Lab 3 Report

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Department : CSE

Course : CSE 4308

Problem Statements:

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

(a) ACCOUNT

ACCOUNT_NO	CHAR(5)	(e.g.: A-101) Primary Key
BALANCE	NUMBER	Not Null

(b) CUSTOMER

CUSTOMER_NO	CHAR(5)	(e.g.: C-101) Primary Key
CUSTOMER_NAME	VARCHAR2(20)	Not Null
CUSTOMER_CITY	VARCHAR2(10)	(e.g.: DHK, KHL, etc.)

(c) DEPOSITOR

ACCOUNT_NO	CHAR(5)	(e.g.: A-101)
CUSTOMER_NO	CHAR(5)	(e.g.: C-101)
		Primary Key(ACCOUNT_NO, CUSTOMER_NO)

The crated tables are:

```
CREATE table account
(
    account_no char(5),
    balance number NOT NULL,
    CONSTRAINT PK_ACCOUNT_NO PRIMARY KEY (account_no)
);


CREATE table Customer
(
    Customer_no char(5),
    Customer_name varchar2(20) NOT NULL,
    Customer_city varchar2(10),
    CONSTRAINT PK_CUSTOMER_NO PRIMARY KEY (Customer_no)
);
```

```sql
CREATE table Depositor
(
    account_no char(5),
    Customer_no char(5),
    CONSTRAINT PK_DEPOSITOR_NO PRIMARY KEY (account_no, Customer_no)
);
```

The next problem statement:

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 NUMBER(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.

The SQL statements look like this:

```sql
------------------TASK 2--------------------

--a
Alter table Customer ADD DATE_OF_BIRTH DATE;

--b
ALTER TABLE account MODIFY balance number(12,2);

--c
ALTER TABLE Depositor RENAME COLUMN account_no TO A_NO;

ALTER TABLE Depositor RENAME COLUMN customer_no TO C_NO;

--d
Alter table Depositor RENAME TO DEPOSITOR_INFO;

--e
ALTER TABLE DEPOSITOR_INFO ADD CONSTRAINT FK_DEPOSITOR_ACCOUNT_NO FOREIGN
KEY(A_NO) References account (account_no);

ALTER TABLE DEPOSITOR_INFO ADD CONSTRAINT FK_DEPOSITOR_CUSTOMER_NO FOREIGN
KEY(C_NO) References Customer (Customer_no);
```

The next problem statement:

3. Write SQL statements to answer the following queries:

   (a) Find all account number with balance less than 100000.

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

   (c) Find all customer number whose name contains 'A'.

   (d) Find distinct account numbers from DEPOSITOR_INFO table.

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

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

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

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

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

Inserting values:

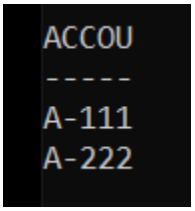
```
-------------------TASK 3---------------------

INSERT INTO account values('A-111', 11111);
INSERT INTO account values('A-222', 22222);
INSERT INTO account values('A-333', 333333);


INSERT INTO Customer values('C-111', 'mak', 'Dhaka', '01-dec-22');
INSERT INTO Customer values('C-222', 'AKASH', 'KHulna', '02-feb-22');
INSERT INTO Customer values('C-333', 'Mashrur', 'Barisal', '12-apr-2022');
INSERT INTO Customer values('C-444', 'Martin', 'Dhaka', '02-feb-2022');

INSERT INTO DEPOSITOR_INFO values('A-111', 'C-333');
INSERT INTO DEPOSITOR_INFO values('A-222', 'C-111');
```

The SQL statements are:

```
--a--
SELECT account_no from account where balance < 100000;


--b--
SELECT Customer_name from Customer where Customer_city = 'Khulna';
```

```sql
--c--
SELECT Customer_name from Customer where Customer_name Like '%A%';


--d--
SELECT DISTINCT A_NO from DEPOSITOR_INFO;


--e--
SELECT * from account, DEPOSITOR_INFO;


--f--
SELECT * FROM Customer NATURAL JOIN DEPOSITOR_INFO;


--g--
SELECT Customer_name, Customer_city from Customer, DEPOSITOR_INFO
where DEPOSITOR_INFO.C_NO = Customer.customer_no;


--h--
SELECT Customer_no, Customer_name, Customer_city, DATE_OF_BIRTH
from Customer, DEPOSITOR_INFO, account
where DEPOSITOR_INFO.C_NO = Customer.customer_no and
      account.account_no = DEPOSITOR_INFO.A_NO and
      account.balance > 1000;


--i--
SELECT account_no, balance from Customer, DEPOSITOR_INFO, account
where DEPOSITOR_INFO.C_NO = Customer.customer_no and
      DEPOSITOR_INFO.A_NO = account.account_no and
      ((account.balance BETWEEN 5000 AND 10000) or
      Customer.Customer_city = 'Dhaka');
```

Outputs: a)



b)

```
CUSTOMER_NAME
--------------------
AKASH
```

c)

```
CUSTOMER_NAME
--------------------
AKASH
```

d)

```
A_NO
-----
A-111
A-222
```

e)

```
ACCOU    BALANCE A_NO  C_NO
----- ---------- ----- -----
A-111      11111 A-111 C-333
A-222      22222 A-111 C-333
A-333     333333 A-111 C-333
A-111      11111 A-222 C-111
A-222      22222 A-222 C-111
A-333     333333 A-222 C-111
```

f)

CUSTO	CUSTOMER_NAME	CUSTOMER_C	DATE_OF_B	A_NO	C_NO
C-111	mak	Dhaka	01-DEC-22	A-111	C-333
C-222	AKASH	Khulna	02-FEB-22	A-111	C-333
C-333	Mashrur	Barisal	12-APR-22	A-111	C-333
C-444	Martin	Dhaka	02-FEB-22	A-111	C-333
C-111	mak	Dhaka	01-DEC-22	A-222	C-111
C-222	AKASH	Khulna	02-FEB-22	A-222	C-111
C-333	Mashrur	Barisal	12-APR-22	A-222	C-111
C-444	Martin	Dhaka	02-FEB-22	A-222	C-111

8 rows selected.

g)

CUSTOMER_NAME	CUSTOMER_C
mak	Dhaka
Mashrur	Barisal

h)

CUSTO	CUSTOMER_NAME	CUSTOMER_C	DATE_OF_B
C-333	Mashrur	Barisal	12-APR-22
C-111	mak	Dhaka	01-DEC-22

i)

ACCOU	BALANCE
A-222	22222