

## <u>Database Management System Lab</u> <u>Assignment-1</u>

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Class: MCA 1st Year 2nd Sem

Session: 2021-2023

### **4** Question 1: Create the following tables:

Table name: EMPLOYEE

Structure:

EMP\_CODE char(16)

EMP\_NAME char(20)

DEPT\_CODE char(16)

DESIG\_CODE char(16)

SEX char(1)

ADDRESS char (25)

CITY char (20)

STATE char (20)

PIN char (6)

BASIC Number

JN DT Date

Primary key is EMP\_CODE

Table name: DESIGNATION

Structure:

DESIG\_CODE char(16)

DESIG\_DESC char(20)

Primary key is DESIG\_CODE

Table name: DEPARTMENT

Structure:

DEPT\_CODE char(16)

DEPT\_NAME char(20)

Primary key is DEPT\_CODE.

#### Solution:

#### SQL> CREATE TABLE EMPLOYEE(

- 2 EMP\_CODE varchar(16) NOT NULL PRIMARY KEY,
- 3 EMP\_NAME varchar(20),
- 4 DEPT\_CODE varchar(16),
- 5 DESIG\_CODE varchar(16),
- 6 SEX varchar(1),
- 7 ADDRESS varchar(25),
- 8 CITY varchar(20),
- 9 STATE varchar(20),
- 10 PIN varchar(6),
- 11 BASIC int,
- 12 JN\_DT Date);

Table created.

#### SQL> CREATE TABLE DESIGNATION(

- 2 DESIG\_CODE varchar(16) NOT NULL PRIMARY KEY,
- 3 DESIG\_DESC varchar(20));

Table created.

#### SQL> CREATE TABLE DEPARTMENT(

- 2 DEPT\_CODE varchar(16) NOT NULL PRIMARY KEY,
- 3 DEPT\_NAME varchar(20));

Table created.

## **♣** Question 2: Display the structure of each table.

## Solution:

DEPT\_NAME

SQL>	DESC	<b>EMPL</b>	OYEE;
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Name	Null?	Туре
EMP_CODE	NOT NULL	VARCHAR2(16)
EMP_NAME		VARCHAR2(20)
DEPT_CODE		VARCHAR2(16)
DESIG_CODE		VARCHAR2(16)
SEX		VARCHAR2(1)
ADDRESS		VARCHAR2(25)
CITY		VARCHAR2(20)
STATE		VARCHAR2(20)
PIN		VARCHAR2(6)
BASIC		NUMBER(38)
JN_DT		DATE
SQL> DESC DESIGNA	ATION;	
Name	Null?	Туре
DESIG_CODE	NOT NULL	VARCHAR2(16)
DESIG_DESC		VARCHAR2(20)
SQL> DESC DEPART	MENT:	
Name	Null?	Туре
DEPT_CODE	NOT NULL	VARCHAR2(16)

VARCHAR2(20)

#### Question 3. Insert few rows in each table.

[While entering data in EMP table use DESIG\_CODE which exists in DESIGNATION table and DEPT\_CODE which is exists in DEPARTMENT table. In DESIGNATION table, assign code for Manager, Executive, officer, clerk and helper. In DEPARTMENT table, assign code for Personnel, Production, Purchase, Finance, Research departments]

SQL> INSERT INTO DEPARTMENT(DEPT\_CODE, DEPT\_NAME) VALUES('PER','Personnel');

1 row created.

SQL> INSERT INTO DEPARTMENT(DEPT\_CODE, DEPT\_NAME) VALUES('PR','Production');

1 row created.

SQL> INSERT INTO DEPARTMENT(DEPT\_CODE, DEPT\_NAME) VALUES('PUR','Purchase');

1 row created.

SQL> INSERT INTO DEPARTMENT(DEPT\_CODE, DEPT\_NAME) VALUES('FI','Finance');

1 row created.

SQL> INSERT INTO DEPARTMENT(DEPT\_CODE, DEPT\_NAME) VALUES('RE','Research');

1 row created.

