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Term Project 3

Term Project III
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Abstract

Our life is moving at a rapid rate due to technological advancements. Companies are making internal changes to their working environment. System developments are technology driven due to the fact that they are reliable, efficient and cost effective. In the medical field these three criteria are essential to provide excellent service to patients. Essentially, ESS (Excellent Scheduling System) will replace the current file system in doctor’s offices and will transform it into a completely digital database. Furthermore, ESS will maintain and manage the entire database automatically and keeping track of patients whom have arrived and departed from the doctor’s office. On the other hand, the nurse will be more attentive to the patient’s need instead of spending time looking for files in a cabinet. As a result productivity will increase due to the fact that treatment will be more efficient and the nurse will spend more time analyzing patient symptoms.

Introduction

The secretary station is one of the most important departments in a doctor office due to the fact that is the medium on which all information is revised and stored. The new system will communicate wirelessly using server client service. The secretary will have a device that will check the office database and will have complete control of the entire doctor’s office. As the day starts, the nurse will carry this wireless device which is connected to the server. There is a terminal in the waiting room that takes patient’s information on arrival; this terminal is also connected to the server. With this in mind, the entire office is interconnected and the secretary station and nurse station is up to the minute in patient’s arrival and their information. According to nurses, they are the doctor’s right hand, due to the fact that most procedures are performed by the nurse such as vital signs checkup, review patient’s history and keeping stock of medication up to date. It is necessary to maintain the nurse as unoccupied as possible; therefore, the ESS will make this possible due to the features incorporated into the software.

Method

The ESS will have one terminal that is connected to the server and keep the database up to date. The terminal will ask if the patient is new or if registered patient. Then, if patient is new, the software will execute a routing for new patients, ask personal information, health information and at the end of this questioner the software will assign a PIN (Personal Identification Number) and let the patient sign in for the appointment. If the patient is registered, the software will perform a search for the patient and will ask for a personal question to determine the identity of the patient. Then, if identity is verified, the software will proceed and allow patient to sign in for the appointment. On the other hand, if the patient needs assistance when logging into the system, the secretary duty is to help the patient accomplish login Fig 1, show the process representation.
Results

According to the secretary, the ESS will revolutionize the world of scheduling and patient management. Due to the fact that, the backend of the office will be completely control by the ESS and the nurse will have more time to dedicate to the patient and the doctor. Features such as, scheduling will become more complex but at the same time, there will be no confusion due to the high comprehensive level of the ESS interface. It is important to keep in mind that the nurse can communicate with the secretary at any time of the process and can manage manually if an inconvenience occurs with the scheduling system or also to change patient’s information and health history.

ESS will have the secretary, the nurse, and the doctor connected to the ESS Server. As a result, the server will communicate with the database at all times, this server will be the path to the database, but the three stake holder will need not to be concern with the internal function of manipulation on the database. This will make the system more complex and robust but simple and easy to use for the stake holders.

Discussion

The system is in it basic form and features will become available as time progresses. The ESS will bring benefits to the clients, permanent data storage, knowing that the client information will be saved. Also will bring security, since its information is safe and protected in secure servers. Most important will provide an organize system that will help hospitals, clinics, and private doctor offices to keep track of their patients. Also as the system progresses with updates and upgrades, it is important to us to maintain the client updated with new feature and to develop useful tools to help increase productivity to its maximum.

Now, we have implemented a more complex system with the addition of the server and the database as shown in Fig. 6d. Now, the entire office can connect to the ESS Server and the ESS Server will then connect to the ESS Database where all off the information will be manipulated.

