DATA BASES II

ΠΑΝΕΠΙΣΤΗΜΙΟ ΔΥΤΙΚΗΣ ΑΤΤΙΚΗΣ
UNIVERSITY OF WEST ATTICA

DEPARTMENT OF INFORMATION AND COMPUTER ENGINEERING

1st LABORATORY EXERCISE

CREATION OF DATA BASE personnel

WORK DETAILS

LABORATORY DEPARTMENT: [06] WEDNESDAY 13:00-14:00
LABORATORY RESPONSIBILITY : GAROFALAKI RANIA
DELIVERY DATE : 4/12/2023
SUBMISSION DEADLINE : 13/12/2023

STUDENT DETAILS

STUDENT PHOTO:

NAME: ATHANASIOU VASILEIOS EVANGELOS
STUDENT ID: 19390005
STUDENT SEMESTER: 9th
STUDENT STATUS : UNDERGRADUATE
PROGRAM OF STUDY : UNIWA

CONTENTS

\

DB personnel

personnel.sql

```
drop database if exists personnel?

create database personnel?

use personnel?


create table

DEPT (

DEPTNO int ( 2) not null,

DNAME varchar( 30 ),

LOC varchar( 30 ),

primary key(DEPTNO)

);

insert into

DEPT

(DEPTNO, DNAME, LOC)

values

(50, 'SALES', 'ATHENS'),

(60, 'ACCOUNT', 'ATHENA'),

(70, ' PAYROLL ', ' VOLOS ');


create table

JOB(

JOBCODE int ( 3) not null,

JOB_DESCR varchar( 30 ),

SAL int ( 4),
```

```
primary key(JOBCODE)
);
insert into
JOB
(JOBCODE, JOB_DESCR, SAL)
values
(100, ' SELLER ', 2200),
(200, ' ANALYST ', 2000),
(300, ' OPERATOR ', 1000);

create table
EMP(
EMPNO int ( 2) not null,
NAME varchar( 30 ),
JOBNO int ( 3) not null,
DEPTNO int ( 2) not null,
COMM int ( 3 ),
primary key(EMPNO),
foreign key(DEPTNO) references DEPT(DEPTNO),
foreign key(JOBNO) references JOB(JOBCODE)
);
insert into
EMP
(EMPNO, NAME, JOBNO, DEPTNO, COMM)
values
(10, ' SPYROU ', 100, 50, 450),
(20, ' USER ', 200, 50, NULL),
(30, 'NIKOY', 300, 60, NULL),
```

```
(40, 'SPYROU', 200, 50, NULL);
```

personnel. png

Emp

EMPNO	NAME	JOBNO	DEPTNO	COMM
10	ΣΠΥΡΟΥ	100	50	450
20	ΧΡΗΣΤΟΥ	200	50	
30	ΝΙΚΟΥ	300	60	
40	ΣΠΥΡΟΥ	200	50	

Job

JOBCODE	JOB_DESCR	SAL
100	ΠΩΛΗΤΗΣ	2200
200	ΑΝΑΛΥΤΗΣ	2000
300	ΧΕΙΡΙΣΤΗΣ	1000

Dept

DEPTNO	DNAME	LOC
50	ΠΩΛΗΣΕΙΣ	ΑΘΗΝΑ
60	ΛΟΓΙΣΤΗΡΙΟ	ΑΘΗΝΑ
70	ΜΙΣΘΟΔΟΣΙΑ	ΒΟΛΟΣ

Activities

1. Connect to your system's MySQL using any of the above methods you wish

1.1. Statement

```
“C:\Program Files\MySQL\MySQL Server 8.0\bin\mysql.exe” --default-character-set=utf8mb4 –u root –p

Enter password: *******
```

1.2. Result

```
Welcome to the MySQL monitor. Commands end with ; or \g.

Your MySQL connection id is 8

Server version: 8.0.35 MySQL Community Server - GPL


Copyright (c) 2000, 2023, Oracle and/or its affiliates.
```

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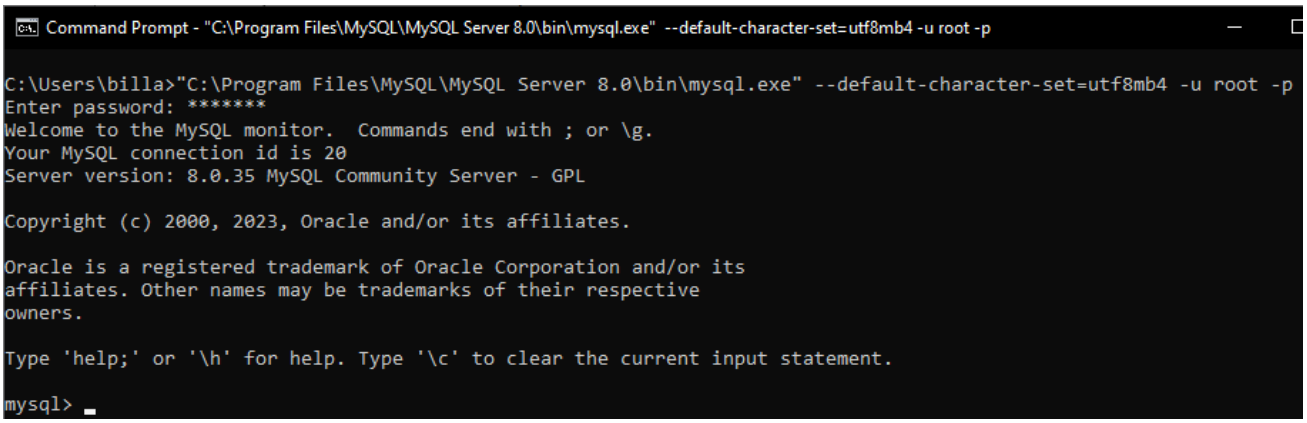
affiliates . Other names may be trademarks of their respective companies

owners .

Type 'help?' or '\h' for help. Type '\c' to clear the current input statement.

mysql >

1.3. Snapshot



2. Check if there is a DB with the name personnel . If it doesn't exist, create it

2.1. Statement

show databases?

…

create database personnel?

