

DBMS LAB-01(05-12-2024)

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1. Create tables for - Student(student_id, first_name, last_name, dept, Date_of_birth, gender, religion), Employee, Product, Customer, and Account.

Identify relevant attributes for each table make sure each table has at least four columns. Ensure each table has an ID column e.g. Employee should have EMPLOYEE_ID column, Student should have STUDENT_ID column etc.

```
Run SQL Command Line
SQL> CREATE TABLE Student(
2 Student_ID INT,
3 First_Name VARCHAR(50),
4 Last_Name VARCHAR(50),
5 Department VARCHAR(50),
6 Date_of_Birth DATE,
7 Gender CHAR(1),
8 Religion VARCHAR(50)
9 );
Table created.
SQL> CREATE TABLE Employee(
2 Employee_ID INT,
3 First_Name VARCHAR(50),
4 Last_Name VARCHAR(50),
5 Designation VARCHAR(50)
6 );
Table created.
SQL> CREATE TABLE Customer(
2 Customer_ID INT,
3 Customer_Name VARCHAR(50),
4 Address VARCHAR(100),
5 Phone_Number VARCHAR(15)
6 );
Table created.
SQL> CREATE TABLE Product(
2 Product_ID VARCHAR(10),
3 Product_Name VARCHAR(50),
4 Price INT,
5 Quantity INT
6 );
Table created.
SQL> CREATE TABLE Account(
2 Account_ID INT,
3 Account_Name VARCHAR(50),
4 Balance INT,
5 Create_Date DATE
6 );
Table created.
SQL> |
```

2. Describe each table.

```
Run SQL Command Line
2 Account_ID INT,
3 Account_Name VARCHAR(50),
4 Balance INT,
5 Create_Date DATE
6 );
Table created.
SQL> DESC Student;
Name Null? Type
-----
STUDENT_ID NUMBER(38)
FIRST_NAME VARCHAR2(50)
LAST_NAME VARCHAR2(50)
DEPARTMENT VARCHAR2(50)
DATE_OF_BIRTH DATE
GENDER CHAR(1)
RELIGION VARCHAR2(50)
SQL> DESC Employee;
Name Null? Type
-----
EMPLOYEE_ID NUMBER(38)
FIRST_NAME VARCHAR2(50)
LAST_NAME VARCHAR2(50)
DESIGNATION VARCHAR2(50)
SQL> DESC Product;
Name Null? Type
-----
PRODUCT_ID VARCHAR2(10)
PRODUCT_NAME VARCHAR2(50)
PRICE NUMBER(38)
QUANTITY NUMBER(38)
SQL> DESC Customer;
Name Null? Type
-----
CUSTOMER_ID NUMBER(38)
CUSTOMER_NAME VARCHAR2(50)
ADDRESS VARCHAR2(100)
PHONE_NUMBER VARCHAR2(15)
SQL> DESC Account;
Name Null? Type
-----
ACCOUNT_ID NUMBER(38)
ACCOUNT_NAME VARCHAR2(50)
BALANCE NUMBER(38)
CREATE_DATE DATE
```

3. Insert at least 5 distinct rows to each table.

Student Table

```
Run SQL Command Line x + -
SQL> DESC Account;
-----
Name                               Null?   Type
-----
ACCOUNT_ID                         NUMBER(38)
ACCOUNT_NAME                       VARCHAR2(50)
BALANCE                           NUMBER(38)
CREATE_DATE                       DATE

SQL>
SQL> INSERT INTO Student (Student_ID, First_Name, Last_Name, Department, Date_of_Birth, Gender, Religion)
  2 VALUES (1, 'Bhavya', 'Shrivastava', 'CSE', TO_DATE('16-02-2004', 'DD-MM-YYYY'), 'M', 'Hindu');
1 row created.

SQL> INSERT INTO Student (Student_ID, First_Name, Last_Name, Department, Date_of_Birth, Gender, Religi
on)
  2 VALUES(2, 'Ajay', 'Kumar', 'ECE', TO_DATE('10-11-2004', 'DD-MM-YYYY'), 'M', 'ISLAM');
1 row created.

SQL> INSERT INTO Student (Student_ID, First_Name, Last_Name, Department, Date_of_Birth, Gender, Religion)
  2 VALUES(3, 'Nitin', 'Nandan', 'EEE', TO_DATE('04-04-2005', 'DD-MM-YYYY'), 'M', 'Christian');
1 row created.

SQL> INSERT INTO Student (Student_ID, First_Name, Last_Name, Department, Date_of_Birth, Gender, Religion)
  2 VALUES(4, 'Aksheti', 'Shrivastava', 'IT', TO_DATE('29-07-2004', 'DD-MM-YYYY'), 'F', 'Hindu');
1 row created.

SQL> INSERT INTO Student (Student_ID, First_Name, Last_Name, Department, Date_of_Birth, Gender, Religion)
  2 VALUES(5, 'Anjali', 'Saraswat', 'CSE', TO_DATE('07-04-2004', 'DD-MM-YYYY'), 'F', 'Bhuddist');
1 row created.
```

