**Database Management System Lab**

**Assignment - 5**

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1. **Create the following tables with the following attributes and constraints on them.**

**Create all the tables by defining primary key, foreign key and other appropriate constraints.**

1. **Bank (bk\_code, bk\_name, bk\_address)**

=> CREATE TABLE Bank (

bk\_code NUMBER PRIMARY KEY,

bk\_name VARCHAR2(25) NOT NULL,

bk\_address VARCHAR2(25) NOT NULL

);

1. **Branch (br\_id, br\_name, br\_address, bk\_code)**

=> CREATE TABLE Branch (

br\_id VARCHAR2(8) PRIMARY KEY,

br\_name VARCHAR2(25) NOT NULL,

br\_address VARCHAR2(25) NOT NULL,

bk\_code NUMBER,

CONSTRAINT fk\_branch\_bank FOREIGN KEY (bk\_code) REFERENCES Bank(bk\_code) ON DELETE CASCADE

);

1. **Customer (cust\_ID, cust\_name, phone\_no, address)**

=> CREATE TABLE Customer (

cust\_ID NUMBER PRIMARY KEY,

cust\_name VARCHAR2(25) NOT NULL,

phone\_no VARCHAR2(15) UNIQUE,

address VARCHAR2(25) NOT NULL

);

1. **Account (acc\_no, acc\_type, balance, br\_id)**

=> CREATE TABLE Account (

acc\_no VARCHAR2(8) PRIMARY KEY,

acc\_type VARCHAR2(25) NOT NULL,

balance NUMBER(15,2) CHECK (balance >= 0),

br\_id VARCHAR2(8),

CONSTRAINT fk\_account\_branch FOREIGN KEY (br\_id) REFERENCES Branch(br\_id) ON DELETE SET NULL

);

1. **Customer\_Account (cust\_ID, acc\_no)**

=> CREATE TABLE Customer\_Account (

cust\_ID NUMBER,

acc\_no VARCHAR2(8),

PRIMARY KEY (cust\_ID, acc\_no),

CONSTRAINT fk\_cust\_acc\_customer FOREIGN KEY (cust\_ID) REFERENCES Customer(cust\_ID) ON DELETE CASCADE,

CONSTRAINT fk\_cust\_acc\_account FOREIGN KEY (acc\_no) REFERENCES Acco**unt(acc\_no) ON DELETE CASCADE**

**);**

1. **Loan (loan\_ID, loan\_type, amount, br\_id)**

=> CREATE TABLE Loan (

loan\_ID VARCHAR2(8) PRIMARY KEY,

loan\_type VARCHAR2(25) NOT NULL,

amount NUMBER(15,2) CHECK (amount > 0),

br\_id VARCHAR2(8),

CONSTRAINT fk\_loan\_branch FOREIGN KEY (br\_id) REFERENCES Branch(br\_id) ON DELETE SET NULL

);

1. **Customer\_Loan (cust\_ID, loan\_ID)**

=> CREATE TABLE Customer\_Loan (

cust\_ID NUMBER,

loan\_ID VARCHAR2(8),

PRIMARY KEY (cust\_ID, loan\_ID),

CONSTRAINT fk\_cust\_loan\_customer FOREIGN KEY ( cust\_ID) REFERENCES Customer(cust\_ID) ON DELETE CASCADE,

CONSTRAINT fk\_cust\_loan\_loan FOREIGN KEY (loan\_ID) REFERENCES Loan(loan\_ID) ON DELETE CASCADE

);

1. **Insert atleast five records in each table.**
2. **Bank**

=> INSERT INTO Bank VALUES (201, 'SBI', 'MG Road');

INSERT INTO Bank VALUES (202, 'HDFC', 'Brigade Road');

INSERT INTO Bank VALUES (203, 'ICICI', 'Whitefield');

INSERT INTO Bank VALUES (204, 'Axis', 'Electronic City');

INSERT INTO Bank VALUES (205, 'Canara', 'Jayanagar');

1. **Branch**

=> INSERT INTO Branch VALUES ('br\_01', 'SBI Main', 'MG Road', 201);

INSERT INTO Branch VALUES ('br\_02', 'HDFC North', 'Koramangala', 202);