We have implemented many options; one of the most flexible is to have the doctor prescribe medication by selecting from a list

Conclusion

To finalize, the ESS is a great solution to have in every doctor’s office. Due to the fact that, it keep the office organize and keep the nurse attention on the patient. Also, it maintains the connectivity between the doctor and the nurse as well as the nurse to the secretary. The implementation of this system will revolutionize the approach at which secretaries, nurses and doctor will interact and in the work environment and more productivity will be accomplish.
Appendices

Android Database for Patient used

Fig 1
Activity Diagram
Secretary Activity Diagram

Check appointment list

Check patient status

New patient

Check patient Creates account
And
Receives code from terminal

Registered patient

Check information Is up-to-date

Send to Waiting room

Fig 2
Secretary Activity Diagram
Nurse Activity Diagram

Check patient history

Check vital signs

Prepare patient for doctor

Receive patients prescription

Send patient to secretary

Fig 3
Nurse Activity Diagram
Fig 4
Doctor Activity Diagram

Doctor Activity Diagram

- Review Patients History
- Check Vital Signs Using Wireless Device
- Check Patient Specific Condition
- Tell Patient Which Prescription To Take
Fig 5
Swim-Lane Diagram
Class Diagram For Android Database

Terminal connects with Secretary Device. Secretary connects with nurse. Nurse and Doctor device connect with each other.

Fig 6a
Class Diagram
Class Diagram For Android Database (UPDATED)

Fig 6b
Class Diagram

Terminal connects with Secretary Device. Secretary connects with nurse. Nurse and Doctor device connect with each other.
Class Diagram For Android
Database (UPDATED)

Fig 6c
Class Diagram
Fig 6d
Class Diagram
Fig. 7
Secretary Sequence Diagram
Doctor Sequence Diagram

Fig. 8
Doctor Sequence Diagram
Nurse Sequence Diagram

Fig. 10
Nurse Sequence Diagram
Fig. 11
Patient Sequence Diagram
NSS Sequence Diagram

Fig. 12
Entire Sequence Diagram
Zoom-In to see Details
Fig. 13
Secretary Use Case

Fig. 14
Nurse Use Case
Fig. 15
Patient Use Case

Fig. 16
Doctor Use Case
This part of the project will cover the State Diagrams. These state diagrams will show how the system will behave for each stake holder. We consider this part to be extremely important due to the fact that it will describe and enhance the understanding of the entire system.

Fig. 17
Secretary State Diagram (Tomorrow’s Schedule)
Fig. 18
Secretary State Diagram (Today’s Schedule)

Fig. 19
Secretary State Diagram (Patient Information)
Fig. 20
Secretary State Diagram (Billing)

Fig. 21
Secretary State Diagram (Doctor Referral)
Fig. 22
Doctor State Diagram (Prescribe Medication)

Fig. 23
Doctor State Diagram (Vital Signs)
Fig. 24
Doctor State Diagram (Comments)

Fig. 25
Doctor State Diagram (Previous Doctor)
**Fig. 26**
Nurse State Diagram (Room Availability)

**Fig. 27**
Nurse State Diagram (Comments)
Fig. 28
Nurse State Diagram (Vital Signs)

Fig. 29
Nurse State Diagram (Medication Inventory)
Fig. 30
Nurse State Diagram (Patient Information)
Now for this section, the user interfaces are shown below. We have developed user interfaces for the three stakeholders. The book describes this implementation as one of the most important as well as the previous section. We decided to have several options for each stakeholder due to the importance of control of the system. For instance, the doctor can see a list of medications on the wireless device to pick for the patient. This way, the doctor will have fewer errors when prescribing medication.

![Figure 31: Secretary User Interface](image)

**Fig. 31**
Secretary User Interface
Fig. 32
Secretary User Interface

Fig. 33
Secretary User Interface

Fig. 34
Secretary User Interface
Fig. 35
Secretary User Interface
Fig. 36
Secretary User Interface
Fig. 37
Nurse User Interface

Fig. 38
Nurse User Interface
Fig. 39
Nurse User Interface

Fig. 40
Nurse User Interface
Fig. 41
Nurse User Interface

Fig. 42
Nurse User Interface
Fig. 43
Doctor User Interface

Fig. 44
Doctor's User Interface
Fig. 45
Doctor User Interface

Fig. 46
Doctor User Interface
Fig. 47
Doctor User Interface

Fig. 48
Doctor User Interface
Fig. 49
Patient User Interface

Fig. 50
Patient User Interface
Fig. 51
Patient User Interface

Fig. 52
Patient User Interface