Employee Table

```
Run SQL Command Line x + -
SQL> INSERT INTO Employee (Employee_ID, First_Name, Last_Name, DESIGNATION)
  2 VALUES (101, 'Bhavya', 'Shrivastava', 'Software Engineer');
INSERT INTO Employee (Employee_ID, First_Name, Last_Name, DESIGNATION)
  2 VALUES (102, 'Ajay', 'Kumar', 'Project Manager');
ERROR at line 1:
ORA-00904: "DESIGNATION": invalid identifier

SQL> INSERT INTO Employee (Employee_ID, First_Name, Last_Name, Degisnation)
  2 VALUES (101, 'Bhavya', 'Shrivastava', 'Software Engineer');
1 row created.

SQL> INSERT INTO Employee (Employee_ID, First_Name, Last_Name, Degisnation)
  2 VALUES (102, 'Ajay', 'Kumar', 'Project Manager');
1 row created.

SQL> INSERT INTO Employee (Employee_ID, First_Name, Last_Name, Degisnation)
  2 VALUES (103, 'Nitin', 'Nandan', 'Data Analyst');
1 row created.

SQL> INSERT INTO Employee (Employee_ID, First_Name, Last_Name, Degisnation)
  2 VALUES (104, 'Aksheti', 'Shrivastava', 'HR Specialist');
1 row created.

SQL> INSERT INTO Employee (Employee_ID, First_Name, Last_Name, Degisnation)
  2 VALUES (105, 'Anjali', 'Saraswat', 'System Specialist');
1 row created.
```

Product Table

```
Run SQL Command Line x + v

1 row created.

SQL> INSERT INTO Product (Product_ID, Product_Name, Price, Quantity)
2 VALUES('P001', 'Laptop', 55000, 10);

1 row created.

SQL> INSERT INTO Product (Product_ID, Product_Name, Price, Quantity)
2 VALUES('P002', 'Smartphone', 25000, 20);

1 row created.

SQL> INSERT INTO Product (Product_ID, Product_Name, Price, Quantity)
2 VALUES('P003', 'Office Chair', 3000, 15);

1 row created.

SQL> INSERT INTO Product (Product_ID, Product_Name, Price, Quantity)
2 VALUES('P004', 'Washing Machine', 35000, 5);

1 row created.

SQL> INSERT INTO Product (Product_ID, Product_Name, Price, Quantity)
2 VALUES('P005', 'Refrigerator', 40000, 8);5
3
VALUES('P005', 'Refrigerator', 40000, 8);5
*
ERROR at line 2:
ORA-00911: invalid character

SQL> INSERT INTO Product (Product_ID, Product_Name, Price, Quantity)
2 VALUES('P005', 'Refrigerator', 40000, 8);

1 row created.

SQL>
SQL>
SQL> |
```

Customer Table

```
Run SQL Command Line x + v

SQL> INSERT INTO Product (Product_ID, Product_Name, Price, Quantity)
2 VALUES('P005', 'Refrigerator', 40000, 8);

1 row created.

SQL>
SQL>
SQL> INSERT INTO Customer (Customer_ID, Customer_Name, Address, Phone_Number)
2 VALUES (301, 'Bhavya Shrivastava', 'Vidisha', 9407257962);

1 row created.

SQL> INSERT INTO Customer (Customer_ID, Customer_Name, Address, Phone_Number)
2 VALUES (302, 'Ajay Kumar', 'Vidisha', 940725678);

1 row created.

SQL> INSERT INTO Customer (Customer_ID, Customer_Name, Address, Phone_Number)
2 VALUES (303, 'Nitin Nandan', 'Gaya', 9407234578);

1 row created.

SQL> INSERT INTO Customer (Customer_ID, Customer_Name, Address, Phone_Number)
2 VALUES (304, 'Aksheti Shrivastava', 'London', 9434564578);

1 row created.

SQL> INSERT INTO Customer (Customer_ID, Customer_Name, Address, Phone_Number)
2 VALUES (305, 'Anjali Saraswat', 'Vidisha', 9434567878);

1 row created.

SQL>
SQL> |
```

