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ASSIGNMENT 4

Aim : Design and develop DB for "Order Management System" with all the constraints

Problem Statement : There must be atleast 3 entities and relationships between them. The statement should use SQL objects such as Table, View, Index and Sequence. Draw Suitable ER diagram for system. Apply DCL and DDL commands to convert ER diagram to tables

Objective :

- To understand concept of ER diagram
- To understand the details of basic ER model
- To understand the technique for converting ER diagram into tables
- Analyse the reflected constraints
- To understand use of DDL, DCL

Theory :

- Basic concepts of ER diagram – A database can be modelled as a collection of entities and relationship among entities. Entity is an object that exists and is distinguishable from other objects
- Entity Set – Set of entities of the same type that share the same properties
- Attributes – Entities have attributes. Eg :- people have name and address
- Relationship – An association among several entities
- Mapping cardinality –
  - i) One to one
  - ii) One to many
  - iii) Many to one
  - iv) Many to many

- Symbolic notations – Rectangles, diamonds, lines, ellipses, double ellipses, dashed ellipses, underline

Extended ER features :

1) Specialization – Top down process
Attribute Inheritance – a lower level entity set inherits all the attributes and relationship participation of the higher level entity set to which it is linked.

2) Generalization – Bottom to top design process. Combine a number of entities sets that share same features into a higher level entity set.

3) Aggregation – Suppose we want to record managers for tasks performed by an employee at a branch. Relationship sets works on. However works on relationship may not correspond to any manages it. Eliminate this redundancy via aggregation.

Introduction to SQL

One of the fundamental building blocks of modern database architecture
SQL commands – i) Data Definition Language
ii) Data Manipulation Language

DDL :

i) create table command
create table table_name (col_name1 data_type(size), col_name2 data_type (size) . . .);

ii) Alter Table Command

alter table table_name add (new col_name1 datatype (size), new col_name2 datatype (size), ...);

iii) Drop table command

drop table table_name ;

Data Integrity :

- Entity - Primary key constraint unique constraint
- Domain - Foreign key constraint check constraint not null
- Referential - Foreign key constraint check constraint
- User-defined - All column and table level constraints in create table stored procedures triggers
- Primary Key constraint - Primary key of a relational table uniquely identifies each record in the table
  a) Not null constraint
  b) Unique constraint
  c) Check constraint
  d) Foreign key constraint

To create a table with different types of constraints

create table table_name (col_name1 datatype [constraint], col_name2 datatype [constraint], ...);

Example -

All basic commands of mysql like :

mysql > create database manageCust ;
mysql > use manageCust ;
mysql > quit ;
mysql > show tables ;
mysql > describe <table_name> ;

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Input :

1) Draw an ER diagram by considering notations
2) Convert ER to table by applying rules of conversion
3) Design a database with DDL, DML and DQL

For implementation of DDL, DML, DQL statement using MySQL. We have considered a real time example of "Managing Customer Orders" system

- A customer has unique customers number and contact information
- A customer can place many orders but a given purchase order is placed by one customer
- A purchase order has many to many relationship with a stock item

Conclusion :

I understood to design and develop relational database system using MySQL.

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