

DBMS LAB
FIRST ASSIGNMENT ON SQL

1. Create the following tables :

(Do not use foreign key/referential integrity)

Tablename: EMP

Structure :

EMP_CODE	char(5)
EMP_NAME	char(20)
DEPT_CODE	char(5)
DESIG_CODE	char(5)
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

Tablename : DESIGNATION

Structure :

DESIG_CODE	char(5)
DESIG_DESC	char(20)

Primary key is DESIG_CODE

Tablename : DEPARTMENT

Structure :

DEPT_CODE	char(5)
DEPT_NAME	char(15)

Primary key is DEPT_CODE.

2. Display the structure of each table .

3. Insert few rows in each table .

[While entering data in EMP table, use DESIG_CODE which is existing in DESIGNATION table and DEPT_CODE which is existing 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]

4. In EMP table insert few rows without DEPT_CODE and BASIC .

5. Find the rows with unassigned DEPT_CODE .

6. Find the rows with BASIC equal to zero

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

8. Find the average basic of the employees.

9. Replace the BASIC with 0 for the rows with unassigned Basic .
10. Again , find the average Basic . (Note the difference of result obtained in Q.8 & Q.10.)
11. Delete the rows with unassigned DEPT_CODE .
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.
13. Show the EMP_NAME & BASIC in the ascending order of DEPT_CODE . The employee name must appear in uppercase .
14. Find the employees who have joined after 1st January 1990.
15. Find, how many employees have joined in the month of January?
16. Find the maximum & minimum Basic.
17. Find how many Female employees are there ?
18. Replace CITY with existing value converted into uppercase for all rows .
19. Find in how many different cities various employees are residing ?
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 .

Answers.

1. SQL Queries

```
create table EMP
(
    EMP_CODE varchar(5) not null
        constraint emp_pk
        primary key,
    EMP_NAME varchar(20) not null,
    DEPT_CODE varchar(5) not null,
    DESIG_CODE varchar(5) not null,
    SEX varchar(1) not null,
    ADDRESS varchar(25),
    CITY varchar(20) not null,
    STATE varchar(20) not null,
    PIN varchar(6) not null,
    BASIC int not null,
    JN_DT date not null
);
```

```
create table DESIGNATION
(
    DESIG_CODE varchar(5)
        constraint designation_pk
        primary key,
    DESIG_DESC varchar(20) not null
);
```

```
create table DEPARTMENT
(
    DEPT_CODE varchar(5)
        constraint department_pk
        primary key,
    DEPT_NAME varchar(15) not null
);
```

2.

```
and emp;
```

Table "public.emp"				
Column	Type	Collation	Nullable	Default
emp_code	character varying(5)		not null	
emp_name	character varying(20)		not null	
dept_code	character varying(5)		not null	
desig_code	character varying(5)		not null	
sex	character varying(1)		not null	
address	character varying(25)		not null	
city	character varying(20)		not null	
state	character varying(20)		not null	
pin	character varying(6)		not null	
basic	integer		not null	
jn_dt	date		not null	

Indexes:

```
"emp_pk" PRIMARY KEY, btree (emp_code)
```

\d designation

Table "public.designation"

Column	Type	Collation	Nullable	Default
design_code	character varying(5)		not null	
design_desc	character varying(20)		not null	

Indexes:

"designation_pk" PRIMARY KEY, btree (design_code)

\d department

Table "public.department"

Column	Type	Collation	Nullable	Default
dept_code	character varying(5)		not null	
dept_name	character varying(15)		not null	

Indexes:

"department_pk" PRIMARY KEY, btree (dept_code)

3.

\d department

Table "public.department"				
Column	Type	Collation	Nullable	Default
dept_code	character varying(5)		not null	
dept_name	character varying(15)		not null	

Indexes:

"department_pk" PRIMARY KEY, btree (dept_code)

```
=# insert into department values('PER', 'Personnnnel');
```

```
INSERT 0 1
```

```
=# select * from department ;
```