2.2 . Result

```
+--------------------+
| Database |
+--------------------+
```

```
| information_schema |
| mysql |
| performance_schema |
| personnel |
| sys |
+--------------------+
5 rows in set (0.02 sec)
...
Query OK, 1 row affected (0.01 sec)
```

2.3. Snapshot

3. Select the DB personnel to use

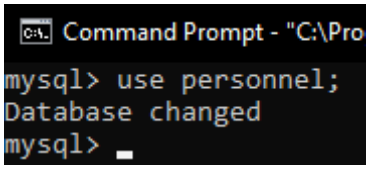
3.1. Statement

```
use personnel?
```

3.2. Result

```
Database changed
```

3.3. Snapshot



4. Ensure that personnel has no content tables. If it has, delete them

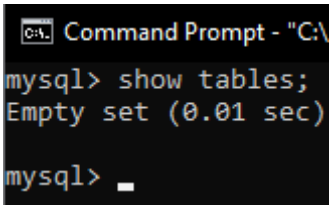
4.1. Statement

```
show tables ;
```

4.2. Result

```
Empty set (0.01 sec)
```

4.3. Snapshot



5. Create the DEPT , JOB and EMP tables with primary and foreign keys.

5.1. Statement

DEPT

```
create table
     DEPT (
DEPTNO int ( 2) not null,
DNAME varchar( 30 ),
LOC varchar( 30 ),
```

```
     primary key(DEPTNO)
);
...
insert into
     DEPT (
DEPTNO, DNAME, LOC
)
     values(
50, ' SALES ', ' ATHENS '
);
...
insert into
     DEPT (
DEPTNO, DNAME, LOC
)
     values(
60, ' ACCOUNTANT ', ' ATHENS '
);
...
insert into
     DEPT (
DEPTNO, DNAME, LOC
)
     values(
70, ' PAYROLL ', ' VOLOS '
);
...
select * from DEPT;
```

JOB

```
create table
     JOB(
JOBCODE int ( 3) not null,
JOB_DESCR varchar( 30 ),
SAL int ( 4),
     primary key(JOBCODE)
);
...
insert into
     JOB(
JOBCODE, JOB_DESCR, SAL
)
     values(
100, 'SELLER', 2200
);
...
insert into
     JOB(
JOBCODE, JOB_DESCR, SAL
)
     values(
200, ' ANALYST ', 2000
);
...
insert into
     JOB(
```

```
JOBCODE, JOB_DESCR, SAL
)
     values(
300, ' OPERATOR ', 1000
);
...
select * from JOB;
```

EMP

```
create table
     EMP(
EMPNO int ( 2) not null,
NAME varchar( 30 ),
JOBNO int ( 3) not null,
DEPTNO int ( 2) not null,
COMM int ( 3 ),
     primary key(EMPNO),
     foreign key(DEPTNO) references DEPT(DEPTNO),
     foreign key(JOBNO) references JOB(JOBCODE)
);
...
insert into
     EMP(
EMPNO, NAME, JOBNO, DEPTNO, COMM
)
     values(
10, ' SPYROU ', 100, 50, 450
```

```
);
...
insert into
     EMP(
EMPNO, NAME, JOBNO, DEPTNO
)
     values(
20, ' CHRISTOU ', 200, 50
);
...
insert into
     EMP(
EMPNO, NAME, JOBNO, DEPTNO
)
     values(
30, ' NIKOU ', 300, 60
);
...
insert into
     EMP(
EMPNO, NAME, JOBNO, DEPTNO
)
     values(
40, ' SPYROU ', 200, 50
);
...
select * from EMP;
```

5.2. Result

DEPT

```
Query OK, 0 rows affected, 1 warning (0.02 sec)

...

Query OK, 1 row affected (0.01 sec)

...

Query OK, 1 row affected (0.00 sec)

...

Query OK, 1 row affected (0.00 sec)

...

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

| DEPTNO | DNAME | LOC |

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

| 50 | SALES | ATHENS |

| 60 | ACCOUNTING | ATHENS |

| 70 | PAYROLL | VOLOS |

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

3 rows in set (0.00 sec)
```

JOB

```
Query OK, 0 rows affected, 2 warnings (0.01 sec)

...

Query OK, 1 row affected (0.00 sec)

...

Query OK, 1 row affected (0.00 sec)

...
```

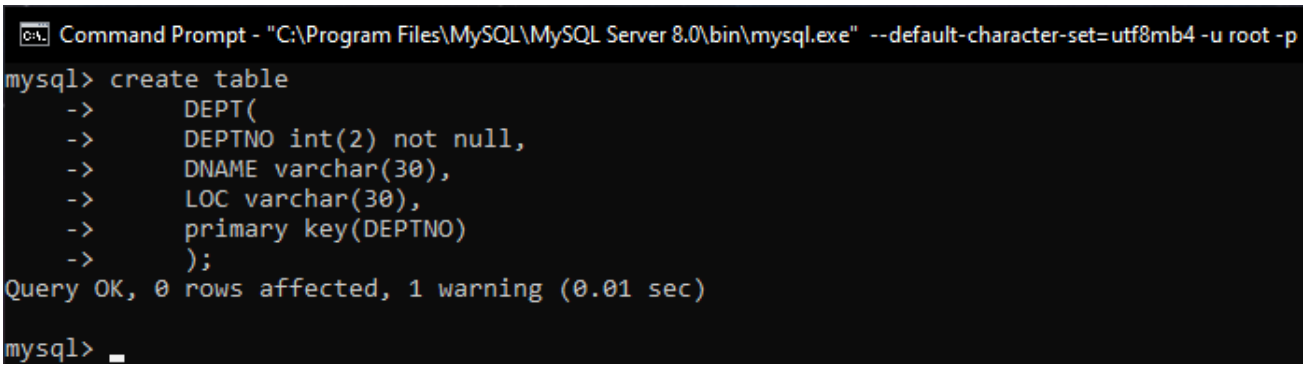
```
Query OK, 1 row affected (0.00 sec)

...

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

| JOBCODE | JOB_DESCR | SAL |

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

| 100 | SELLER | 2200 |

| 200 | ANALYST | 2000 |

| 300 | OPERATOR | 1000 |

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

3 rows in set (0.00 sec)
```

EMP

```
Query OK, 0 rows affected, 4 warnings (0.02 sec)

...

Query OK, 1 row affected (0.01 sec)

...

Query OK, 1 row affected (0.00 sec)

...

Query OK, 1 row affected (0.01 sec)

...

Query OK, 1 row affected (0.00 sec)

...
```

