A pharmacy like other businesses has a way in which its operations are performed. Every detail from medicine, shelves, customers, customer feedback, and sales are captured and stored for the sake of easy information processing, retrieval, sharing, and sound decision making.

In this context, either file systems or DBMSs can be used to achieve the goal irrespective of the implementation cost.

1. To what extent do users prefer to use file systems and how do DBMSs outweigh file systems in the context given? Use the context given to clarify what RDBMS is and how it will be implemented using the given details. (5pts)

Answer:

For a pharmacy or any other business, a DBMS is always preferred to be used. A big pharmacy that has more than one cashier and a lot of buyers, hundreds of them every day, will for sure choose to use a DBMS, for many logical reasons.

A DBMS system outweighs the file system in many ways like that with the DBMS the user is not required to write the procedures, while in the file system he has to write the procedures for managing the database which takes more time and will not help to serve a big number of customers. Also, a DBMS is unique in showing an abstract view of data for the user that hides the details which can be distracting and make the cashiers make mistakes in the process of selling the medicines, and also make it slow as he is dealing with many info in the instance time. Of course, a pharmacy will care a lot about its data overtime from customers names, numbers, feedback, shelves, medicines, and sales, and wants to study and improve its ways of selling or to expand, they will for sure use a DBMS that will provide a crash recovery mechanism for their data and protects it from the system failure, unlike file systems that will make the pharmacy lose priceless data whenever the system crashes. That's of course in addition to the protection that DBMS will give if that data is sensitive, like patient's data.

One of the main differences between using a file system or a DBMS in a pharmacy is that if the pharmacy is that big with more than one branch or cashier, a DBMS will be essential to provide Concurrent access, while a file system will not and will cause redundancy.

Maybe we recommended a DBMS, and of course, it is better, but a File System may also be used in specific conditions, like if the pharmacy is small with no need to pay or invest that much amount of

money in the DBMS and no need for concurrent access, then it will be somehow ok to use it, but still if possible, a DBMS is much better.

An RDBMS, Relation Database Management system (RDBMS) is normally a database management system, but one that is based on the relational model and supports relations between elements. Like MYSQL.

To implement an RDBMS the pharmacy needs to hire a programmer who is familiar with database things. The programmer then will install the RDBMS on the pharmacy systems, then plan the schemas of the database, and plan of how it will look like and the relations between tables and elements. Then he creates the database and puts the planned schemas on it and creates the tables on the database. Then he loads the existent data or makes a user-friendly application to help users enter the new data. Finally, he will set up the users' accounts and the security protocols.

2. Identify all the entities in the context (as less as the obvious entities, and many as you can derive). Associate every entity with its respective attributes. (5pts)

Answer:

We will use three entities as the following: Medicines, customers, and sales. And here are the attributes:

Entity
Sales
Attributes
Medicine_id
Price
Discount%
Availability
Sale_id

Entity
Customers
Attributes
Id
F-Name
Feedback_Rating

Entity
Medicines
Attributes
Id
Shelf
Price
Category
Brand

3. Write complete data dictionaries for the context (entities, attributes, constraints, data type, and the respective length)(5Pts)

Entity	Attribute	constraints	Datatype	Length
Medicines	Medicine_id	Not Null	Int	7
Medicines	Shelf	Not Null	Str	2
Medicines	Price	Not Null	Float	4
Medicines	Category		Str	15
Medicines	Brand		Str	15
Customer	C_Id	Not Null	Int	7
Customer	F-Name		Str	14
Customer	Feedback_Rating		Int	1
Sales	Medicine_id	Not Null	Int	7
Sales	Price	Not Null	Float	4
Sales	Discount%	Not Null	Float	2
Sales	Availability		Boolean	5
Sales	Sale_id		Int	7

4. Give a complete E-R diagram (ensure all relationships and cardinalities are demonstrated). (5Pts)