dept_code	dept_name
PER	Personnnnel

(1 row)

```
=# insert into department values('PRO', 'Production');
```

```
INSERT 0 1
```

```
=# insert into department values('PUR', 'Purchase');
```

```
INSERT 0 1
```

```
=# insert into department values('FIN', 'Finance');
```

```
INSERT 0 1
```

```
=# insert into department values('RND', 'Research and Development');
```

```
2021-03-28 12:12:54.502 IST [46565] ERROR: value too long for type character varying(15)
```

```
2021-03-28 12:12:54.502 IST [46565] STATEMENT: insert into department values('RND', 'Research and Development');
```

```
ERROR: value too long for type character varying(15)
```

```
=# insert into department values('RND', 'Research departments');
```

```
2021-03-28 12:13:10.947 IST [46565] ERROR: value too long for type character varying(15)
```

```
2021-03-28 12:13:10.947 IST [46565] STATEMENT: insert into department values('RND', 'Research departments');
```

```
ERROR: value too long for type character varying(15)
```

```
=# insert into department values('RND', 'Research dept');
```

```
INSERT 0 1
```

```
=# \d designation
```

```
Table "public.designation"
  Column      |      Type      | Collation | Nullable | Default
-----+-----+-----+-----+-----
desig_code   | character varying(5) |          | not null |
desig_desc   | character varying(20) |          | not null |
```

```
Indexes:
```

```
    "designation_pk" PRIMARY KEY, btree (desig_code)
```

```
=# insert into designation values('MAN', 'Manager');
```

```
INSERT 0 1
```

```
=# insert into designation values('MAN', 'some other');
```

```
2021-03-28 12:21:43.169 IST [46565] ERROR:  duplicate key value violates unique constraint
"designation_pk"
```

```
2021-03-28 12:21:43.169 IST [46565] DETAIL:  Key (desig_code)=(MAN) already exists.
```

```
2021-03-28 12:21:43.169 IST [46565] STATEMENT:  insert into designation values('MAN', 'some
other');
```

```
ERROR:  duplicate key value violates unique constraint "designation_pk"
```

```
DETAIL:  Key (desig_code)=(MAN) already exists.
```

```
=# insert into designation values('EXE', 'Executive');
```

```
INSERT 0 1
```

```
=# insert into designation values('OFF', 'Officer');
```

```
INSERT 0 1
```

```
=# insert into designation values('CLE', 'Clerk');
```

```
INSERT 0 1
```

```
=# insert into designation values('HEL', 'Helper');
```

```
INSERT 0 1
```

```
=# select * from designation;
```

```
desig_code | desig_desc
-----+-----
MAN        | Manager
EXE        | Executive
OFF        | Officer
CLE        | Clerk
HEL        | Helper
(5 rows)
```

```
# SELECT * FROM EMP;
emp_code | emp_name | dept_code | desig_code | sex | address | city
| state | pin | basic | jn_dt
+-----+-----+-----+-----+-----+-----+-----+
SHU | Shuvayan G Dastidar | RND | MAN | M | KOLKATA-30 | KOLKATA
| WEST BENGAL | 700030 | 80000 | 2021-06-01
RAM | RAMESH KUMAR | RND | EXE | M | KOLKATA-30, man road | KOLKATA
| WEST BENGAL | 700020 | 50000 | 2021-06-01
PRI | PRIYA KUMAR | RND | CLE | F | MUMBAI-30, CREEK ROAD | MUMBAI
| MAHARASHTRA | 700067 | 30000 | 2021-06-01
ANI | ANISHA SAHA | RND | OFF | F | MUMBAI-30 | MUMBAI
| MAHARASHTRA | 700087 | | 2021-06-01
PAD | Padama Saraf | | MAN | F | 28, Marathahalli | CHENNAI
| TAMIL NADU | 411408 | | 2021-06-01
GAN | Ganesh Ram Kalla | FIN | MAN | M | 70, Dadar, | INDORE
| UTTARPRADESH | 351942 | | 2021-06-01
MAN | MANPREET BORRA | FIN | OFF | M | 70, Dadar, | INDORE
| UTTARPRADESH | 351942 | 60000 | 2021-06-01
KIR | KIRAN KABRA | | OFF | F | 10, QaboolGarh, | BIKANER
| UTTARPRADESH | 289032 | 40000 | 2021-06-01
NEE | Neela Satish Dave | | EXE | F | 31, Nupoor Villas, |
PONDICHERRY | PONDICHERRY | 444615 | 60000 | 2021-06-01
(9 rows)
```

5.

```
=# select * from emp where not (dept_code is not null);
emp_code | emp_name | dept_code | desig_code | sex | address | city
| state | pin | basic | jn_dt
+-----+-----+-----+-----+-----+-----+-----+
PAD | Padama Saraf | | MAN | F | 28, Marathahalli | CHENNAI
| TAMIL NADU | 411408 | | 2021-06-01
KIR | KIRAN KABRA | | OFF | F | 10, QaboolGarh, | BIKANER
| UTTARPRADESH | 289032 | 40000 | 2021-06-01
NEE | Neela Satish Dave | | EXE | F | 31, Nupoor Villas, | PONDICHERRY
| PONDICHERRY | 444615 | 60000 | 2021-06-01
(3 rows)
```

6, 7.

```
select * from emp where basic=0;
```

emp_code	emp_name	dept_code	desig_code	sex	address	city	state	pin	basic	jn_dt
----------	----------	-----------	------------	-----	---------	------	-------	-----	-------	-------