5.3. Snapshot

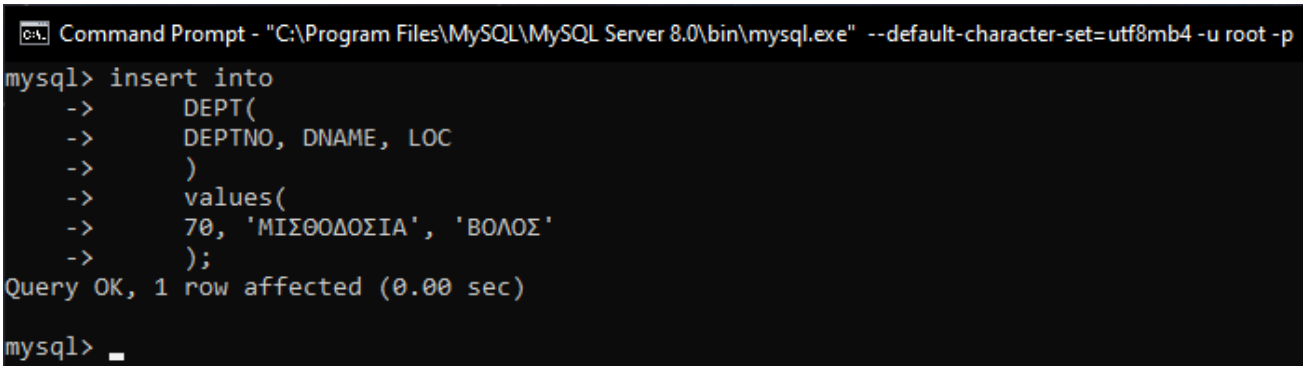
DEPT



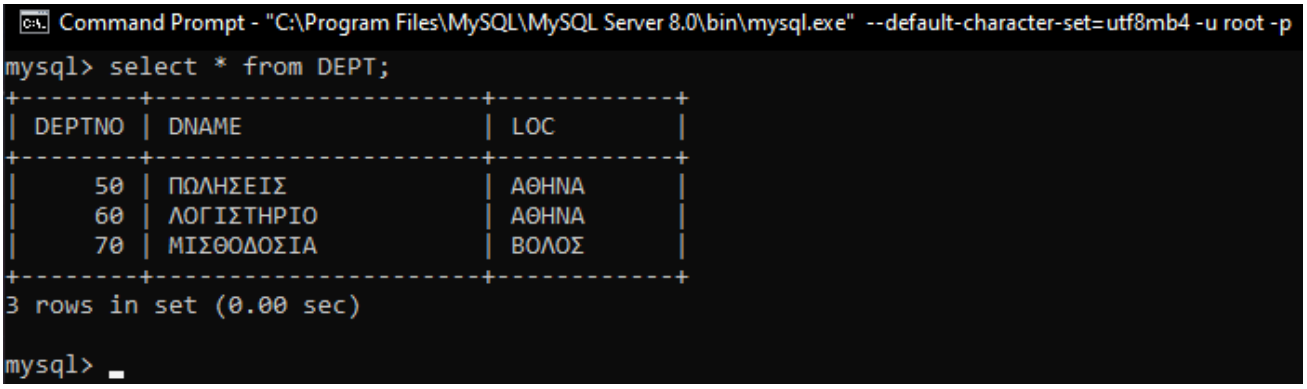
...

...

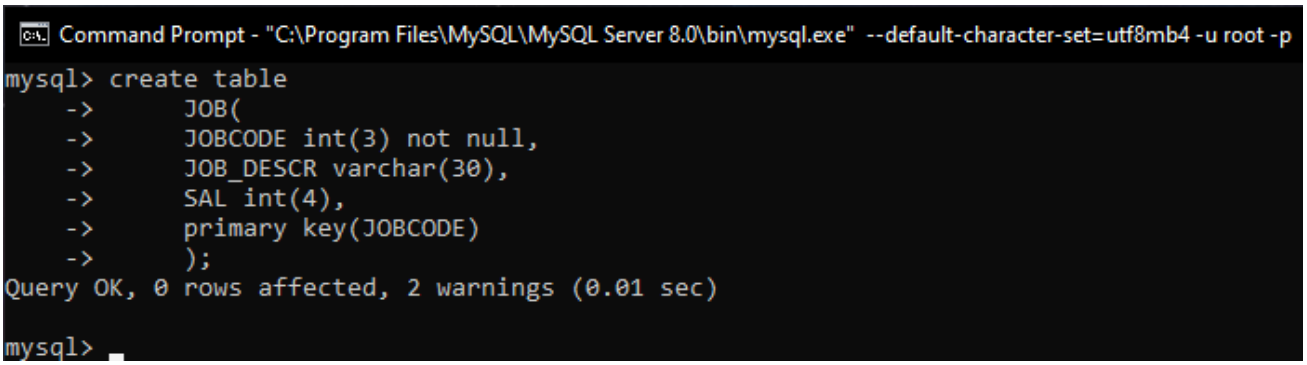
...


Command Prompt - "C:\Program Files\MySQL\MySQL Server 8.0\bin\mysql.exe" --default-character-set=utf8mb4 -u root -p
mysql> insert into
-> DEPT(
-> DEPTNO, DNAME, LOC
->)
-> values(
-> 70, 'ΜΙΣΘΟΔΟΣΙΑ', 'ΒΟΛΟΣ'
->);
Query OK, 1 row affected (0.00 sec)
mysql>

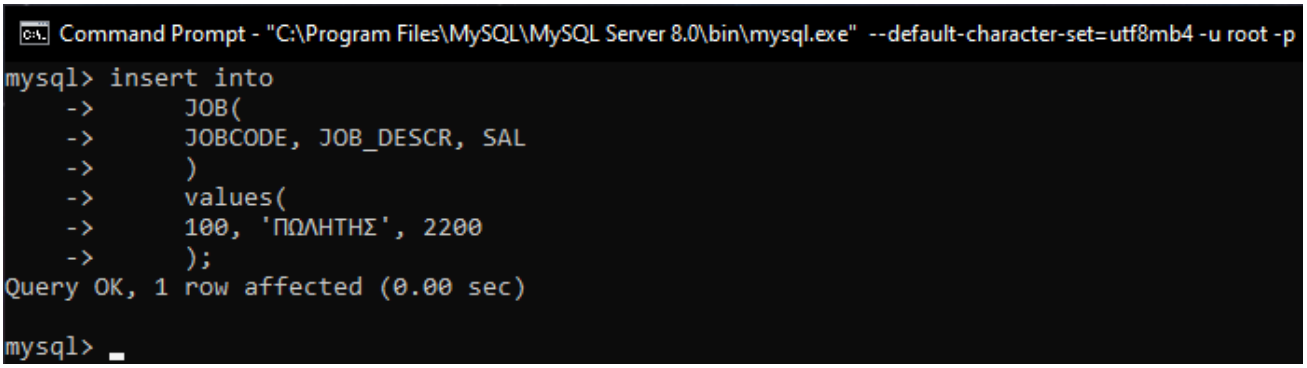
...


Command Prompt - "C:\Program Files\MySQL\MySQL Server 8.0\bin\mysql.exe" --default-character-set=utf8mb4 -u root -p
mysql> select * from DEPT;
DEPTNO | DNAME | LOC
50 | ΠΩΛΗΣΕΙΣ | ΑΘΗΝΑ
60 | ΛΟΓΙΣΤΗΡΙΟ | ΑΘΗΝΑ
70 | ΜΙΣΘΟΔΟΣΙΑ | ΒΟΛΟΣ
3 rows in set (0.00 sec)
mysql>

JOB


Command Prompt - "C:\Program Files\MySQL\MySQL Server 8.0\bin\mysql.exe" --default-character-set=utf8mb4 -u root -p
mysql> create table
-> JOB(
-> JOBCODE int(3) not null,
-> JOB_DESCR varchar(30),
-> SAL int(4),
-> primary key(JOBCODE)
->);
Query OK, 0 rows affected, 2 warnings (0.01 sec)
mysql>

...


