

Project: United Healthline Networks

CSE 5325 – Fall 2018

Project Management

Module: Project Scope & Feasibility

Deliverable: Scope & Feasibility Document

Version: [1.0]

Date: [09/20/2018]

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1. Introduction and Executive Summary

United Healthline Networks is a small company located in Arlington, Texas. In order to help their clients, keep track of personal health-related data, they have approached our team to create a website and an Android application. This project should be capable of monitoring vital signs, daily medicine intake or a diet regiment. This would also lead to their brand building and establishing online presence. The website and the Android application must be up and operational by December 10th, 2018.

We have outlined various tasks such as Requirement gathering, Architecture review, System design and coding, Integration and testing which we would undertake while developing the website and the Android application. Because of a three-month duration and having the complete requirements for this project, we would use the Waterfall model.

This project would have two sets of releases, the first release would be on the November 10th, 2018 and the second and the final release would be on the December 10th, 2018. The first release is called v1.0 and would have all the basic functionalities specified by the client. This code must be ready to be tested. The second release is called v2.0 and would have all the functionalities tested and ready to use for our client. We would be adding the GPS feature to search nearby pharmacy stores only upon a request from the client. The estimated cost for this project is \$500,000. The estimated cost includes salaries, hardware requirements, software requirements and other surcharges.

We will also have a contract with the client stating that the source code will not be shared with them. Thereby this project will yield higher returns and be a potential gain to the company by acquiring new clients while retaining existing clients.

2. Objectives

2.1 BUSINESS OBJECTIVES

The following is the list of business objectives:

Objective 1: Login – Project will be secured, and we would use public key cryptography to achieve the same. This is to avoid falsifying/altering user information. The user must register and login in order to input their medical history and data.

Objective 2: Vital signs – System will maintain all vital signs such as Blood pressure, glucose level, Cholesterol.

Objective 3: Client profile – is accessible both from the website and Android app.

Objective 4: Medication – An alarm/ notification system would be included to remind the patient to take their medication on time. This feature is available on both the website and android application.

Objective 5: Diet – The patient would be able to input and track their food intake, calorie count and weight. This feature is available on both the website and android application.

Objective 6: Bookmark Notes – All users would be able to bookmark their favorite recipes, diet description, health articles or any general notes.

Objective 7: Payment Mode – Customers would be able to appoint a dietician through the website and the mobile application. System will accept Credit/Debit cards only as a mode of payment.

Objective 8: Report – System will generate weekly on the customers activity on the website and the mobile application.

Objective 9: Search – System will give customers the capability to find stored or general data.

Objective 10: Monitoring System – System will inform the individual or other designees(e.g. children of an elderly or doctor / pharmacist) in case medicine is not consumed, or it has life-threatening medical conflict with other medicine.

Objective 11: Communication Management– System must verify if the email, phone number are valid. The email, cell phone calls and text messages must be provided by the customer for relevant communication information.

Objective 12: Data Maintenance – The data should be easily maintained by the client. The code should be configurable to accommodate adding a new doctor or new medicine to the system without additional programming.

Objective 13: Record Management – System will maintain details of the registered customers such as their names, email address, phone number, address, Preferred payment method. It will also store browsing history of registered customers to recommend new BP monitoring device in the market, sugar supplements etc.

Objective 14: Health Graph – System will show the graph of weight loss/gain in a weeks or months period based on customers selection

Objective 15: Transaction Management – The customer would be refunded if the Dietician/Physician has cancelled their appointment.

Objective 16: Documentation – A brief test plan and user manual must be provided with the final product.

Objective 17: Design: Both the website and mobile app should have a great look & feel

2.2 SYSTEM OBJECTIVES

The following is the list of system objectives:

Objective 1: A Web-based and Android application will be provided.

Objective 2: Google Search will be integrated into the system for search requirements.

Objective 3: Project will use database (MySQL) for storing customer data, records and transactions for website and the mobile application.

Objective 4: Payment gateway for payment will also be integrated into the system for smooth transaction processing.

Objective 5: Social media plugins will also be integrated in the system so that customers can follow company's social media account for latest update and news. The customers can also share a product they like on their social media page.

Objective 6: Analytics tool will be integrated for report generation.

