan Sander	Project Manager
Rıdvan Sırma	Back-end Developer
Görkem Toppeker	Front-end Developer
Adil Furkan Ekici	Full-stack Developer

4.2 Mapping Components to Members

Members	Project Components
Hakan Sander	Glycemic index of meals, Carbohydrate count, Insulin Doses, Blood Sugar Values, Profile Management
Rıdvan Sırma	Sport history, Sport schedule, Pedometer, Facebook and Google Login, Supervisor Comments
Görkem Toppeker	Medicine record, Medicine reminder, Medicine schedule, Medical test record, Account Authorization
Adil Furkan Ekici	Nutritional values, Meal table, Calorie values, Access to Information

5. Schedule

5.1 Gantt Chart

	Project Planner				
	Select a period to highlight at right. A legend describing the charting follows.				
	ACTIVITY	PLAN START	PLAN DURATION	ACTUAL START	PRECONDITION
1	**HealthHub**	1	12	1	
2	**1 Account Management**	1	3	16	
3	1.1 Profile Page Management	2	2	16	10
4	1.1.1 Account Creation	2	1	16	10
5	1.1.2 Account Edit	3	1	16	10
6	1.2 Facebook and Google Registration	1	1	16	
7	1.3 Account Authorization	2	1	16	10
8	1.3.1 HealthMan*	2	1	16	10
9	1.3.2 Supervisor	2	1	16	10
10	**2 Sport program tracking**	4	7	9	6
11	2.1 Sport history	4	5	9	6
12	2.1.1 Sports info	7	2	9	6,17
13	2.1.2 Sports History	4	3	8	6
14	2.2 Sport schedule	4	5	10	6
15	2.2.1 Future Sports	4	3	11	6

16	2.2.2 Display Future Information	7	2	12	6,19
17	2.3 Pedometer	9	2	12	6
18	2.3.1 Step Counter	9	2	14	6
19	2.3.2 Step Record	9	2	14	6
20	2.3.3 Display steps	9	2	14	6
21	**3 Diet program tracking**	4	5	15	6
22	3.1 Nutritional values	4	5	15	6
23	3.1.1 Nutritional Info	4	3	15	6
24	3.1.2 Display Nutritions	7	2	16	6,27
25	3.2 Meal table	4	5	16	6
26	3.2.1 Add meal	4	3	16	6
27	3.2.2 Display meal	7	2	16	6,30
28	3.3 Calorie values	4	5	16	6
29	3.3.1 Record calories	4	3	16	6
30	3.3.2 Display Daily Calorie	7	2	16	6,33
31	**4 Medical Analysis**	4	5	16	6
32	4.1 Medical test record	4	5	16	6
33	4.1.1 Save medical test	4	3	16	6
34	4.1.2 Display medical test	7	2	16	6,38
35	**5 Diabetes**	6	5	16	6
36	5.1 Glycemic index of meals	6	5	16	6
37	5.1.1 Glycemic Values	6	3	16	6

38	5.1.2 Display glycemic Range	9	2	16	6,41
39	5.2 Carbohydrate count	6	5	16	6
40	5.2.1 Carbohydrate Values	6	3	16	6
41	5.2.2 Display Carbohydrate Count	9	2	16	6,44
42	5.3 Insulin Doses	6	5	16	6
43	5.3.1 Save Injected Insulin	6	3	16	6
44	5.3.2 Display Injected Insulin	9	2	16	6,47
45	5.4 Blood Sugar Values	6	5	16	6
46	5.4.1 Save blood sugar values	6	3	16	6
47	5.4.2 Display blood sugar values	9	2	16	6,50
48	**6 Medicine Tracking**	4	5	1	6
49	6.1 Medicine record	4	5	2	6
50	6.1.1 Medicine Information	7	2	4	6,55
51	6.1.2 Medicine History	4	3	4	6
52	6.2 Medicine reminder	4	5	4	6
53	6.2.1 Medicine Time	4	3	5	6
54	6.2.2 Medicine Remind	7	2	5	6,58
55	6.3 Medicine schedule	4	5	5	6
56	6.3.1 Future Medicine Info	4	3	6	6
57	6.3.2 Display future medicine	7	2	5	6,60
58	**7 Professional Advice**	8	3	16	11
59	7.1 Access to *HealthMan's Information	8	1	16	11

60	7.1.1 Diet Info	8	1	16	11,25
61	7.1.2 Sport Info	8	1	16	11,14
62	7.1.3 Medicine Info	8	1	16	11,52
63	7.2 Supervisor Comments	9	2	16	11
64	7.2.1 Advice Medicine recipe	9	2	16	11,52
65	7.2.2 Advice a sport schedule	9	2	16	11,14
66	7.2.3 Advice a diet program	9	2	16	11,25
67	7.2.4 Share opinions	9	2	16	11
68	**8 Testing**	11	1	16	6,14,25,35,39,52,62
69	8.1 Deciding Test parameter	11	1	16	
70	8.2 Test	11	1	16	
71	**9 Documentation**	12	1	16	6,14,25,35,39,52,62
72	9.1 Design Documentation	12	1	16	
73	9.2 Coding Documentation	12	1	16	
74	9.3 Project Documentation	12	1	16	
75	9.4 Testing Results	12	1	16	

	PERIODS											
	1	2	3	4	5	6	7	8	9	10	11	12
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6. Risks

6.1 Risk Impact / Probability Table

Risks	Category	Probabilty (%)	Impact
Developments in Android Platform may affect project process	TE	%30	1
Similar programs may decrease the number of users	BU	%30	2
Customers may have dynamic demands	CU	%40	2
The project might not be finished on time	PS	%40	3
Insufficient knowledge of developers about Android Platform might lead to difficulties	ST	%50	2
Communication issues between the team members can affect the development pace	ST	%60	2

6.2 Risk Mitigation Table

Risks	Mitigation	Project Activities
Developments in Android Platform may affect project process	Team members should follow the recent improvements in Android Platform	All the project development processes
Similar programs may decrease the number of users	The program should have unique user-friendly properties	Front-End design and Performance Optimization
Customers may have dynamic demands	The meetings between customers and developers must be more frequent	Customer Meetings and Relations
The project might not be finished on time	All the team members must finish their tasks on time	All the project development processes
Insufficient knowledge of developers about Android Platform might lead to difficulties	Developers should spend more time on developing their Android skills	Developing Android skills during the project process
Communication issues between the team members can affect the development pace	Communication platforms should be used more effectively	Team meetings and using GitHub Platform during the project process