Command Prompt - "C:\Program Files\MySQL\MySQL Server 8.0\bin\mysql.exe" --default-character-set=utf8mb4 -u root -p
mysql> insert into
-> JOB(
-> JOBCODE, JOB_DESCR, SAL
->)
-> values(
-> 100, 'ΠΩΛΗΤΗΣ', 2200
->);
Query OK, 1 row affected (0.00 sec)
mysql>

...

```
Command Prompt - "C:\Program Files\MySQL\MySQL Server 8.0\bin\mysql.exe"  --default-character-set=utf8mb4 -u root -p
mysql> insert into
    ->      JOB(
    ->      JOBCODE, JOB_DESCR, SAL
    ->      )
    ->      values(
    ->      200, 'ΑΝΑΛΥΤΗΣ', 2000
    ->      );
Query OK, 1 row affected (0.00 sec)

mysql>
```

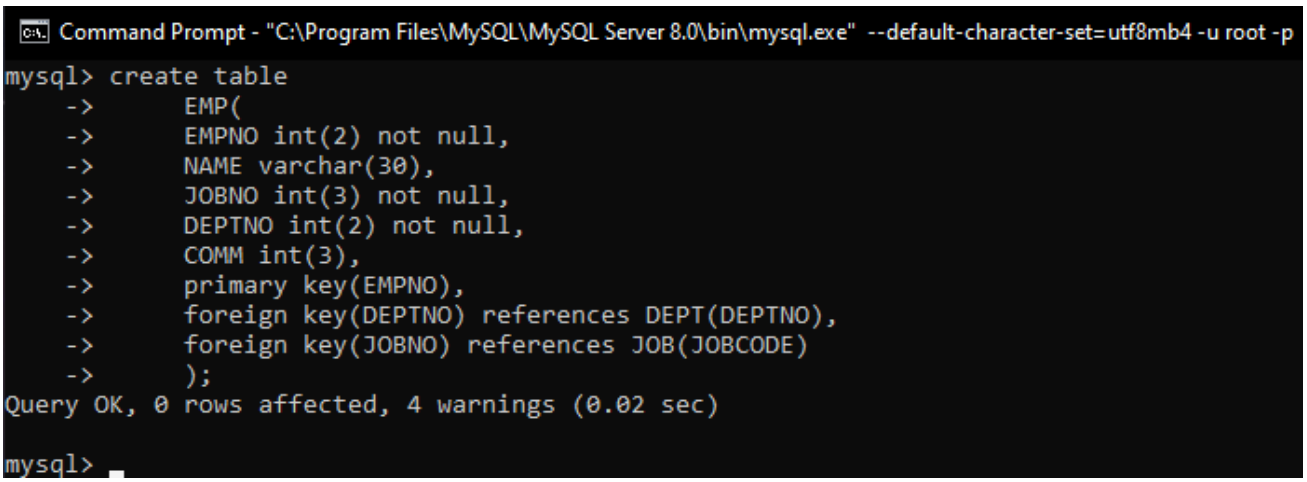
...

```
Command Prompt - "C:\Program Files\MySQL\MySQL Server 8.0\bin\mysql.exe"  --default-character-set=utf8mb4 -u root -p
mysql> insert into
    ->      JOB(
    ->      JOBCODE, JOB_DESCR, SAL
    ->      )
    ->      values(
    ->      300, 'ΧΕΙΡΙΣΤΗΣ', 1000
    ->      );
Query OK, 1 row affected (0.00 sec)

mysql>
```

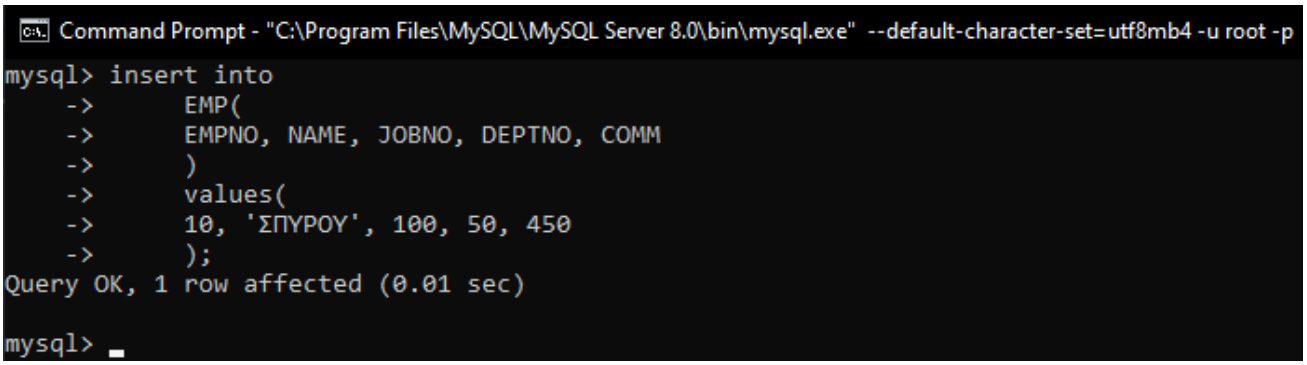
...

```
Command Prompt - "C:\Program Files\MySQL\MySQL Server 8.0\bin\mysql.exe"  --default-character-set=utf8mb4 -u root -p
mysql> select * from JOB;
+---------+--------------------+------+
| JOBCODE | JOB_DESCR          | SAL  |
+---------+--------------------+------+
|     100 | ΠΩΛΗΤΗΣ            | 2200 |
|     200 | ΑΝΑΛΥΤΗΣ           | 2000 |
|     300 | ΧΕΙΡΙΣΤΗΣ          | 1000 |
+---------+--------------------+------+
3 rows in set (0.00 sec)

mysql>
```

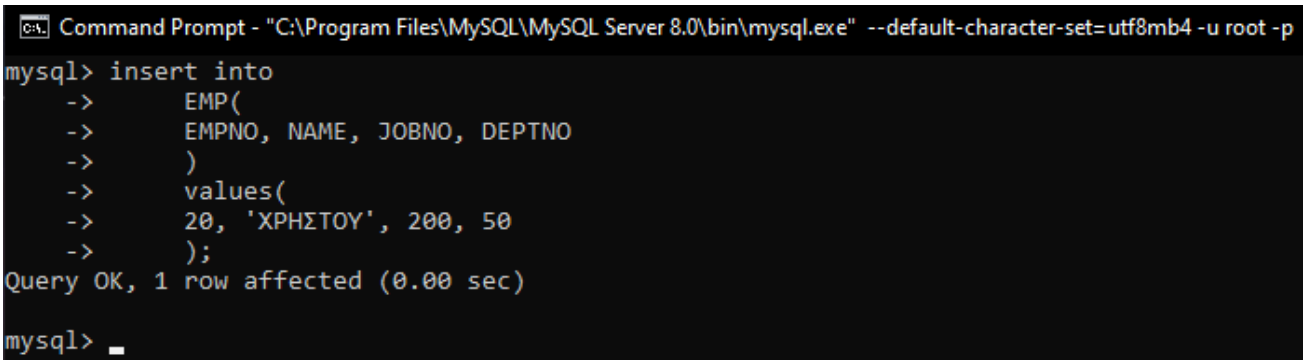
EMP


Command Prompt - "C:\Program Files\MySQL\MySQL Server 8.0\bin\mysql.exe" --default-character-set=utf8mb4 -u root -p
mysql> create table
-> EMP(
-> EMPNO int(2) not null,
-> NAME varchar(30),
-> JOBNO int(3) not null,
-> DEPTNO int(2) not null,
-> COMM int(3),
-> primary key(EMPNO),
-> foreign key(DEPTNO) references DEPT(DEPTNO),
-> foreign key(JOBNO) references JOB(JOBCODE)
->);
Query OK, 0 rows affected, 4 warnings (0.02 sec)
mysql>

...