-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
+-----

(0 rows)

```
select * from emp where basic is null;
```

emp_code	emp_name	dept_code	desig_code	sex	address	city	state	pin	basic	jn_dt
----------	----------	-----------	------------	-----	---------	------	-------	-----	-------	-------

-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
+-----+-----+-----+-----+-----

ANI	ANISHA SAHA	RND	OFF	F	MUMBAI-30	MUMBAI	MAHARASHTRA	700087		2021-06-01
PAD	Padama Saraf		MAN	F	28, Marathahalli	CHENNAI	TAMIL NADU	411408		2021-06-01
GAN	Ganesh Ram Kalla	FIN	MAN	M	70, Dadar,	INDORE	UTTARPRADESH	351942		2021-06-01

(3 rows)

8.

```
=# select avg(basic) as average_basic from emp;
      average_basic
-----
53333.333333333333
(1 row)
```

9.

```
update emp set basic=0 where basic is null;
UPDATE 3
select * from emp;
 emp_code | emp_name | dept_code | desig_code | sex | address | city
-----+-----+-----+-----+-----+-----+-----
SHU | Shuvayan G Dastidar | RND | MAN | M | KOLKATA-30 | KOLKATA
| WEST BENGAL | 700030 | 80000 | 2021-06-01
RAM | RAMESH KUMAR | RND | EXE | M | KOLKATA-30, man road | KOLKATA
| WEST BENGAL | 700020 | 50000 | 2021-06-01
PRI | PRIYA KUMAR | RND | CLE | F | MUMBAI-30, CREEK ROAD | MUMBAI
| MAHARASHTRA | 700067 | 30000 | 2021-06-01
MAN | MANPREET BORRA | FIN | OFF | M | 70, Dadar, | INDORE
| UTTARPRADESH | 351942 | 60000 | 2021-06-01
KIR | KIRAN KABRA | | OFF | F | 10, QaboolGarh, | BIKANER
| UTTARPRADESH | 289032 | 40000 | 2021-06-01
NEE | Neela Satish Dave | | EXE | F | 31, Nupoor Villas, |
PONDICHERRY | PONDICHERRY | 444615 | 60000 | 2021-06-01
ANI | ANISHA SAHA | RND | OFF | F | MUMBAI-30 | MUMBAI
| MAHARASHTRA | 700087 | 0 | 2021-06-01
PAD | Padama Saraf | | MAN | F | 28, Marathahalli | CHENNAI
| TAMIL NADU | 411408 | 0 | 2021-06-01
GAN | Ganesh Ram Kalla | FIN | MAN | M | 70, Dadar, | INDORE
| UTTARPRADESH | 351942 | 0 | 2021-06-01
```

```
10. =# select avg(basic) as average_basic from emp;
```

```
average_basic
```

```
35555.555555555556
```

```
(1 row)
```

The average basic reduces as the number of rows counted increases which were ignored in case of nullable.

```
11.
```

```
delete from emp where dept_code is null;
```

```
DELETE 3
```

```
=# select * from emp;
```

emp_code	emp_name	dept_code	desig_code	sex	address	city
state	pin	basic	jn_dt			

SHU	Shuvayan G Dastidar	RND	MAN	M	KOLKATA-30	KOLKATA
WEST BENGAL	700030	80000	2021-06-01			
RAM	RAMESH KUMAR	RND	EXE	M	KOLKATA-30, man road	KOLKATA
WEST BENGAL	700020	50000	2021-06-01			
PRI	PRIYA KUMAR	RND	CLE	F	MUMBAI-30, CREEK ROAD	MUMBAI
MAHARASHTRA	700067	30000	2021-06-01			
MAN	MANPREET BORRA	FIN	OFF	M	70, Dadar,	INDORE
UTTARPRADESH	351942	60000	2021-06-01			
ANI	ANISHA SAHA	RND	OFF	F	MUMBAI-30	MUMBAI
MAHARASHTRA	700087	0	2021-06-01			
GAN	Ganesh Ram Kalla	FIN	MAN	M	70, Dadar,	INDORE
UTTARPRADESH	351942	0	2021-06-01			

```
(6 rows)
```

12.

```
=# select emp_name as name, basic+ 0.5 * basic + 0.4 * basic as NetPay from emp;
```

name	netpay
Shuvayan G Dastidar	152000.0
RAMESH KUMAR	95000.0
PRIYA KUMAR	57000.0
MANPREET BORRA	114000.0
ANISHA SAHA	0.0
Ganesh Ram Kalla	0.0