3 Project Feasibility, Risks and Metrics

Project feasibility and metrics are summarized below:

3.1 PROJECT FEASIBILITY CONCERNS

Market Readiness:

Most of the people are shifting to online resources for medical health supervision. Reliable online sources provide general, easily understandable information about fitness, diets to name a few. When used properly online research can help proactively identify a bad lifestyle. Also, many smart watches in the market allows to monitor heart rates. This is the right time to venture into the healthcare market.

Technical Issues:

Security is one of the main technical issues as the current applications can easily be compromised by using high computational power.

Resources:

We need a dedicated server is required rather than opting for cloud storage or a third-party vendor due to high cost and availability.

Cost:

The cost will be defined on the basis of creating the website and the mobile application from scratch or by making use of pre-defined modules and changing them accordingly to client requirements and then integrating them to deliver the final product.

Time to Market:

We have two months to develop both web and mobile application which is too aggressive. A website and mobile application already exist in the market. So, some additional features that would increase user experience and also the revenue base of the client needs be integrated to the system.

3.2 PROJECT RISKS

1. One of the high risks is going over the budget.

The reasons may be due to unexpected events such as employee leaving the team, damaged hardware/software resources.

2. Hosting service provider server crashes which will disrupt operations of the company.

A Standalone Server will be stored in the company's headquarters so that it can handle the load, till the original server gets fixed.

3. If the Databases crashes, hence there would be a problem in login into the system and an inconsistent state of the database.

There will be multiple databases so that we can retrieve data if one of them fails.

4. If the Power generator crashes, hence there no power to run any of the systems.

There will be multiple power generators across different cities to manage power mishaps

5. Unauthorized user gets into the company database and release critical information's.

Public key cryptographic algorithms will be used for security of the website and digital signatures will also be employed in the system.

6. No appropriate Android Developer in the team.

3.3 PROJECT METRICS

1. An average of 100 customers will access the system at the same time without any errors.
2. On an average day the site will be able to handle 10000 requests without failing.
3. The site should load properly on web browser and also when accessed on mobile devices.
4. When multiple transactions are done by the same user, the database should have the correct state after each transaction.
5. Correct diet chart/graph report should be generated.
6. When multiple users are booking an appointment with the dietician/physician, the database should always show the right state to the user regarding product quantity.
7. The analytics tool must suggest articles that customer would like based on their past readings.
8. Provide a great customer experience to increase customer retention rate.
9. The success of this project would depend on the number of purchases made by the customer and number of successful appointments with the dietician/physician.

4 Project Scope and Process Model

Project scope includes the following:

1. Payment gateway - COD, Debit/Credit cards methods will be in the first iteration.
2. Interactive graphic design for the website and the mobile application employing full width images and dynamic UI.
3. Separate buttons for Login and Register.
4. Data Maintenance Adding New Doctors/ Medicines will be in the first iteration. Rescheduling and cancel would be in the final deliverable.
5. Report generation on a weekly/monthly basis would be in the first iteration and daily in the final deliverable.
6. Delivery Management - Order details information will be there in the first iteration. Tracking Information screen will be in the final deliverable.
7. Search of merchandise and details of the product will be there in first iteration.
8. Record Management – Information related to Customer details will be there in the first iteration. Recommendations on their browsing history will be there in final deliverable.
9. Transaction Management including refund management will be in the first iteration.
10. Training Client
11. GPS support would be provided in the next phase of the project.

The following is a list of items out of scope:

1. Post Project Maintenance
2. Changes in contract negotiation and legal concerns
3. Network Issues
4. No registration via social media websites (Facebook, Twitter)
5. Tax Issues
6. iOS mobile application
7. No Payment via PayPal, Apple pay etc.