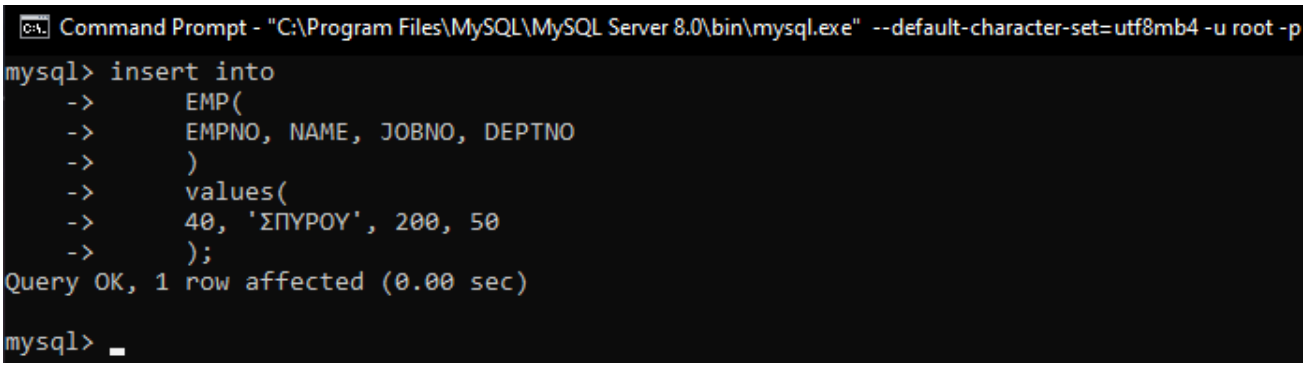

Command Prompt - "C:\Program Files\MySQL\MySQL Server 8.0\bin\mysql.exe" --default-character-set=utf8mb4 -u root -p
mysql> insert into
-> EMP(
-> EMPNO, NAME, JOBNO, DEPTNO, COMM
->)
-> values(
-> 10, 'ΣΠΥΡΟΥ', 100, 50, 450
->);
Query OK, 1 row affected (0.01 sec)
mysql>

...

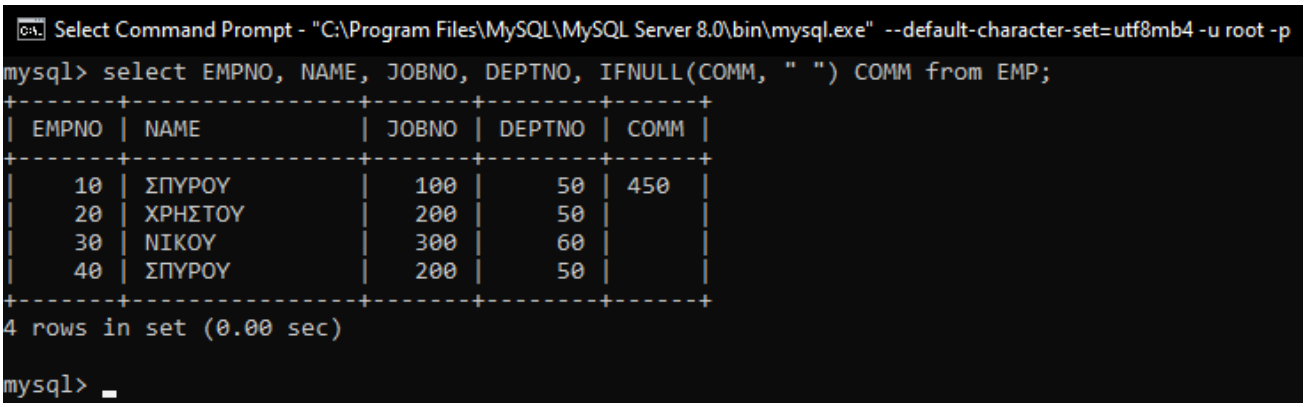

Command Prompt - "C:\Program Files\MySQL\MySQL Server 8.0\bin\mysql.exe" --default-character-set=utf8mb4 -u root -p
mysql> insert into
-> EMP(
-> EMPNO, NAME, JOBNO, DEPTNO
->)
-> values(
-> 20, 'ΧΡΗΣΤΟΥ', 200, 50
->);
Query OK, 1 row affected (0.00 sec)
mysql>

...

...



...



6 . Display details (EMPNO , NAME , JOB _ DESCR , SAL , DEPTNO) of those working as salesmen (SALESMAN)

6.1. Statement

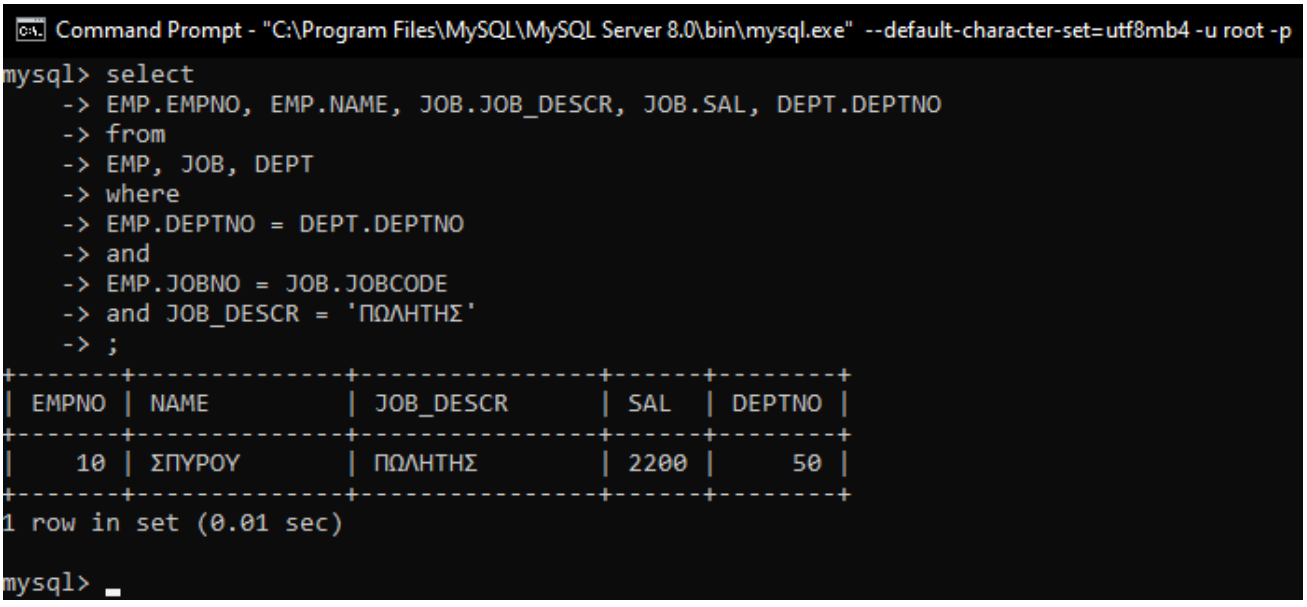
```
select

EMP.EMPNO, EMP.NAME, JOB.JOB_DESCR, JOB.SAL, DEPT.DEPTNO

     from
```

```
EMP, JOB, DEPT
     where
EMP.DEPTNO = DEPT.DEPTNO
     and
EMP.JOBNO = JOB.JOBCODE
     and JOB_DESCR = ' SALESMAN '
;
```