SQL> INSERT INTO DESIGNATION(DESIG\_CODE, DESIG\_DESC) VALUES('MN', 'Manager');

1 row created.

SQL> INSERT INTO DESIGNATION(DESIG\_CODE, DESIG\_DESC) VALUES('EXE','Executive');

1 row created.

SQL> INSERT INTO DESIGNATION(DESIG\_CODE, DESIG\_DESC) VALUES('OFF','Officer');

1 row created.

SQL> INSERT INTO DESIGNATION(DESIG\_CODE, DESIG\_DESC) VALUES('CL','Clerk');

1 row created.

SQL> INSERT INTO DESIGNATION(DESIG\_CODE, DESIG\_DESC) VALUES('HL','Helper');

1 row created.

SQL> SELECT \* FROM DEPARTMENT;

DEPT\_CODE DEPT\_NAME

-----

PER Personnel

PR Production

PUR Purchase

FI Finance

RE Research

SQL> SELECT \* FROM DESIGNATION;

DESIG\_CODE DESIG\_DESC

-----

MN Manager

EXE Executive

OFF Officer

CL Clerk

HL Helper

SQL> INSERT INTO EMPLOYEE(EMP\_CODE, EMP\_NAME, DEPT\_CODE, DESIG\_CODE, SEX, ADDRESS, CITY, STATE, PIN, BASIC, JN\_DT) VALUES ('E101','Injamamul Hoque','PR','EXE','M','New Coochbeher','Coochbeher','West Bengal','400023',45000,DATE '2022-02-22');

1 row created.

SQL> INSERT INTO EMPLOYEE(EMP\_CODE, EMP\_NAME, DEPT\_CODE, DESIG\_CODE, SEX, ADDRESS, CITY, STATE, PIN, BASIC, JN\_DT) VALUES ('E102','Suvojit Mondal','FI','OFF','M','Krishnagar','Nadia','West Bengal','741101',5000,DATE '2022-06-02');

1 row created.

SQL> INSERT INTO EMPLOYEE(EMP\_CODE, EMP\_NAME, DEPT\_CODE, DESIG\_CODE, SEX, ADDRESS, CITY, STATE, PIN, BASIC, JN\_DT) VALUES ('E103','Surajit Sasmal','PUR','MN','M','Haldia','EastMidnapur','West Bengal','721108',60000,DATE '2022-09-07');

1 row created.

SQL> INSERT INTO EMPLOYEE(EMP\_CODE, EMP\_NAME, DEPT\_CODE, DESIG\_CODE, SEX, ADDRESS, CITY, STATE, PIN, BASIC, JN\_DT) VALUES ('E104','Sarmila Saha','RE','HL','F','Durgapur','West Burdwan','West Bengal','700014',90000,DATE '2022-01-03');

1 row created.

SQL> INSERT INTO EMPLOYEE(EMP\_CODE, EMP\_NAME, DEPT\_CODE, DESIG\_CODE, SEX, ADDRESS, CITY, STATE, PIN, BASIC, JN\_DT) VALUES ('E105','Subhradeep Ghosh','FI','CL','M','New Town','Kolkata','West Bengal','700026',25000,DATE '2022-01-02');

1 row created.

SQL> INSERT INTO EMPLOYEE(EMP\_CODE, EMP\_NAME, DEPT\_CODE, DESIG\_CODE, SEX, ADDRESS, CITY, STATE, PIN, BASIC, JN\_DT) VALUES ('E106','Aranya Das','PUR','EXE','M','Thakurpukur','Kolkata','West Bengal','400020',40000,DATE '2022-05-04');

1 row created.

SQL> INSERT INTO EMPLOYEE(EMP\_CODE, EMP\_NAME, DEPT\_CODE, DESIG\_CODE, SEX, ADDRESS, CITY, STATE, PIN, BASIC, JN\_DT) VALUES ('E107','Sohini Halder','PR','MN','F','Garia','Kolkata','West Bengal','700009',60000,DATE '2022-02-02');

1 row created.