4.1 PROJECT PROCESS MODEL

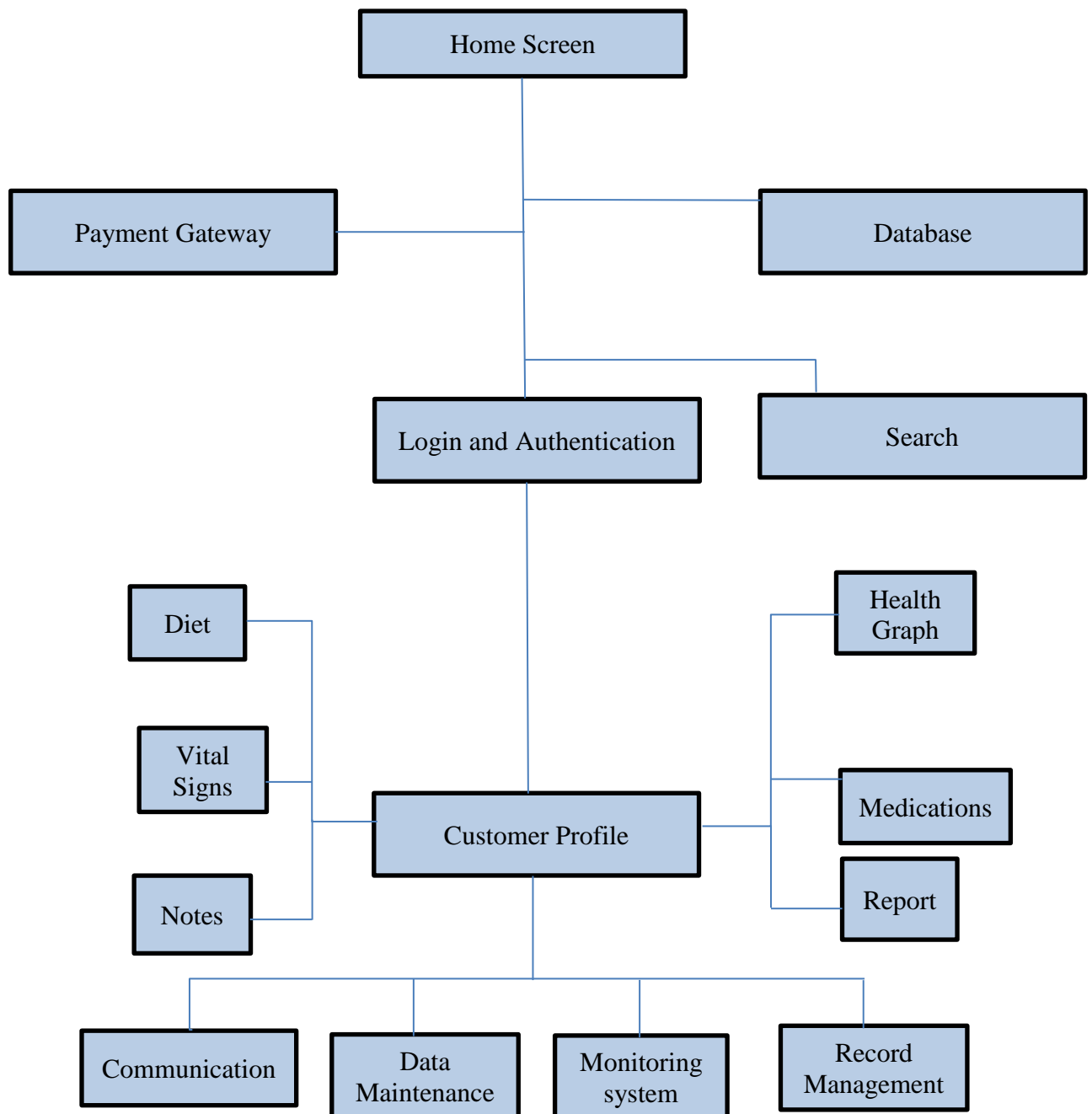
Since the requirements are very well known, clear and fixed. The project is short and has understood the technology, thereby, we already have the client's requirements in place we would be using Waterfall model in the project.

With waterfall model we have the following advantages [1]:

- This model is simple and easy to understand and use.
- It is easy to manage due to the rigidity of the model – each phase has specific deliverables and a review process.
- In this model phases are processed and completed one at a time. Phases do not overlap.
- Waterfall model works well for smaller projects where requirements are very well understood.

4.2 PROJECT CONTEXT

Fig. 1 Context Model



5. Assumptions and Constraints

5.1 ASSUMPTIONS

The following is a list of assumptions:

- Customers must be 18 years or older.
- Average 10000 request per day.
- System remains accessible 24/7 to the admin and only during the office hours to the employees.
- At least 100 users should be able to access the system altogether at any given time.
- At least 20 transactions should be committed by the databases at the same time and should give correct state of the database.
- Products prices will be inclusive of all the taxes.
- Standard USPS delivery with a flat rate.
- There are no network issues.
- Employees receive no vacations during these 3-month project period.
- Client has no DB, no servers.

5.2 CONSTRAINTS

The following is a list of constraints:

- Aggressive time schedule
- Insufficient Android Programmers
- Employees should work on weekends if necessary.