6.2. Result

```
+-------+--------------+----------------+------+-- ------+
| EMPNO | NAME | JOB_DESCR | SAL | DEPTNO |
+-------+--------------+----------------+------+-- ------+
| 10 | SPYROU | SELLER | 2200 | 50 |
+-------+--------------+----------------+------+-- ------+
1 row in set (0.01 sec)
```

6.3. Snapshot



7. Display by executing one command: (a) the maximum number of all employees, (b) the minimum salary of all employees, (c) the average salary of all employees, (d) the number of employees who have a salary , (e) the number of employees who have a commission and (f) how many employees there are in total

7.1. Statement

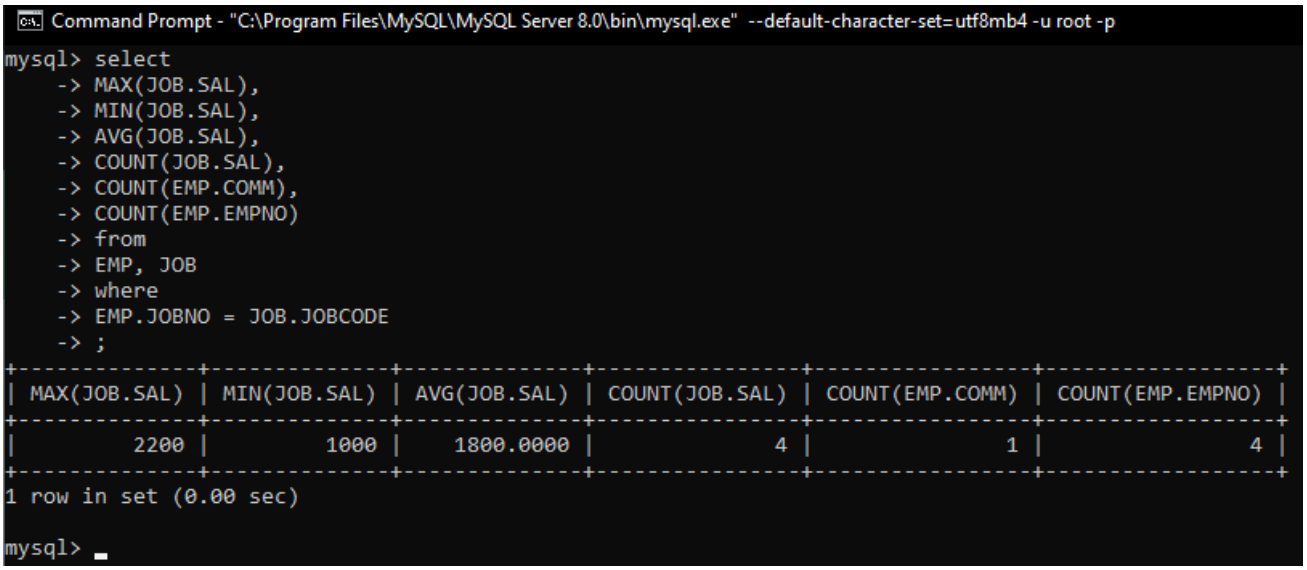
```
select
     MAX( JOB.SAL),
     MIN( JOB.SAL),
     AVG( JOB.SAL),
     COUNT( JOB.SAL ),
     COUNT( EMP.COMM),
     COUNT( EMP.EMPNO)
     from
EMP, JOB
     where
EMP.JOBNO = JOB.JOBCODE
;
```

7.2 . Result

```
+--------------+--------------+--------------+---- ------------+---------------
+----------------+
| MAX( JOB.SAL) | MIN(JOB.SAL) | AVG(JOB.SAL) |
 COUNT( JOB.SAL)| COUNT(EMP.COMM) | COUNT(EMP.EMPNO) |
+--------------+--------------+--------------+---- ------------+---------------
+----------------+
| 2200 |   1000 | 1800.0000 |
4 |   1 | 4 |
```

```
+--------------+--------------+--------------+---- ------------+---------------
+----------------+

1 row in set (0.00 sec)
```

7.3. Snapshot



8. Display by executing a command: (a) maximum salary and (b) average salary of those working as analysts (ANALYST)

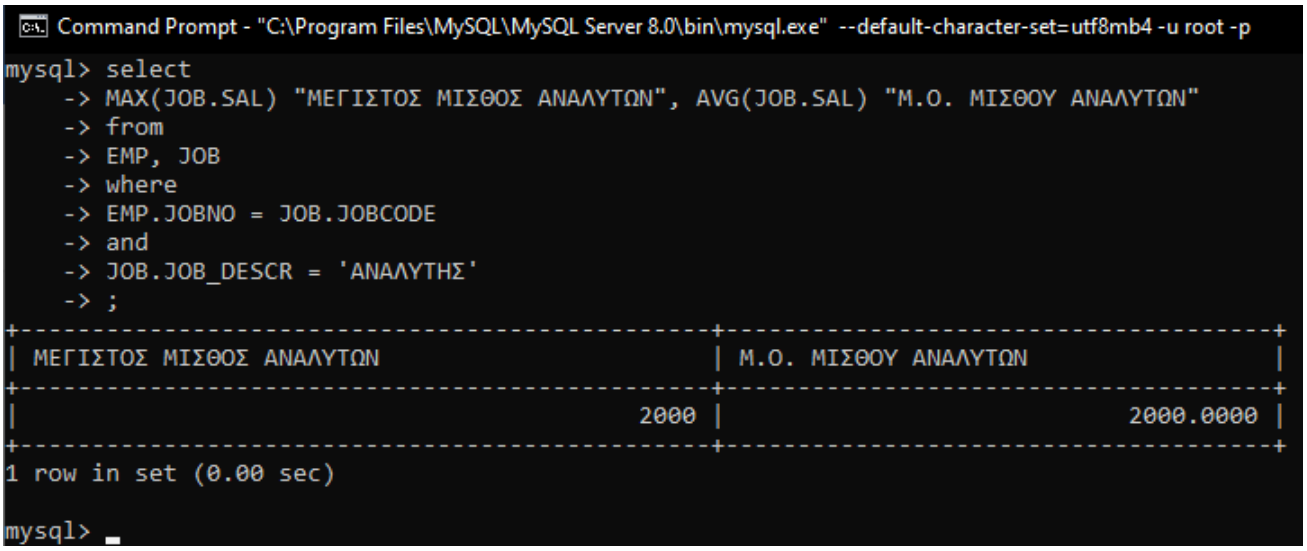
8.1. Statement

```
select
MAX(JOB.SAL) "MAX ANALYST SALARY", AVG(JOB.SAL) "MOV ANALYST SALARY"
     from
EMP, JOB
     where
EMP.JOBNO = JOB.JOBCODE
     and
JOB.JOB_DESCR = ' ANALYST '
;
```

