GOA COLLEGE OF ENGINEERING

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DATA DEFINITION

EXPT NO: 2 **DATE:**

AIM: To study data definition language statements and to learn various SQL data types. To add, delete constraints and understand schema change statements.

THEORY:

COMMAND	FUNCTION
DDL	DDL is short name of Data Definition Language, which deals with database schemas and descriptions, of how the data should reside in the database.
CREATE	The CREATE DATABASE statement is used to create a new SQL database. Syntax CREATE DATABASE *databasename*; The CREATE TABLE statement is used to create a new table in a database. Syntax CREATE TABLE *table_name* (*column1 datatype*, *column2 datatype*, *column3 datatype*, ...);
DROP	The DROP DATABASE statement is used to drop an existing SQL database. Syntax DROP DATABASE *databasename*; The DROP TABLE statement is used to drop an existing table in a database. Syntax DROP TABLE *table_name*;
ALTER	The DROP DATABASE statement is used to drop an existing SQL database. Syntax DROP DATABASE *databasename*; The DROP TABLE statement is used to drop an existing table in a database. Syntax DROP TABLE *table_name*; 4)ALTER The ALTER TABLE statement is used to add, delete, or modify columns in an existing table. The ALTER TABLE statement is also used to add and drop various constraints on an existing table. i)Add column Syntax ALTER TABLE table_name ADD new_column_name column_definition [FIRST | AFTER column_name];

	(column_definition: It specifies the data type and definition of the column(NULL or NOT NULL, etc).) (FIRST | AFTER column_name: It is optional. It tells MySQL where in the table to create the column. If this parameter is not specified, the new column will be added to the end of the table.) ii)DROP column Syntax ALTER TABLE table_name DROP COLUMN column_name; iii)MODIFY column Syntax ALTER TABLE table_name MODIFY column_name column_definition [FIRST | AFTER column_name]; (Modifies the datatype, size, constraints)
TRUNCATE	The TRUNCATE TABLE statement is used to delete the data inside a table, but not the table itself. Syntax TRUNCATE TABLE *table_name*;
RENAME	The Rename statement is used to rename a database. Syntax ALTER TABLE table_name CHANGE COLUMN old_name new_name column_definition [FIRST | AFTER column_name] The Rename statement is used to rename a table. Syntax ALTER TABLE table_name RENAME TO new_table_name;

CONSTRAINTS	**FUNCTION**
Not Null	The NOT NULL constraint enforces a column to NOT accept NULL values. Example CREATE TABLE Persons (ID int NOT NULL,Name varchar(255) NOT NULL);
Unique	The UNIQUE constraint ensures that all values in a column are different. Example CREATE TABLE Persons (ID int UNIQUE, LastName varchar(255) NOT NULL, FirstName varchar(255), Age int);
Primary Key	The PRIMARY KEY constraint uniquely identifies each record in a table. Primary keys must contain UNIQUE values, and cannot contain NULL values. A table can have only one primary key, and in the table, this primary key can consist of single or multiple columns (fields). Example CREATE TABLE Persons (ID int PRIMARY KEY, LastName varchar(255) NOT NULL, FirstName varchar(255), Age int);
Check	The CHECK constraint is used to limit the value range that can be placed in a column.

	Example : CREATE TABLE Persons (ID int NOT NULL, LastName varchar(255) NOT NULL, FirstName varchar(255), Age int CHECK (Age>=18));
Default	The DEFAULT constraint is used to set a default value for a column.The default value will be added to all new records, if no other value is specified. Example: CREATE TABLE Persons (ID int NOT NULL, LastName varchar(255) NOT NULL, FirstName varchar(255), Age int default '0', City varchar(255) DEFAULT 'Sandnes');

QUERIES:

1) Add the following table

i) Borrower

Name	**Constraint**	**Data Type**
Cardno	Primary key	int
name	Not null	varchar(25)
addr		varchar(25)
phone	Not null	varchar(25)

ii) book_loans:

Name	**Constraint**	**Data Type**
Bookid	Foreign key	int
Cardno	Foreign key	int
Dateout		date
Duedate		date

2)check the engine used by the library database.

3)Change the engine to innodb.

4)Change the data type of phone in borrower relation to smallint.

5)Make bookid in book_authors table as the foreign key referencing book table.

Make bookid in book_copies table as the foreign key referencing book table.

Add a new column bdate to borrower table with the data type date.

Add (bookid,cardno) as the primary key to the book_loans table.

Make title attribute of book relation unique.

10) Add a new column fine to the book_loans table.

Il) Set fine to a default value 0.

12) Rename phone attribute in borrower table to contact no and its datatype to int

13) Rename book_loans table as books_issued.

14) Change the datatype of addr to varchar(30) in borrower table.

15) Drop the newly added column bdate from the borrower table .

16) Take the dump of library database.

17) Create a new database dummylibrary from the dump file created.

18) Delete the dummylibrary database.

19) Create a table dummybook table from the book table and check the data

20) Delete all the data from dummybook table.

21) Insert all the data from book into dummybook.(using single insert statement).

22) Create a new table sample with attributes no and name with InnoDB engine.

23) Change the InnoDB engine to MyISAM for the newly created table sample.

CONCLUSION:
All fundamental SQL data definition commands were successfully comprehended and implemented.