INSERT INTO Branch VALUES ('br\_03', 'ICICI West', 'NITK', 203);

INSERT INTO Branch VALUES ('br\_04', 'Axis South', 'BTM Layout', 204);

INSERT INTO Branch VALUES ('br\_05', 'Canara East', 'Indiranagar', 205);

1. **Customer**

=> INSERT INTO Customer VALUES (102, 'Ravi Sharma', '9876543210', 'Surathkal');

INSERT INTO Customer VALUES (103, 'Ananya Reddy', '9876543211', 'HSR Layout');

INSERT INTO Customer VALUES (104, 'Vikram Joshi', '9876543212', 'Yelahanka');

INSERT INTO Customer VALUES (105, 'Neha Kapoor', '9876543213', 'Jayanagar');

INSERT INTO Customer VALUES (106, 'Arjun Rao', '9876543214', 'Banashankari');

1. **Account**

=> INSERT INTO Account VALUES ('A301', 'Savings', 50000.50, 'br\_01');

INSERT INTO Account VALUES ('A302', 'Current', 75000.00, 'br\_02');

INSERT INTO Account VALUES ('A303', 'Savings', 20000.25, 'br\_03');

INSERT INTO Account VALUES ('A304', 'Fixed Deposit', 100000.00, 'br\_04');

INSERT INTO Account VALUES ('A305', 'Savings', 35000.75, 'br\_05');

1. **Customer\_Account**

=> INSERT INTO Customer\_Account VALUES (102, 'A301');

INSERT INTO Customer\_Account VALUES (103, 'A302');

INSERT INTO Customer\_Account VALUES (104, 'A303');

INSERT INTO Customer\_Account VALUES (105, 'A304');

INSERT INTO Customer\_Account VALUES (106, 'A305');

1. **Loan**

=> INSERT INTO Loan VALUES ('L401', 'Home Loan', 500000.00, 'br\_01');

INSERT INTO Loan VALUES ('L402', 'Car Loan', 300000.00, 'br\_02');

INSERT INTO Loan VALUES ('L403', 'Education Loan', 200000.00, 'br\_03');

INSERT INTO Loan VALUES ('L404', 'Personal Loan', 150000.00, 'br\_04');

INSERT INTO Loan VALUES ('L405', 'Gold Loan', 100000.00, 'br\_05');

1. **Customer\_Loan**

=> INSERT INTO Customer\_Loan VALUES (102, 'L401');

INSERT INTO Customer\_Loan VALUES (103, 'L402');

INSERT INTO Customer\_Loan VALUES (104, 'L403');

INSERT INTO Customer\_Loan VALUES (105, 'L404');

INSERT INTO Customer\_Loan VALUES (106, 'L405');

1. **List the details of all customers.**

=> SELECT \*

FROM Customer;

1. **Find the cust\_ID and phone number of customer ‘Ravi’.**

=> SELECT cust\_id, phone\_no

FROM Customer

WHERE cust\_name like = ‘Ravi%’;

1. **Find the Address of all branches of br\_01.**

=> SELECT br\_address

FROM Branch

WHERE br\_id = ‘br\_01’;

1. **Find the details of Customer having ID 103.**

=> SELECT \*

FROM Customer

WHERE cust\_id = 103;

1. **List the account details having balance more than 10000.**

=> SELECT \*

FROM Account

WHERE balance > 10000;

1. **List the account details of branch br\_02.**

=> SELECT \*

FROM Account

WHERE br\_id = ‘br\_02’;

1. **List the loan details of branch br\_01.**

=> SELECT \*

FROM Loan

WHERE br\_id = ‘br\_01’;

1. **List the account details with their branch address.**

=> SELECT a.\*, b.br\_address

FROM Account a JOIN Branch b ON a.br\_id = b.br\_id;

1. **List the customer details with their account details.**

=> SELECT c.\*, a.acc\_no, a.acc\_type, a.balance, a.br\_id

FROM Customer c JOIN Customer\_Account ca ON c.cust\_id = ca.cust\_id

JOIN Account a on ca.acc\_no = a.acc\_no;

1. **List the customer details having account type‘savings’.**

=> SELECT c.\*

FROM Customer c JOIN Customer\_Account ca ON c.cust\_id = ca.cust\_id

JOIN Account a on ca.acc\_no = a.acc\_no

WHERE acc\_type = ‘Savings’;