SQL> INSERT INTO EMPLOYEE(EMP\_CODE, EMP\_NAME, DEPT\_CODE, DESIG\_CODE, SEX, ADDRESS, CITY, STATE, PIN, BASIC, JN\_DT) VALUES ('E108','Kanika Pati','PER','OFF','F','Purulia','Purulia','West Bengal','760038',55000,DATE '2022-03-05');

1 row created.

SQL> INSERT INTO EMPLOYEE(EMP\_CODE, EMP\_NAME, DEPT\_CODE, DESIG\_CODE, SEX, ADDRESS, CITY, STATE, PIN, BASIC, JN\_DT) VALUES ('E109','Deboli Sengupta','','CL','F','Naihati','North 24 Parbanas','West Bengal','710001',25000,DATE '2021-04-09');

1 row created.

SQL> INSERT INTO EMPLOYEE(EMP\_CODE, EMP\_NAME, DEPT\_CODE, DESIG\_CODE, SEX, ADDRESS, CITY, STATE, PIN, BASIC, JN\_DT) VALUES ('E110','Sajib Gorai','','EXE','M','Bankura','Bankura','West Bengal','700034',200000,DATE '2021-11-12');

1 row created.

#### Question 4: In EMP table insert few rows without DEPT\_CODE and BASIC.

#### Solution:

SQL> INSERT INTO EMPLOYEE(EMP\_CODE, EMP\_NAME, DEPT\_CODE, DESIG\_CODE, SEX, ADDRESS, CITY, STATE, PIN, BASIC, JN\_DT) VALUES ('E111','Samarpita Hazra','','CL','F','Durgapur','West Burdwan','West Bengal','750098',0,DATE '2022-03-09');

1 row created.

SQL> INSERT INTO EMPLOYEE(EMP\_CODE, EMP\_NAME, DEPT\_CODE, DESIG\_CODE, SEX, ADDRESS, CITY, STATE, PIN, BASIC, JN\_DT) VALUES ('E112','Arabinda Das','','OFF','M','Purulia','Purulia','West Bengal','710048','', DATE '2022-11-23');

1 row created.

#### SQL> SELECT \* FROM EMPLOYEE;

1	EMP_CODE	EMP_NAME	DEPT_CODE	DESIG_CODE	SEX	ADDRESS	CITY	STATE	PIN	BASIC	JN_DT
2	E105	Subhradeep Ghosh	FI	CL	M	New Town	Kolkata	West Bengal	700026	25000	02-Jan-22
3	E107	Sohini Halder	PR	MN	F	Garia	Kolkata	West Bengal	700009	60000	02-Feb-22
4	E101	Injamamul Hoque	PR	EXE	M	New Coochbeher	Coochbeher	West Bengal	400023	45000	22-Feb-22
5	E102	Suvojit Mondal	FL	OFF	M	Krishnagar	Nadia	West Bengal	741101	5000	02-Jun-22
6	E103	Surajit Sasmal	PUR	MN	M	Haldia	EastMidnapur	West Bengal	721108	60000	07-Sep-22
7	E108	Kanika Pati	PER	OFF	F	Purulia	Purulia	West Bengal	760038	55000	05-Mar-22
8	E110	Sajib Gorai	12	EXE	M	Bankura	Bankura	West Bengal	700034	200000	12-Nov-21
9	E112	Arabinda Das	12	OFF	M	Purulia	Purulia	West Bengal	710048	u u	23-Nov-22
10	E104	Sarmila Saha	RE	HL	F	Durgapur	West Burdwan	West Bengal	700014	90000	03-Jan-22
11	E106	Aranya Das	PUR	EXE	M	Thakurpukur	Kolkata	West Bengal	400020	40000	04-May-22
12	E109	Deboli Sengupta	12	CL	F	Naihati	North 24 Parbanas	West Bengal	710001	25000	09-Apr-21
13	E111	Samarpita Hazra	-	CL	E	Durgapur	West Burdwan	West Bengal	750098	0	09-Mar-22

