(1)

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Assignment - 1

1. What is DBMS ? Explain its advantages

Ans A database management system (DBMS) is collection of program that manages that database structure and control access to the data stored in the database

the DBMS serves as the intermediary between the user and the database. the database structure itself is stored as a collection of files so we can access that data in those files through the DBMS

Advantage of DBMS

1 Reduction of Redundancies
centralized control of data by the DBA avoids unnecessary duplication of data storage required it also eliminates the extra processing necessary to trace the required data in large mass of data

2. Elimination of Inconsistencies
the main advantage of avoiding duplication is the elimination of inconsistencies that tend to be present in redundant data files Any redundancies that exist in the DBMS are controlled and the system ensures that these multiple copies are consistent.

3. Shared Data
A database allows the sharing of data under its control by any number of application programs or users For example the application for the public relat

4 Integrity : Centralized control can also ensure that adequate checks are incorporated in the DBMS to provide integrity. Data integrity means that the data contained in the database is both accurate and consistent. Therefore data values being entered for the storage could be checked to ensure that they fall within a specified range.

5 Security : Data is of vital importance to an organization and may be confidential. Such confidential data must not be accessed by unauthorized persons. The DBA who has the ultimate responsibility for the data in the DBMS can ensure that proper access procedures are followed including proper authentication schemes for access to the DBMS and additional checks before permitting access to sensitive data.

6 Data independence : the ability to modify a scheme definition in one level without affecting a scheme definition in the next higher level is called data independence.

Application programs should be as independent as possible

data independence is usually consider from two points view.

a) physical data independence : physical data independence allows changes in the physical storage devices an organization of the files to be made without requiring changes in the conceptual view

any of the external views and hence application program using the database.

b) logical data independence : logical data independence implies that the application programs need not be changed if fields are added to an existing record nor do they have to be changed if fields not used by application programs are deleted.

2. What is data abstraction ? Explain it levels.

Database systems are made up of complex data structures. To ease the user interaction with database, the developers hide internal irrelevant details from users. this process of hiding irrelevant details from user is called data abstraction.

the three level of abstraction are as
a) physical level
b) logical level
c) view level

a) physical level : the physical level of abstraction is the lowest level of abstraction that describe how the data is actually stored. the physical level or internal schema ; which contains the definition of the stored record the method of representing the data fields express the internal view and the access

(4)

b) logical level: the logical level of data abstraction defines what data are actually stored in the database and what relationship exist among those data in relational DBMS the conceptal schema describe all relations that are stored in the database. for example in university database these relations contain information about entities such as students and faculty

c) view level: this is the highest level of abstraction as seen by a user. this level of abstraction describe only the part of entire database which exists to simplify the interaction with the system.

(3) who is database Administerator? Explain the various functions of DBA

one of the main reason of using DBMS is to have a central control of control of both data and the program accessing those data. A person who cans such control over the system is called a database Adm

Schema definition: the database Administrator creates database schema by executing DDL statements Schema includes the logical structure of database table (relation) like data type of attributes length of attributes integrity constraints etc.

Storage structure and access method definition Database tables or indexes are stored in flat files heaps Bf Tree etc.

schema and physical organization modification: the DBA carries out changes to the existing schema and physical organization.

Granting authorization for data modification: the DBA provides different access rights to the users according to their level. ordinary users might have higher restricted access to data while you go up in the hierachy to the administrator you will get more access rights.

Routine maintenance: some of the routine maintenance activities of a DBA are given below

Taking backup of database periodically
Ensuring enough disk space is available all time
Monitoring jobs running on the database
performance tuning
Ensure that performance is not degrade by some expensive task submitted by some users.

