Textual Analysis1

Problem Statement

Your company has been awarded the contract to create a “Clinical Management System” software using Object Oriented /Unified Process methodology for the ABC family medicine and walk in clinic. Some members of your team interviewed the client; the clinic manager, to collect requirements about the proposed system and took the following interview notes.

I am building a new family medicine and walk-in clinic (ABC clinic) in the Greater Toronto Area. We are anticipating to serve to approximately 1500-2000 patients per week on the average. We will initially have ten physicians (doctors), six nurses and eight receptionists and two Assistant managers to help me in running the day to day affairs of the clinic. Our clinic will be open 9a. to 7p.m Monday to Saturday.

I have almost twenty (20) years' experience of managing medical clinics. We would like to store patient related data electronically as there is a governmental regulation to store and safeguard patients' information for confidentiality and privacy reasons. I have seen some very sophisticated software systems implemented in some clinics which offer almost all electronic features and are practically paperless and would like to have something like that for our clinic. Our Budget is 1 million dollars and the system should be implemented (completed) within 9 months timeframe.

Based on our discussion today I am summarizing the main functions that we would like to have in the software. I might forget to mention some items here and in case you need further information/clarification please don't hesitate to contact me at any time (as a group

or in the class/lab). I might also send you any additional information at a later stage.

Our business motto is to deliver best possible healthcare to our patients and we hope that the system that your team will develop will help us achieve excellence. I would be delighted to answer any further questions from your side and please let me know in case you would like to interview other potential user (doctors, nurses, and receptionists) and I will arrange it as well.

New Patients will have to call the clinic to book an appointment with a physician and if they decide may become permanent patients of one of our physicians by filling up Ministry of Health's forms. We are required to send these paper forms to the ministry (and keep one copy for our records). Once they become permanent patients, they can either book, cancel or

reschedule an appointment either online or by calling the front desk. Once booked an appointment can only be cancelled or rescheduled until 24 hours before the scheduled time. No shows or missed appointments are charged 30$ Patients do not have to pay for medical services in Canada however they are certain items that are not covered by the government and the patients will be required to pay for these services such as medical/sick notes, travel vaccinations etc. We will accept payments in cash or via a major credit card.

Patients may also come as a walk-in patient during the business hours and are put in the queue for the first available physician at that time (They cannot book a walkin appointment). The system should keep a track of patients' appointment and change the status accordingly: booked, cancelled, arrived, Checked IN, Checked OUT, LWT(left without treatment), No

show etc.

Walk in patients are checked in, placed in the queue and are seen by the next available doctor. There are two exceptions to this process; a patient may request to be seen by a particular doctor and a patient may jump the wait line in case of an urgent need i.e. the triage process (i.e. chest pain, wound treatment etc.). The default time slot for patient appointment with doctor is 15 minutes but patients with special circumstances can be scheduled for double time (30 minutes).

The system should store patients' basic information including her name, address, contact, health card, and his or her previous history of visits, treatment, medications, and lab results. Upon arrival (both scheduled and walk in) the receptionist would verify each patient's health card in real time (linked directly

with ministry's system), address and contact details and then the secretary marks "checked in" status. At the end of the appointment, the secretary marks a "check out" status.

The nurse will then take the patient to an examination room and enter his or her temperature, height, weight blood pressure and brief history of problems/symptoms and notes it down in the system. The patient is then seen by a doctor who would enter patient's complaints/symptoms, diagnosis and medications prescribed.

The doctor should be able to do the following three tasks either by generating a print out from the system (and hand it to the patient) or send directly to the external party electronically (if the third party offers an electronic interface).
a. Prescriptions (print out given to the patient or sent to the pharmacy electronically)

b. Lab Requisitions (print out given to the patient or sent to the Laboratory electronically: and receiving the test results back electronically as well).
c. Specialist Referrals (print out given to the patient or sent to Specialists doctors' offices electronically: and receiving the specialists notes/letters back electronically as well)

The system should be able to store scanned copies of paper documents in some situations (for instance: in case of receiving paper based lab results/specialist letters.