13.

```
=# select UPPER(emp_name) as EMP_NAME, basic, dept_code from emp order by dept_code ASC;
```

emp_name	basic	dept_code
MANPREET BORRA	60000	FIN
GANESH RAM KALLA	0	FIN
SHUVAYAN G DASTIDAR	80000	RND
RAMESH KUMAR	50000	RND
PRIYA KUMAR	30000	RND
ANISHA SAHA	0	RND

(6 rows)

14.

```
=# select * from emp where jn_dt > date('1999-01-01');
```

emp_code	emp_name	dept_code	desig_code	sex	address	city
state	pin	basic	jn_dt			
SHU	Shuvayan G Dastidar	RND	MAN	M	KOLKATA-30	KOLKATA
WEST BENGAL	700030	80000	2021-06-01			
RAM	RAMESH KUMAR	RND	EXE	M	KOLKATA-30, man road	KOLKATA
WEST BENGAL	700020	50000	2021-06-01			
PRI	PRIYA KUMAR	RND	CLE	F	MUMBAI-30, CREEK ROAD	MUMBAI
MAHARASHTRA	700067	30000	2021-06-01			
MAN	MANPREET BORRA	FIN	OFF	M	70, Dadar,	INDORE
UTTARPRADESH	351942	60000	2021-06-01			
ANI	ANISHA SAHA	RND	OFF	F	MUMBAI-30	MUMBAI
MAHARASHTRA	700087	0	2021-06-01			
GAN	Ganesh Ram Kalla	FIN	MAN	M	70, Dadar,	INDORE
UTTARPRADESH	351942	0	2021-06-01			
JAN	JANE COOPER	FIN	OFF	F	70, Dadar,	INDORE
UTTARPRADESH	351942	60000	2021-01-01			

(7 rows)

15.

```
=# select * from emp where EXTRACT(MONTH from jn_dt)=1;
```

emp_code	emp_name	dept_code	desig_code	sex	address	city	state
pin	basic	jn_dt					
JAN	JANE COOPER	FIN	OFF	F	70, Dadar,	INDORE	UTTARPRADESH
351942	60000	2021-01-01					

(1 row)

16.

```
=# select max(basic) as max_basic, min(basic) as min_basic from emp;
max_basic | min_basic
-----+-----
      80000 |          0
(1 row)
```

17.

```
=# select * from emp where UPPER(sex)='F';
emp_code | emp_name  | dept_code | desig_code | sex | address | city |
state    | pin       | basic     | jn_dt
-----+-----+-----+-----+-----+-----+-----
PRI       | PRIYA KUMAR | RND       | CLE       | F   | MUMBAI-30, CREEK ROAD | MUMBAI |
MAHARASHTRA | 700067 | 30000    | 2021-06-01
ANI       | ANISHA SAHA | RND       | OFF       | F   | MUMBAI-30 | MUMBAI |
MAHARASHTRA | 700087 | 0        | 2021-06-01
JAN       | JANE COOPER | FIN       | OFF       | F   | 70, Dadar, | INDORE |
UTTARPRADESH | 351942 | 60000    | 2021-01-01
(3 rows)
```

18.

```
update emp set city = UPPER(city);
```

```
UPDATE 7
```

```
=# select * from emp;
```

emp_code	emp_name	dept_code	desig_code	sex	address	city
state	pin	basic	jn_dt			
SHU	Shuvayan G Dastidar	RND	MAN	M	KOLKATA-30	KOLKATA
WEST BENGAL	700030	80000	2021-06-01			
RAM	RAMESH KUMAR	RND	EXE	M	KOLKATA-30, man road	KOLKATA
WEST BENGAL	700020	50000	2021-06-01			
PRI	PRIYA KUMAR	RND	CLE	F	MUMBAI-30, CREEK ROAD	MUMBAI
MAHARASHTRA	700067	30000	2021-06-01			
MAN	MANPREET BORRA	FIN	OFF	M	70, Dadar,	INDORE
UTTARPRADESH	351942	60000	2021-06-01			
ANI	ANISHA SAHA	RND	OFF	F	MUMBAI-30	MUMBAI
MAHARASHTRA	700087	0	2021-06-01			
GAN	Ganesh Ram Kalla	FIN	MAN	M	70, Dadar,	INDORE
UTTARPRADESH	351942	0	2021-06-01			
JAN	JANE COOPER	FIN	OFF	F	70, Dadar,	INDORE
UTTARPRADESH	351942	60000	2021-01-01			

(7 rows)

19.

```
=# select distinct city from emp;
```

```
city
-----
MUMBAI
INDORE
KOLKATA
(3 rows)
```

20.

```
select * from emp order by dept_code asc, basic desc;
```

emp_code	emp_name	dept_code	desig_code	sex	address	city
state	pin	basic	jn_dt			

[illegible]