**Chapter 1: Problems and Exercises:**

**4**.

Organizations create multiple databases over an all-inclusive database to avoid unnecessary circumstances in each department/workgroup database, depending mainly on the functions & size of the organization. Specific information required for one department may not be needed for the whole organization.

The factors rising due to the conflict of having ownership & the responsibilities of who has to maintain the data like recovery, development & backup causes an organization to have multiple databases.

**6**.

**a. Driver’s name, address and birthdate:**

These are the essential information of the database and considered as Data. The data is structured data.

**b. The fact that the driver’s name is a 30 character field**

The information is Metadata as it specifies the data type & it is a fact describing the property of data.

**c. A photo image of the driver**

It represents the data which is unstructured.

**d. An image of the driver’s fingerprint**

It represents the data which is unstructured.

**e. The make and serial number of the scanning device that was used to scan the fingerprint**

It represents the data & the data is structured.

**f. The resolution (in megapixels) of the camera that was used to photograph the driver**

It represents the data & the data is structured

**g. The fact that the driver’s birthdate must precede today’s date by at least 16 years**

It represents metadata which is a fact describing the context of data.

**13.**

**Conceptual data modeling**

Identify scope of database requirements for proposed information system.

Analyze overall data requirements for business functions supported by database.

**Logical database design:**

Analyze in detail the transactions, forms, displays, and inquires required by the business functions supported by the database.

Integrate database views into conceptual data model.

Identify data integrity and security requirements, and populate repository.

**Top-down:**

Enterprise data modeling as a component of top-down approach of information systems planning and development represents one source of data base projects. Such projects often develop new databases to meet strategic organizational goals, such as improved customer support, better production and inventory management, or more bottom up fashion.

**Bottom-up:**

A typical bottom-up database development project usually focus on the creation of one database. some database projects are concentrate only on defining, designing, and implementing a database as a foundation for subsequent information systems development.

**Chapter 2: Problems and Exercises:**

**17.**

**A.**



**Do the attribute names in this description follow the guidelines for naming attributes? If not, suggest better names.**

Of course., the attributes follow the guidelines for naming attributes.

**Do you have any associative entities on your ERD? If so, what are the identifiers for those associative entities?**

There no associative entities in the ERD which implies no identifiers or them.

**Does your ERD allow a project to be created before it has any employees assigned to it?**

No, it doesn’t allow a project to be created without the assignment of employees.

**Explain. How would you change your ERD if the Billing Rate could change in the middle of a project?**

The ERD below consists of billing rate between the attributes of employee & projects considering if the billing rate could change in the middle of the projects.

**17.d**

**Did you draw more than one relationship between physician and patient?**

Yes, we can draw three relationships between physician and patient. These three relations are one to many, many to one and many to many. one patient can take treatment from more than one physician none. One physician can treat more than one patient or none.

**Did you include hospital as a entity type? Why or why not?**

No, I will not use hospital as a entity type. Because we don’t have any attributes to hospital entity.

**Does your ERD allow the same patient to be admitted by different physicians over time?**

No, it will never happen in these type of ERD. Physician never treat more than one patient at a time.

**How would you include on the ERD the need to represent the date on which a patient is admitted for each time he or she is admitted?**

I will include date every time in the form of time stamp. Because the date is both multi valued and composite.

**17.**

**g.**

**ERD diagram for Art museum:**

* Four entities Artwork, Gallery, Artist and Show.
* The Artwork has mandatory-many relationship with the other three entities.
* Gallery entity has relationship optional-many with the Artwork
* Artist entity has relationship optional-one with the Artwork
* Show entity has relationship mandatory-one with the Artwork



**ERD Diagram for Art Museum**

**23.**



**Business Rule for above diagram:**

* In more than one concert there may be or may not have one composition performed.
* The entity that associates the Composition entity & concert entity is the Performance entity.
* Using the relationship between the Performance entity & Soloist entity we can track the derived data of date last performed.
* Between the all entities there exists the ternary relationship.
* There exists M to N relationship of binary between the entity soloist & entity Performance.
* This in turn helps to track one soloist performing many compositions& viceversa.

**Chapter 3: Problems and Exercises:**

**15.**