6. Project Tasks, Schedule and Cost

The tasks that will be employed in the project are

1. Requirement Gathering - 10 days.
2. Architecture Review - 2 days.
3. System Design and Coding - 43 days.
4. Unit Testing Part 1 - 10 days.
5. Integration Testing Part 1 - 5 days.
6. First Iteration - 11/10/2018
7. Unit Testing Part 2 - 15 days.
8. Integration Testing Part 2 - 7 days.
9. User Acceptance Testing - 6 days.
10. Website Live - 12/10/2018

Project Management - 65 days. This will encompass constant client feedback on the deliverables as well as continuous client feedback.

In the above schedule I have considered weekends and public holidays.

Sl. No.	Items	Description	Quantity	Unit	Rate(\$)	Amount(\$)
1	Laptops	Apple MacBook Pro - 13"Display - Intel Core i5 For Website Development	2		1,199	2,398
2	Laptops	Dell Inspiron i7559-2512BLK for Android Development	4		847	3,388
3	Software	Microsoft Visual Studio Enterprise Edition (\$250/month)	6		4,500	4,500
		Telerik Reporting	1		600	600
		Android Studio and SDK tools	3		Free	Free
4	Backend	Website Domain (GoDaddy- 1 year)			11.99	11.99
		Payment Gateway (\$ 25-30 per month for 1 year)			360	360
		Website Hosting with office 365 webmail and search engine visibility (1year Plan)				133.55
	Manpower					
4	Manager	8 hours/day for 65 days (Excl. Holidays)	520	Hour	100	52000
5	Resource persons (5)	8 hours/day for 65 days (Excl. Holidays)	2600	Hour	50	130000
	Other Cost					
6	Health Insurance and other surcharges					92,400
7	Miscellaneous					30000
8	Total Cost (1 to 7)					285,783.54

7. Conclusion and Recommendations

United Healthline Networks is a small company located in Arlington, Texas. In order to help their clients, keep track of personal health-related data, they have approached our team to create a website and an Android application. This document gave a feasibility study for the same. Though there are certain risks related to the project like having the host provider server crash, Database crash or Fraud in transactions. However, there are many benefits as well such as helping customers monitors their health stats on the go, the revenue of the company is increased and opportunity to acquire new clients.

A recommendation would be: Since the time schedule is very aggressive and ambitious we could rather provide the main functionalities than all the functionalities at once. We could understand the customer response and the market behavior and then decide to provide all the additional functionalities rather than providing the complete software as one.

I also recommend using the RAD model [11] (Rapid Application Development) model, an incremental model. In RAD model the components or functions are developed in parallel as if they were mini projects. The developments are time boxed, delivered and then assembled into a working prototype.

I would also recommend the team to use Apache Cordova for building the website and Mobile application.

Advantages of the RAD model:

- Reduced development time.
- Increases reusability of components
- Quick initial reviews occur
- Encourages customer feedback
- Integration from very beginning solves a lot of integration issues.

Appendices

1. Waterfall Model <http://tryqa.com/what-is-waterfall-model-advantages-disadvantages-and-when-to-use-it/>
2. CHEAPEST MACBOOK AVAILABLE HTTPS://WWW.BESTBUY.COM/SITE/APPLE-MACBOOK-PRO-13-DISPLAY-INTEL-CORE-I5-8-GB-MEMORY-128GB-FLASH-STORAGE-SILVER/5721726.P?SKUId=5721726&REF=212&LOC=1&GCLID=CjwKCAjWio3dBRAqEiWAhW5NVS7IEiPC4Zmx6wEXGNADb_MEIDXH_4uZYbZi7N4BqPI9V4EUzCo34BoC1G8QAVD_BWE&GCLSRC=AW.DS
3. Dell Inspiron <https://www.amazon.com/Dell-Inspiron-i7559-2512BLK-Generation-GeForce/dp/B015PYZ0J6>
4. Visual Studio <https://www.visualstudio.com/vs/pricing/>
5. Telerik reporting <http://www.telerik.com/purchase/individual/reporting.aspx>
6. GoDaddy <https://www.godaddy.com/tlds/net-domain?isc=gofd2001aj>
7. <https://www.oho.com/blog/hospital-website-design-meeting-prospective-patients-content-needs>
8. <https://www.vitaminshoppe.com/>
9. <https://developer.android.com/studio/>
10. <https://www.mysql.com/>
11. <http://tryqa.com/what-is-rad-model-advantages-disadvantages-and-when-to-use-it/>
12. <https://cordova.apache.org/>