# Question 5: Find the rows with unassigned DEPT\_CODE. Solution.

SQL> SELECT \* FROM EMPLOYEE WHERE DEPT\_CODE IS NULL;

1	EMP_CODE	EMP_NAME	DEPT_CO	E DESIG_CO	SEX	<b>ADDRESS</b>	CITY	STATE	PIN	BASIC	JN_DT
2	E110	Sajib Gorai	243	EXE	M	Bankura	Bankura	West Bengal	700034	200000	12-Nov-21
3	E112	Arabinda Das	-	OFF	M	Purulia	Purulia	West Bengal	710048	-	23-Nov-22
4	E109	Deboli Sengupta	140	CL	F	Naihati	North 24 Parbanas	West Bengal	710001	25000	09-Apr-21
5	E111	Samarpita Hazra		CL	F	Durgapur	West Burdwan	West Bengal	750098	0	09-Mar-22

**♣** Question 6: Find the rows with BASIC equal to 0.

#### Solution:

SQL> SELECT \* FROM EMPLOYEE WHERE BASIC = 0;

1	EMP_COD	EMP_NAME	DEPT_CODE	DESIG_CODE	SEX	ADDRESS	CITY	STATE	PIN	BASIC	JI	N_DT
2	E111	Samarpita Hazra	2	CL	F	Durgapur	West Burdwan	West Bengal	750098		0	09-Mar-22

♣ Question 7: Find the rows with unassigned Basic [note down the difference between the results obtained in Q.6 and Q.7] Solution:

SQL> SELECT \* FROM EMPLOYEE WHERE BASIC IS NULL;

1	EMP_CODE	EMP_NAME	DEPT_CODE	DESIG_CODE	SEX	<b>ADDRESS</b>	CITY	STATE	PIN	BASIC	JN_DT
2	E112	Arabinda Das	-	OFF	M	Purulia	Purulia	West Beng	710048	-	23-Nov-22

**♣** Question 8: Find the average BASIC of the employees.

#### Solution:

SQL> SELECT AVG(BASIC) FROM EMPLOYEE;

1	AVG(BASIC)
2	55000

Question 9: Replace the BASIC with 0 for the rows with unassigned BASIC.

#### Solution:

SQL> UPDATE EMPLOYEE

SET BASIC = 0

WHERE BASIC IS NULL;

1 row updated.

♣ Question 10. Find the average BASIC. (Note the difference of result obtained in Q.8 & Q.10.)

#### Solution:

SQL> SELECT AVG(BASIC) FROM EMPLOYEE;

1	AVG(BASIC)	
2	50416.66667	

**4** Question 11. Delete the rows with unassigned DEPT\_CODE.

#### Solution:

SQL> DELETE FROM EMPLOYEE WHERE DEPT\_CODE IS NULL;

4 rows deleted.

♣ Question 12: Say, Net pay of an employee= Basic+ HRA+ DA where HRA is 50% of the Basic & DA is 40% of Basic. Show the employee name & Net pay for all employees.

#### Solution:

SQL> SELECT EMP\_NAME, BASIC \* 0.4 + BASIC \* 0.5 AS NET\_PAY FROM EMPLOYEE;

1	EMP_NAME	NET_PAY
2	Subhradeep Ghosh	22500
3	Sohini Halder	54000
4	Injamamul Hoque	40500
5	Suvojit Mondal	4500
6	Surajit Sasmal	54000
7	Kanika Pati	49500
8	Sarmila Saha	81000
9	Aranya Das	36000

**♣** Question 13: Show the EMP\_NAME & BASIC in the ascending order of DEPT\_CODE. The employee name must appear in uppercase.