8.2. Result

```
+-----------------------+---------------------- --------------+

| MAXIMUM SALARY
OF ANALYSTS | M.O. ANALYST SALARY |

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

|2000 | 2000.0000 |

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

1 row in set (0.00 sec)
```

8.3. Snapshot



9. Display the details (EMPNO , NAME , JOB _ DESCR , SAL , DEPTNO) of those who work as analysts (ANALYST) and their salary (SAL) ranges from 1000 euros to 2500 euros

9.1. Statement

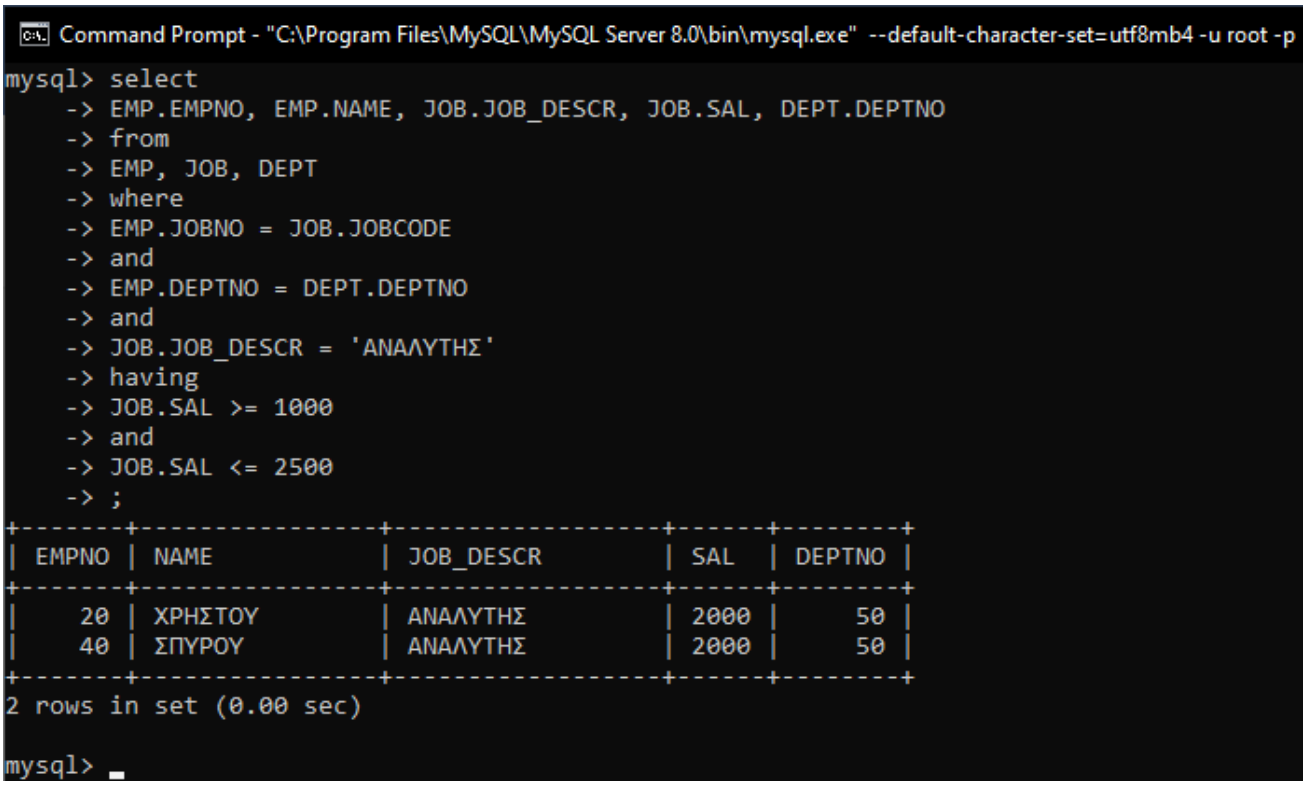
```
select

EMP.EMPNO, EMP.NAME, JOB.JOB_DESCR, JOB.SAL, DEPT.DEPTNO

     from

EMP, JOB, DEPT
```

```
     where
EMP.JOBNO = JOB.JOBCODE
     and
EMP.DEPTNO = DEPT.DEPTNO
     and
JOB.JOB_DESCR = ' ANALYST '
     having
JOB.SAL >= 1000
     and
JOB.SAL <= 2500
     ;
```

9.2. Result

```
+-------+---------------+---------------+----- -+--------+
| EMPNO | NAME | JOB_DESCR | SAL | DEPTNO |
+-------+---------------+---------------+----- -+--------+
| 20 | CHRISTOU | ANALYST | 2000 | 50 |
| 40 | SPYROU | ANALYST | 2000 | 50 |
+-------+---------------+---------------+----- -+--------+
2 rows in set (0.00 sec)
```

9.3. Snapshot



10. Display the data (EMPNO , NAME , JOB _ DESCR , SAL , DEPTNO) of the employees whose first name (NAME) contains the letter R (or P if you have entered data with Greek characters)

