Database Management System

Lab 02

September 17, 2024

Task 1

1. Write SQL statement to create a table 'STUDENT' which has 4 attributes:
   (a) ID (assign it as Primary Key)
   (b) NAME
   (c) DEPT_NAME
   (d) TOT_CRED (ensure that TOT_CRED is not greater than 180)
2. Write SQL statements to insert the following records into 'STUDENT' table:

ID	NAME	DEPT_NAME	TOT_CRED
00128	Zhang	Comp. Sci.	102
12345	Shankar	Comp. Sci.	32
19991	Brandt	History	80
23121	Chavez	Finance	110
44553	Peltier	Physics	56
45678	Levy	Physics	46
54321	Williams	Comp. Sci.	5
55739	Sanchez	Music	38
70557	Snow	Physics	0
76543	Brown	Comp. Sci.	58
76653	Aoi	Elec. Eng.	60
98765	Bourikas	Elec. Eng.	9
98988	Tanaka	Biology	120

3. Write SQL statements to perform the following queries:
   (a) Display all records of 'STUDENT' table.
   (b) Show student ID and name only.
   (c) Find name and department of students who have completed more than 100 credits. Find name and department of students who have completed in between 80 and 120 credits (inclusive).
   (d) Find ID and name of students of Comp. Sci. department.
   (e) Find name and total credit of students of Physics department.
   (f) Find ID and name of students of Comp. Sci. department or students who have completed less than 10 credits.
   (g) Find the names of the department.
4. Drop the 'Student' table with all its constraints.

Task 2

1. Write SQL statements to create the following tables with the given specifications:

   (a) ACCOUNT

ACCOUNT_NO	CHAR(5)	Primary Key
BALANCE	NUMBER	Not Null

   (b) CUSTOMER

CUSTOMER_NO	CHAR(5)	Primary Key
CUSTOMER_NAME	VARCHAR(20)	Not Null
CUSTOMER_CITY	VARCHAR(10)	-

   (c) DEPOSITOR

ACCOUNT_NO	CHAR(5)	Primary Key
CUSTOMER_NO	CHAR(5)	Primary Key

2. Write SQL statements to perform the following alteration operations:

   (a) Add a new attribute 'DATE_OF_BIRTH' (DATE type) in CUSTOMER table.

   (b) Modify the data type of BALANCE from NUMBER to DECIMAL(12, 2).

   (c) Rename the attribute ACCOUNT_NO, CUSTOMER_NO from DEPOSITOR table to A_NO and C_NO, respectively.

   (d) Rename the table DEPOSITOR to DEPOSITOR_INFO.

   (e) Add two foreign key constraints FK_DEPOSITOR_ACCOUNT and FK_DEPOSITOR_CUSTOMER that identifies A_NO and C_NO as foreign keys.

3. Insert at least 3 records in each table following the example.

4. Write SQL statements to answer the following queries:

   (a) Find all account numbers with balances less than 100000.

   (b) Find all customer names who live in 'KHL' city.

   (c) Show the result of Cartesian Product between ACCOUNT and DEPOSITOR_INFO table.

   (d) Show the result of Natural Join between CUSTOMER and DEPOSITOR_INFO table.

   (e) Find all customer names and their city who have an account.

   (f) Find all customer-related information who have balance greater than 1000.

   (g) Find all accounts-related information where balance is in between 5000 and 10000 or their depositor lives in 'DHK' city.

5. Write following DML statements:

   (a) Update the CUSTOMER_CITY 'KHL' as 'KLN'.

   (b) Update the CUSTOMER_ID 101 as 301.

   (c) Delete Customer with CUSTOMER_ID 301.

   (d) Delete all the information without deleting the table structure.