In case of any abnormal lab test results, patient should be recalled back to the clinic immediately to be seen by a doctor and discuss the results. The system should keep a track of all the calls made or messages sent to the patient by the clinic.

The physicians are paid directly by the government for the services rendered to the patients. The system should provide the capability for the doctors to bill the government for their services and see their payments.

There are however some patients who do not have government health coverage and they may pay cash, or may have coverage by an insurance company and the system should provide the Accounts Receivable and payable functionality for these and other cash payments (non-covered services mentioned before).

The system should also provide reports about patients, visits, financial accounts, usage statistics etc.

My job responsibilities as a manager include scheduling doctors, nurses and receptionists/secretaries for shifts. I calculate

the number of hours worked for each non salaried employees (except doctors off course). I then provide this information to our accountant (external company hired by the owner) and they take care of payrolls and salaries. Full time employee's salaries and payroll is also managed by our accounting firm.

Data Dictionary

No.	Candidate Class	Extracted Text	Type	Description	Occur.
1	Assist manager in day to day affairs	help me in running the day to day affairs of the clinic	Use Case		1
2	No Shows/Late Patients Charged	charged 30$	Use Case		1
3	See to patient	seen by the next available doctor.	Use Case		1
4	provide the capability	provide the capability	Use Case		1
5	Clinic Manager	clinic manager	Actor		1
6	Physicians	physicians	Actor		3
7	Nurses	nurses	Actor		2
8	Receptionists	receptionists	Actor		2
9	Assistant Managers	Assistant managers	Actor		1
10	Patients	patients	Actor		10
11	store patient related data	store patient related data	Use Case		1
12	call the clinic to book an appointment	call the clinic to book an appointment	Use Case		1
13	become	become	Use		2

	become permanent patients	become permanent patients	Use Case		1
14	send paper forms to ministry	send these paper forms to the ministry	Use Case		1
15	book, cancel or reschedule an appointment	book, cancel or reschedule an appointment	Use Case		1
16	pay for non-covered services	pay for these services such as medical/sick notes, travel vaccinations etc.	Use Case		1
17	come as walk-in patient	come as a walk-in patient	Use Case		1
18	manage patient appointment status	keep a track of patients' appointment and change the status accordingly	Use Case		1
19	request particular doctor	request to be seen by a particular doctor	Use Case		1
20	jump wait line	jump the wait line in case of an urgent need	Use Case		1
21	store patients' basic information	store patients' basic information	Use Case		1
22	verify patient's health card.	verify each patient's health card	Use Case		1
23	mark "check out" status.	marks a "check out" status.	Use Case		1
24	take patient to examination room	take the patient to an examination room	Use Case		1
25	enter patient's	enter patient's	Use		1

	complaints/symptoms, diagnosis and medications prescribed.	complaints/symptoms, diagnosis and medications prescribed.	Case		
26	Prescriptions	Prescriptions	Use Case		1
27	Lab Requisitions	Lab Requisitions	Use Case		1
28	Specialist Referrals	Specialist Referrals	Use Case		1
29	store scanned copies of paper documents	store scanned copies of paper documents	Use Case		1
30	track calls made or messages sent	keep a track of all the calls made or messages sent	Use Case		1
31	bill the government	bill the government	Use Case		1
32	pay cash	pay cash	Use Case		1
33	provide the Accounts Receivable	provide the Accounts Receivable	Use Case		1
34	System	system	Actor		13
35	scheduling shifts	scheduling doctors, nurses and receptionists/secretaries for shifts.	Use Case		1
36	calculate hours worked for employees	calculate the number of hours worked for each non salaried employees	Use Case		1
37	provide info to accountant	provide this information to our accountant	Use Case		1

		our accountant			
38	Accountant	accountant	Actor		0
39	manage payrolls/salaries	take care of payrolls and salaries.	Use Case		1
40	Permanent Patients	permanent patients	Actor		0
41	note patient data in system	enter his or her temperature, height, weight blood pressure and brief history of problems/symptoms	Use Case		1
42	recall patients	recalled back to the clinic	Use Case		1
43	provide reports on patient data	provide reports about patients, visits, financial accounts, usage statistics etc.	Use Case		1