Account Table

```
Run SQL Command Line x + v

SQL> INSERT INTO Account (Account_ID, Account_Name, Balance, Create_Date)
2 VALUES(401, 'Bhavya Shrivastava', 554, TO_DATE('10-01-2023', 'DD-MM-YYYY'));

1 row created.

SQL> INSERT INTO Account (Account_ID, Account_Name, Balance, Create_Date)
2 VALUES(402, 'Ajay Kumar', 1554, TO_DATE('10-02-2023', 'DD-MM-YYYY'));

1 row created.

SQL> INSERT INTO Account (Account_ID, Account_Name, Balance, Create_Date)
2 VALUES(403, 'Nitin Nandan', 15534, TO_DATE('10-03-2023', 'DD-MM-YYYY'));

1 row created.

SQL> INSERT INTO Account (Account_ID, Account_Name, Balance, Create_Date)
2 VALUES(404, 'Aksheti Shrivastava', 1543534, TO_DATE('10-04-2023', 'DD-MM-YYYY'));

1 row created.

SQL> INSERT INTO Account (Account_ID, Account_Name, Balance, Create_Date)
2 VALUES(405, 'Anjali Saraswat', 0, TO_DATE('10-06-2023', 'DD-MM-YYYY'));

1 row created.

SQL> |
```

4. Fetch all data from the respective tables.

Student Table

```
Run SQL Command Line x + v
SQL> SELECT * FROM Student;
STUDENT_ID FIRST_NAME
LAST_NAME
DEPARTMENT DATE_OF_B G
RELIGION
1 Bhavya
Shrivastava
CSE 16-FEB-04 M
Hindu
STUDENT_ID FIRST_NAME
LAST_NAME
DEPARTMENT DATE_OF_B G
RELIGION
2 Ajay
Kumar
ECE 10-NOV-04 M
ISLAM
STUDENT_ID FIRST_NAME
LAST_NAME
DEPARTMENT DATE_OF_B G
RELIGION
3 Nitin
Nandan
EEE 04-APR-05 M
Christian
STUDENT_ID FIRST_NAME
LAST_NAME
DEPARTMENT DATE_OF_B G
RELIGION
4 Aksheti
Shrivastava
IT 29-JUL-04 F
Hindu
STUDENT_ID FIRST_NAME
LAST_NAME
DEPARTMENT DATE_OF_B G
RELIGION
5 Anjali
Saraswat
CSE 07-APR-04 F
Bhuddist
SQL>
SQL>
SQL>
```

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```
Run SQL Command Line x + v
RELIGION
3 Nitin
Nandan
EEE 04-APR-05 M
Christian
STUDENT_ID FIRST_NAME
LAST_NAME
DEPARTMENT DATE_OF_B G
RELIGION
4 Aksheti
Shrivastava
IT 29-JUL-04 F
Hindu
STUDENT_ID FIRST_NAME
LAST_NAME
DEPARTMENT DATE_OF_B G
RELIGION
5 Anjali
Saraswat
CSE 07-APR-04 F
Bhuddist
SQL>
SQL>
SQL>
```

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Employee Table

```
Run SQL Command Line
SQL> SELECT * FROM Employee;

EMPLOYEE_ID FIRST_NAME
-----
LAST_NAME
-----
DEGISNATION
-----
101 Bhavya
Shrivastava
Software Engineer

102 Ajay
Kumar
Project Manager

EMPLOYEE_ID FIRST_NAME
-----
LAST_NAME
-----
DEGISNATION
-----
103 Nitin
Nandan
Data Analyst

104 Aksheti
Shrivastava
HR Specialist

EMPLOYEE_ID FIRST_NAME
-----
LAST_NAME
-----
DEGISNATION
-----
105 Anjali
Saraswat
System Specialist
```

Product Table

```
Run SQL Command Line
SQL> SELECT * FROM Product;

PRODUCT_ID PRODUCT_NAME PRICE
-----
QUANTITY
-----
P001 Laptop 55000
10
P002 Smartphone 25000
20
P003 Office Chair 3000
15

PRODUCT_ID PRODUCT_NAME PRICE
-----
QUANTITY
-----
P004 Washing Machine 35000
5
P005 Refrigerator 40000
8