4. Why data models are used in database? explain its components.

Data model gives us an idea that how the final system will look like after its complete implementation. it defines the data elements and relationships between the data elements. data models are used to show how data is stored connected accessed and updated in database management system

Dataset : A data set contains the logic to retrieve data from single data source A data set can retrieve data from a variety of data sources

Event triggers : A triggers checks for an event when the event occurs the trigger runs the PL/SQL code associated with it. the data model editor supports before data and after data triggers as well as schedule triggers. Before data and after data triggers consist of call to execute a set of function defined in PL/SQL Package stored in an oracle database.

Flexfields : A flex field as a structure specific to oracle Application. the data model editor supports retrieving data from flexfield Structures defined in your oracle Application database tables

Lists of values : A list of values is a menu of values from which report consumers can select parameter values to pass to the report.

parameters : A parameter is variable whose value can be set at runtime. the data model editor supports several parameter types.

Bursting definitions : Bursting is a process of splitting data into blocks, generating documents for each data block and delivering the documents to one or more destinations.

(7)

5. Define

entity : database entity is a thing person place or object or any item about which the data should be captured and stored in the form of properties workflow and tables.

attribute : A database consists of tables each of which has columns and rows the header of table represent the attributes

relationship : A relationship describes an association among entities for eg. Relationship exists between publ and book can be describe as

Tuple : it is nothing but a single row of a table which contains a single record.

degree : the total number of attributes which in the relation is called the degree of the relation.

Cardinality : total number of rows present in table

6 write a note on following

a) Primary key : A primary key is a field in a table which uniquely identifies each row/record in a database table. primary keys must contain unique A primary key column cannot have NULL values.

A table can have only one primary key which may consist of single or multiple fields. When multiple fields are used as a primary key, the are called a composite key.

b) Alternate key: Alternate key is the key that has not been selected to be the primary key, but are candidate keys. However it is considered a candidate key for the primary key.

A candidate key not selected as a primary key is called alternate or secondary key. Candidate key is an attribute or set of attributes that you can consider as a primary key.

c) Candidate key: each table has only a single primary key. each relation may have one or more candidate key one of these candidate key is called primary key. each candidate key qualifies for primary key. therefore candidate for primary key is called candidate key.

Candidate key can be a single column or combination of more than one column. A minimal superkey is called a candidate key.

d) Attribute and its type: An attributes is a property or characteristic of an entity. An entity may contain any number of attributes one of the attributes is considered as the primary key. In an entity-Relation model, attributes are represent in an elliptical shape.

there are five such types of attributes: Simple, Composite, single-valued, Multi-valued, and Derived attributes.

e) Strong Entity: A strong entity is not dependent of any other entity in the schema. A strong entity will always have a primary key. Strong entities are represented by a single rectangle.

f) Generalization: generalization as the name suggest is a process of generalizing two or more lower level entity types into a higher level entity type the common attributes of two or more entities combine to form a new entity type. the new entity type formed is called generalized entity.

g) Specialization: specialization as the name suggests is a process of specializing an entity type into a more specified entity. in this type into a more specified a higher level entity type adding some additional attributes to the entity type.

7. Explain relationship with its types.

Any association between two entity types is called a relationship entities take part in relationship it is represented by a diamond shape.

Onto-one Relationship :- Such a relationship exists when each record of one table is related to only one record of the other table.

One-to-many :- Such a relationship exists when each record of one table can be related to one or more than one record of the other table. this relationship found. A one to many relationship found. A one to many relationship can also be said as a many-to-one relationship depending upon the way we view it.

Many to many Relationship :- Such a relationship exists when each record of the first table can be related to one or more than one record of the second table and a single record of the second table can be related to one or more than one record of the first table.

8) Explain DDL and DML commands

Data Definition language

DDL is used for specifying that database schema. it is used for creating tables schema, indexes, constraints etc in database

Commands as create, alter, DROP

Data Manipulation languages

11

A data manipulation languages (DML) is a langu that enables users to access or manipulate data as organized by the appropriate data model

the types of access are
Retrieval of information stored in the database
insertion of new information into the database
deletion of information stored from the database
modification of information stored in the database : commands listed as select, inser ,update, Delete