Mini Project for Hospital Database Management System

**Outline for my DBMS:**

|  |  |  |
| --- | --- | --- |
| Content | | Page No. |
| 1.Introduction   * Advantages of Building a DBMS * Objectives of this Hospital DBMS * Scope | | 2 |
| 2.Planning   * Database Type * Data Type | | 2 |
| 3. Data Requirements:   * Entities * Attributes * Relationship(Cardinality) | | 2-4 |
| 4. Entity Relationship Diagram | | 4 |
| 5. Schema Diagram | | 4 |
| 6. Creating Database Using SQLite3 | | 4-5 |
| 7.Use cases | | 4-5 |
| 8. Conclusion   * Limitations * Future Work | | 6 |
| 9. Reference | | 6 |

1. Introduction:

Hospital is an essential part of our everyday life and it generates a lot of records every minute, every day. It is necessary to keep track of its day-to-day activities and records of its patients, doctors(inline citation),other staff etc. . But if hospital has to keep all the information on paper,it is very cumbersome and error prone(inline citation ). This project uses sqlitelite 3(studio) to create a relational database management system for automation the hospital management. The advantages of this system is obvious. It’s easy to access, edit, maintain and backup the detailed information for different users even they have little technical background. But this system has limitations in security and scalability.

2.Planning

* Database Type:

Relational Database Management System

* Data Type:

integer / float / varchar / date / time

3. Data Requirements:

* Entities:

Patient/ Staff/ Doctor/ Nurse/ Receptionist/ Accountant/ Bill

* Attributes:

Patient: (just take a quick look,explain it in details later )

pk (primary key)

p\_fname

p\_lname

p\_gender

DOB

p\_con\_num

p\_address

insurance\_company

Staff:

pk (primary key)

staff\_fname

staff\_lname

p\_con\_num

Doctor:

specialization

year\_experience

graduate\_school

rating\_on\_google

shift\_starts\_time

shift\_ends\_time

fk\_staff (primary key)(foreign key)

Nurse:

fk\_staff (primary key)(foreign key)

Receptionist:

fk\_staff(primary key)(foreign key)

fk\_doctor(foreign key)

Accountant:

fk\_staff(primary key)(foreign key)

Bill:

pk (primary key)

bill\_no

bill\_issue\_date date

current\_balance

last\_payment\_date

fk\_patient (foreign key)

fk\_doctor (foreign key)

Patient\_symptom:

patient (foreign key)

specialization (foreign key)

patient\_symptom

primary key(patient,specialization)

* Relationship(Cardinality)

1. Staff 1- 1 doctor
2. Staff 1-1 nurse
3. Staff 1-1 accountant
4. Doctor Many- many Patient

(5) doctor 1 - 1 Receptionist

(6)Nurse 1- many Patient

(7)Patient 1- many Bill

4. Entity Relation Diagram

Separate file

5. Schema Diagram

Separate files

6.Creating Database Using SQLite3

**Create database, load all the tables and data**

$ sqlite3 hospital.db

sqlite> .read hospital\_schema.sql

sqlite> .read hospital\_load\_csv\_data.sql

sqlite> .import patient.csv

Usage: .import FILE TABLE

sqlite> .import staff.csv

Usage: .import FILE TABLE

sqlite> .import doctor.csv

Usage: .import FILE TABLE

sqlite> .import nurse.csv

Usage: .import FILE TABLE

sqlite> .import receptionist.csv

Usage: .import FILE TABLE

sqlite> .import accountant.csv

Usage: .import FILE TABLE

sqlite> .import bill.csv

Usage: .import FILE TABLE

sqlite> .import patient\_symtom.csv

Usage: .import FILE TABLE

sqlite> .tables

accountant nurse patient\_symtom

bill patient receptionist

doctor patient\_symptom staff

**Use case**

(1) show every doctor’s information

sqlite> select \* from doctor;

3|General surgery|10|Harvard University|4.8|8:00|12:00

6|Nutrition and dietetics|8|New Mexico State University|4.9|14:00|18:00

9|Accident and emergency (A&E)|6|Hopkin Medical|4.8|8:00|17:00

11|Geriatric Specialist|9|Cornell University|5.0|8:00|17:00

13|Gastroenterology|1|Mississippi Medical School|5.0|13:00|17:00

14|Cardiology|5|St. George's University|4.5|9:00|13:00

15|Maternity|8|American University Of Antigua‎|4.7|8:00|17:00

(2)Find the doctors who have greater than 4.7 rate**(join function)**

sqlite> select staff\_fname,staff\_lname,p\_con\_num

...> from staff s

...> join doctor d

...> on s.pk=d.fk\_staff

...> where d.rating\_on\_google>4.7;

Robert|Baxter|1-763-132-4526

Michelle|Cedric|1-140-261-7680

Brenda|Scott|1-544-122-7635

Fleur|Owen|1-352-793-4449

Christian|Avram|1-233-141-0890 (go back to file to check )

(3)Get the information of patients who have not pay off all the bills(first name,last name, current balance)

sqlite> select p\_fname,p\_lname,current\_balance

...> from patient p

...> join bill b

...> on p.pk=b.fk\_patient

...> where b.current\_balance>0.0;

Finn|Rhona|$3182.00

Ifeoma|Buckminster|$320.00

Ifeoma|Buckminster|$1000.00

Angelica|Stephen|$1738.08

Yeo|Chancellor|$1440.18

Scarlett|Uriah|$200.00

Scarlett|Uriah|$3000.00 (go back to file to check)

(4) classmates can come up some use cases for testing

8. Conclusion:

This system has its limitations. For example, it offers convenience for us but it’s not secure enough. And also, the scalability is very limited, which means only one user can access the database at one time.For future work, we can works on creating a more advanced user interfaces like different users having different levels’ access to the database system. PostgreSQL is a more advanced database management system which can overcome two of my management system’s limitations.

9.Reference:

<http://whatisdbms.com/various-objectives-of-database-management-system/>

<https://www.slideshare.net/pranild/hospital-management-system-slidshare?qid=4c6b1b5a-f1be-4d81-8b12-e0829b6146bb&v=&b=&from_search=2>

<https://www.slideshare.net/iffi910/hospital-management-systemdatabase?qid=abce758a-9cdb-40d4-952f-da118ded7a64&v=&b=&from_search=1>

<https://www.slideshare.net/RohithRohith3/a-mini-project-on-designing-a-database-for-library-management-system-using-mysql?qid=5cc0d283-f05e-4155-a83e-4d51e03c7236&v=&b=&from_search=1>

<https://www.generatedata.com/>

<https://mockaroo.com/>