1. **List the customer details having vehicle loan.**

=> SELECT c.\*

FROM Customer c JOIN Customer\_Loan cl on c.cust\_id = cl.cust\_id

JOIN Loan l ON cl.loan\_id = l.loan\_id

WHERE loan\_type = ‘Vehicle Loan’;

1. **List the branch names of all accounts.**

=> SELECT DISTONCT b.br\_name

FROM Account a JOIN Branch b on a.br\_id = b.br\_id;

1. **List the customer details going to ‘Surathkal’ branch.**

=> SELECT c.\*

FROM Customer c JOIN Customer\_Account ca ON c.cust\_id = ca.cust\_id

JOIN Account a on ca.acc\_no = a.acc\_no

JOIN Branch b on a.br\_id = b.br\_id

WHERE b.br\_address = ‘Surathkal’;

1. **List the customers having loan account in ‘MG Road’ branch.**

=> SELECT c.\*

FROM Customer c JOIN Customer\_Loan cl ON c.cust\_id = cl.cust\_id

JOIN Loan l on cl.loan\_id = l.loan\_id

JOIN Branch b on l.br\_id = b.br\_id

WHERE b.br\_address = ‘MG Road’;

1. **Find the customers having balance between 1000 to 10000.**

=> SELECT c.\*

FROM Customer c JOIN Customer\_Account ca ON c.cust\_id = ca.cust\_id

JOIN Account a on ca.acc\_no = a.acc\_no

WHERE a.balance between 1000 AND 100000;

1. **Give a bonus of rupees 100 to customers having more than 10000 balance.**

=> UPDATE Account set balance = balance + 100

WHERE balance > 10000;

1. **Deduct 50 rupees from customers having less than 500 rupees in balance.**

=> UPDATE Account set balance = balance - 50

WHERE balance < 500;

1. **Give the customer details having home loan.**

=> SELECT c.\*

FROM Customer c JOIN Customer\_Loan cl ON c.cust\_id = cl.cust\_id

JOIN Loan l on cl.loan\_id = l.loan\_id

WHERE l.loan\_type = ‘Home Loan’;

1. **Give the customer details having home loan in ‘NITK’ branch.**

=> SELECT c.\*

FROM Customer c JOIN Customer\_Loan cl ON c.cust\_id = cl.cust\_id

JOIN Loan l on cl.loan\_id = l.loan\_id

JOIN Branch b on l.br\_id = b.br\_id

WHERE b.br\_address = ‘NITK’;

1. **Add a column NOMINEE to the customer table with data type varchar (50).**

=> ALTER TABLE Customer

ADD Nominee VARCHAR(50);

1. **List all the account numbers in ascending order of their balance.**

=> SELECT acc\_no

FROM Account

ORDER BY balance ASC;

1. **Count the number of customers having account type savings.**

=> SELECT count(\*)

FROM Customer\_Account ca JOIN Account a ON ca.acc\_no = a.acc\_no

WHERE a.acc\_type = ‘Savings’;

1. **Count the number of customers for each account type.**

=> SELECT acc\_type, count(\*)

FROM Account

GROUP BY acc\_type;

1. **Find the total balance in Savings account.**

=> SELECT sum(balance)

FROM Account

WHERE acc\_type = ‘Savings’;

1. **Find the average balance of Current account.**

=> SELECT avg(balance)

FROM Account

WHERE acc\_type = ‘Current’;

1. **Find the average balance for each account type.**

=> SELECT acc\_type, avg(balance) as avg\_bal

FROM Account

GROUP BY acc\_type;

1. **Find the customer details having maximum balance.**

=> SELECT c.\*

FROM Customer c JOIN Customer\_Account ca ON c.cust\_id = ca.cust\_id

JOIN Account a on ca.acc\_no = a.acc\_no

WHERE rownum < 2

ORDER BY balance DESC;

1. **Find the average amount for vehicle loan.**

=> SELECT c.\*

FROM Loan

WHERE loan\_type = ‘Vehicle Loan’;

1. **Find the average balance in each branch.**

=> SELECT br\_id, avg(balance)

FROM Account

GROUP BY br\_id;