#### Solution:

SQL> SELECT UPPER(EMP\_NAME), BASIC FROM EMPLOYEE ORDER BY BASIC;

1	UPPER(EMP_NAME)	BASIC
2	SUVOJIT MONDAL	5000
3	SUBHRADEEP GHOSH	25000
4	ARANYA DAS	40000
5	INJAMAMUL HOQUE	45000
6	KANIKA PATI	55000
7	SOHINI HALDER	60000
8	SURAJIT SASMAL	60000
9	SARMILA SAHA	90000

Question 14: Find the employees who have joined after 1<sup>st</sup> January 2010

#### Solution:

SQL> SELECT EMP\_NAME AS EMPLOYEE\_NAME, JN\_DT AS JOIN\_DATE FROM EMPLOYEE

WHERE JN\_DT > DATE '2020-01-01';

1	EMPLOYEE_NAME	JOIN_DATE
2	Sohini Halder	02-Feb-22
3	Injamamul Hoque	22-Feb-22
4	Suvojit Mondal	02-Jun-22
5	Surajit Sasmal	07-Sep-22
6	Kanika Pati	05-Mar-22
7	Aranya Das	04-May-22

Question 15: Find, how many employees have joined in the month of January?

#### Solution:

SQL> SELECT COUNT(\*) FROM EMPLOYEE WHERE SUBSTR(JN\_DT,4,3) = 'JAN';

1	COUNT(*)
2	2

#### **♣** Question 16: Find the maximum & minimum Basic Solution:

SQL> SELECT MAX(BASIC), MIN(BASIC) FROM EMPLOYEE;

1	MAX(BASIC)	MIN(BASIC)			
2	90000	5000			

## **♣** Question 17: Find how many Female employees are there?

#### Solution:

SQL> SELECT COUNT(\*) FROM EMPLOYEE WHERE SEX = 'F';

COUNT(\*)
-----3

## Question 18: Replace CITY with existing value converted into uppercase for all rows.

#### Solution:

SQL> UPDATE EMPLOYEE SET CITY = UPPER(CITY); 8 rows updated.

SQL> SELECT CITY FROM EMPLOYEE;

1	CITY
2	KOLKATA
3	KOLKATA
4	COOCHBEHER
5	NADIA
6	EASTMIDNAPUR
7	PURULIA
8	WEST BURDWAN
9	KOLKATA

## Question 19: Find in how many different cities various employees are residing?

#### Solution:

SQL> SELECT CITY, COUNT(\*) FROM EMPLOYEE GROUP BY CITY;

1	CITY	COUNT(*)
2	EASTMIDNAPUR	1
3	PURULIA	1
4	KOLKATA	3
5	NADIA	1
6	WEST BURDWAN	1
7	COOCHBEHER	1

• Question 20: Display the employee information in the ascending order of DEPT\_CODE and within a Department, it should be in the descending order of BASIC.

#### Solution:

SQL> SELECT \* FROM EMPLOYEE

- 2 ORDER BY DEPT\_CODE,
- 3 BASIC DESC;

1	EMP_CODE	EMP_NAME	DEPT_CODE	DESIG_CODE	SEX	<b>ADDRESS</b>	CITY	STATE	PIN	BASIC	JN_DT
2	E105	Subhradeep Ghosh	FI	CL	M	New Town	KOLKATA	West Bengal	700026	25000	02-Jan-22
3	E102	Suvojit Mondal	FI	OFF	M	Krishnagar	NADIA	West Bengal	741101	5000	02-Jun-22
4	E108	Kanika Pati	PER	OFF	F	Purulia	PURULIA	West Bengal	760038	55000	05-Mar-22
5	E107	Sohini Halder	PR	MN	F	Garia	KOLKATA	West Bengal	700009	60000	02-Feb-22
6	E101	Injamamul Hoque	PR	EXE	M	New Coochbe	COOCHBEHER	West Bengal	400023	45000	22-Feb-22
7	E103	Surajit Sasmal	PUR	MN	M	Haldia	EASTMIDNAPUR	West Bengal	721108	60000	07-Sep-22
8	E106	Aranya Das	PUR	EXE	M	Thakurpukur	KOLKATA	West Bengal	400020	40000	04-May-22
9	E104	Sarmila Saha	RE	HL	F	Durgapur	WEST BURDWAN	West Bengal	700014	90000	03-Jan-22