SQL>
SQL>
SQL>
```

Customer Table

```
Run SQL Command Line
SQL> SELECT * FROM Customer;

CUSTOMER_ID  CUSTOMER_NAME
-----
ADDRESS
-----
PHONE_NUMBER
-----
          301 Bhavya Shrivastava
Vidisha
9407257962

          302 Ajay Kumar
Vidisha
9407255678

CUSTOMER_ID  CUSTOMER_NAME
-----
ADDRESS
-----
PHONE_NUMBER
-----
          303 Nitin Nandan
Gaya
9407234578

          304 Aksheti Shrivastava
London

CUSTOMER_ID  CUSTOMER_NAME
-----
ADDRESS
-----
PHONE_NUMBER
-----
9434564578

          305 Anjali Saraswat
Vidisha
9434567578
```

Account Table

```
Run SQL Command Line
SQL> SELECT * FROM Account;

ACCOUNT_ID  ACCOUNT_NAME                                BALANCE
-----
CREATE_DA
-----
          401 Bhavya Shrivastava                                554
10-JAN-23

          402 Ajay Kumar                                1554
10-FEB-23

          403 Nitin Nandan                                15534
10-MAR-23

ACCOUNT_ID  ACCOUNT_NAME                                BALANCE
-----
CREATE_DA
-----
          404 Aksheti Shrivastava                                1543534
10-APR-23

          405 Anjali Saraswat                                0
10-JUN-23
```

5. Fetch Employee ids and their names from Employee table.

```
Run SQL Command Line x + -
10-JUN-23

SQL> SELECT Employee_ID, First_Name, Last_Name
2 FROM Employee;

EMPLOYEE_ID FIRST_NAME
LAST_NAME
-----
101 Bhavya
Shrivastava
102 Ajay
Kumar
103 Nitin
Nandan

EMPLOYEE_ID FIRST_NAME
LAST_NAME
-----
104 Aksheti
Shrivastava
105 Anjali
Saraswat

SQL> |
```

6. Create table YOUTH (f_name, l_name, sex, DOB) from the Student table.

```
SQL> CREATE TABLE YOUTH AS
2 SELECT First_Name AS f_name,
3 Last_Name AS l_name,
4 Gender AS sex,
5 Date_of_Birth AS DOB
6 FROM Student;
```

Table created.

```
SQL> |
```

7. Delete all data from the customer table.

```
SQL> DELETE FROM Customer;

5 rows deleted.
```

8. Delete the Account table.

```
SQL> DELETE FROM Account;

5 rows deleted.
```

9. Fetch the f_name and DOB from YOUTH table.

```
SQL> SELECT f_name, DOB
2 FROM YOUTH
3 ;

F_NAME DOB
-----
Bhavya 16-FEB-04
Ajay 10-NOV-04
Nitin 04-APR-05
Aksheti 29-JUL-04
Anjali 07-APR-04
```

10. Insert a new record into the Youth table. And keep NULL value in the l_name column.

```
SQL>
SQL> INSERT INTO YOUTH (f_name, l_name, sex, DOB)
  2  VALUES('Bhavya', NULL, 'M', TO_DATE('16-02-2004', 'DD-MM-YYYY'));
1 row created.
```

11. Insert a new record into the Employee table. And keep NULL value in the employee_id column.

```
SQL>
SQL> INSERT INTO EMPLOYEE (Employee_ID, First_Name, Last_Name, Designation)
  2  VALUES(NULL, 'Madhvi', 'Jain', 'Data Manager');
1 row created.
```

12. Change the name of the employee table to workers.

```
SQL> ALTER TABLE EMPLOYEE RENAME TO WORKERS;
Table altered.
```

13. Increase the size of the dept field in the student table by 10.

```
SQL> ALTER TABLE STUDENT MODIFY Department VARCHAR(60);
Table altered.
```

14. Add a column ph_no in the student table.

```
SQL> ALTER TABLE STUDENT ADD (ph_no VARCHAR(12));
Table altered.
```

15. Drop the religion attribute from the student table.

```
SQL> ALTER TABLE STUDENT DROP COLUMN RELIGION;
Table altered.
```

16. Rename the student_id field to roll_no in the student table.

```
SQL> ALTER TABLE STUDENT RENAME COLUMN Student_ID TO Roll_No;
Table altered.
```

17. Change the datatype and size of the product id column in the product table.

```
SQL>
SQL> ALTER TABLE Product MODIFY Product_ID VARCHAR(20);
Table altered.
```