10.1. Statement

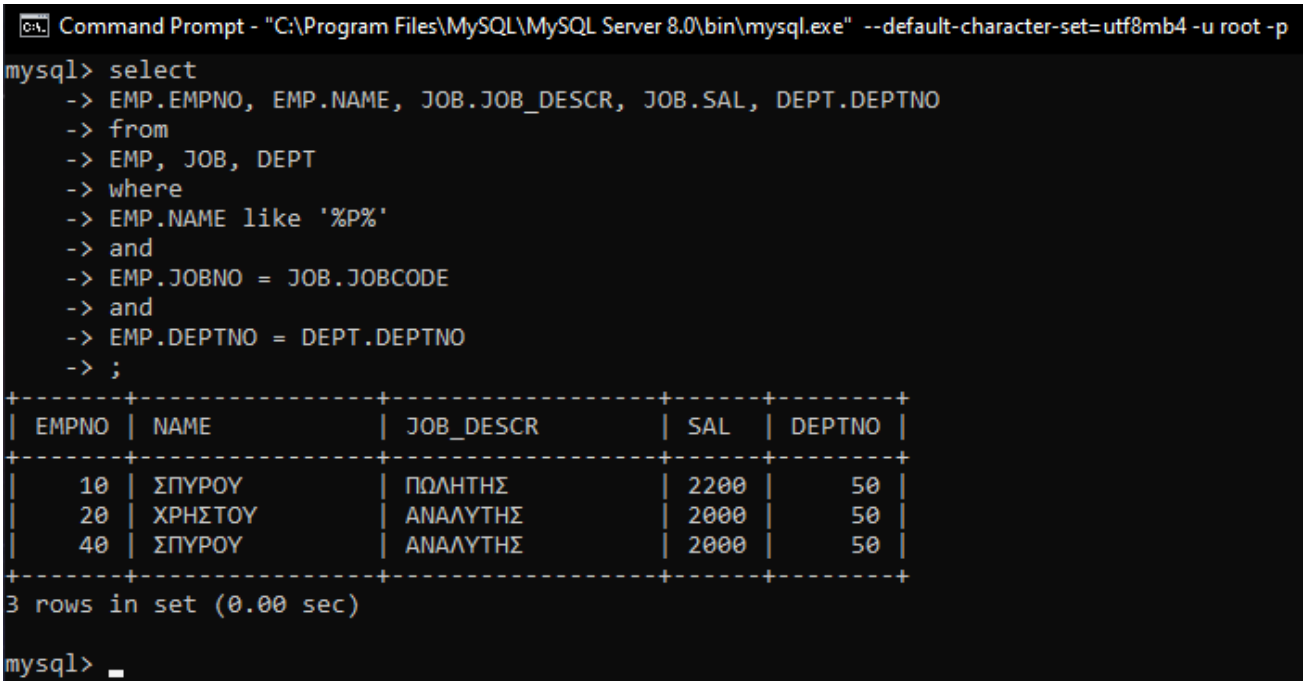
```
select
EMP.EMPNO, EMP.NAME, JOB.JOB_DESCR, JOB.SAL, DEPT.DEPTNO
     from
EMP, JOB, DEPT
     where
EMP.NAME like '% P %'
     and
EMP.JOBNO = JOB.JOBCODE
     and
```

```
EMP.DEPTNO = DEPT.DEPTNO

;
```

1 0.2. Result

```
+-------+---------------+---------------+----- -+--------+

| EMPNO | NAME | JOB_DESCR | SAL | DEPTNO |

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

| 10 | SPYROU | SELLER | 2200 | 50 |

| 20 | CHRISTOU | ANALYST | 2000 | 50 |

| 40 | SPYROU | ANALYST | 2000 | 50 |

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

3 rows in set (0.00 sec)
```

10.3. Snapshot



11. Display details (EMPNO , NAME , JOB _ DESCR , SAL , DEPTNO) of employees sorted by department (DEPTNO) and salary (SAL)

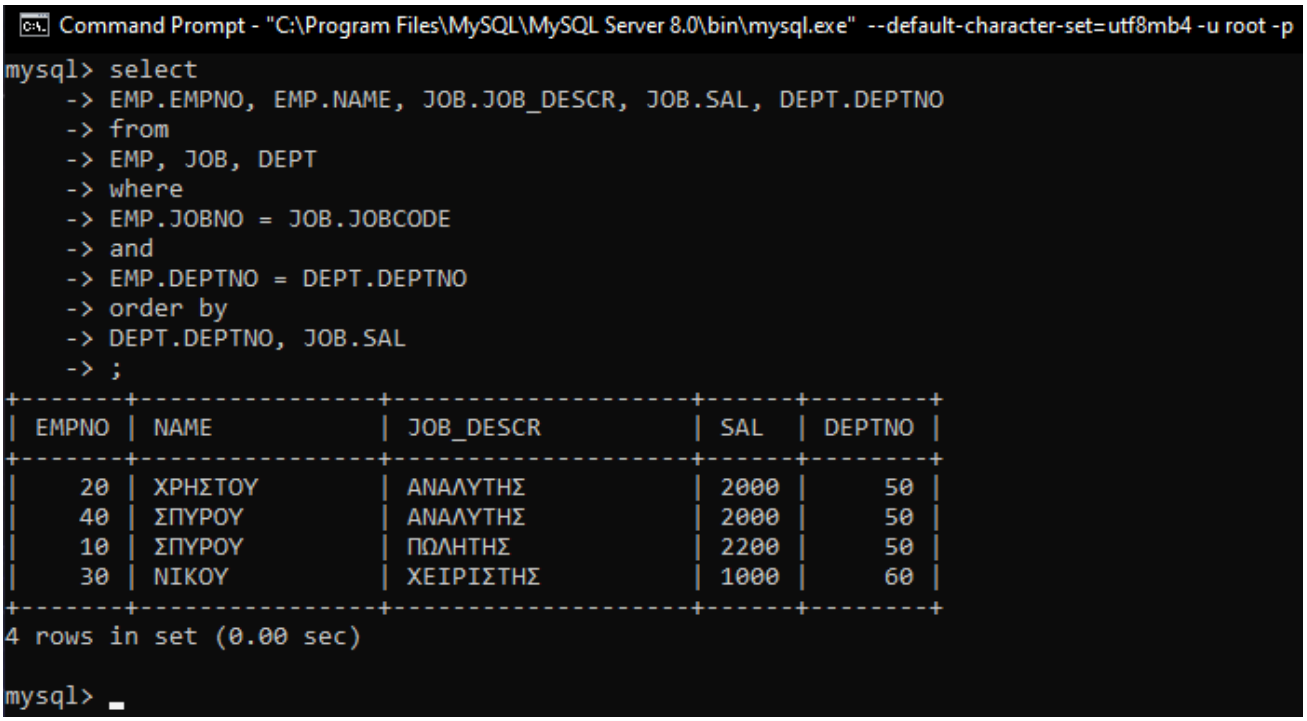
11.1 . Statement

```
select
EMP.EMPNO, EMP.NAME, JOB.JOB_DESCR, JOB.SAL, DEPT.DEPTNO
     from
EMP, JOB, DEPT
     where
EMP.JOBNO = JOB.JOBCODE
     and
EMP.DEPTNO = DEPT.DEPTNO
     order by
DEPT.DEPTNO, JOB.SAL
;
```

11.2. Result

```
+-------+---------------+--------------------+--- ---+--------+
| EMPNO | NAME | JOB_DESCR | SAL | DEPTNO |
+-------+---------------+--------------------+--- ---+--------+
| 20 | CHRISTOU | ANALYST | 2000 | 50 |
| 40 | SPYROU | ANALYST | 2000 | 50 |
| 10 | SPYROU | SELLER | 2200 | 50 |
| 30 | NIKOU | OPERATOR | 1000 | 60 |
+-------+---------------+--------------------+--- ---+--------+
4 rows in set (0.00 sec)
```

11.3. Snapshot



12. Display the average salary and number of employees per department

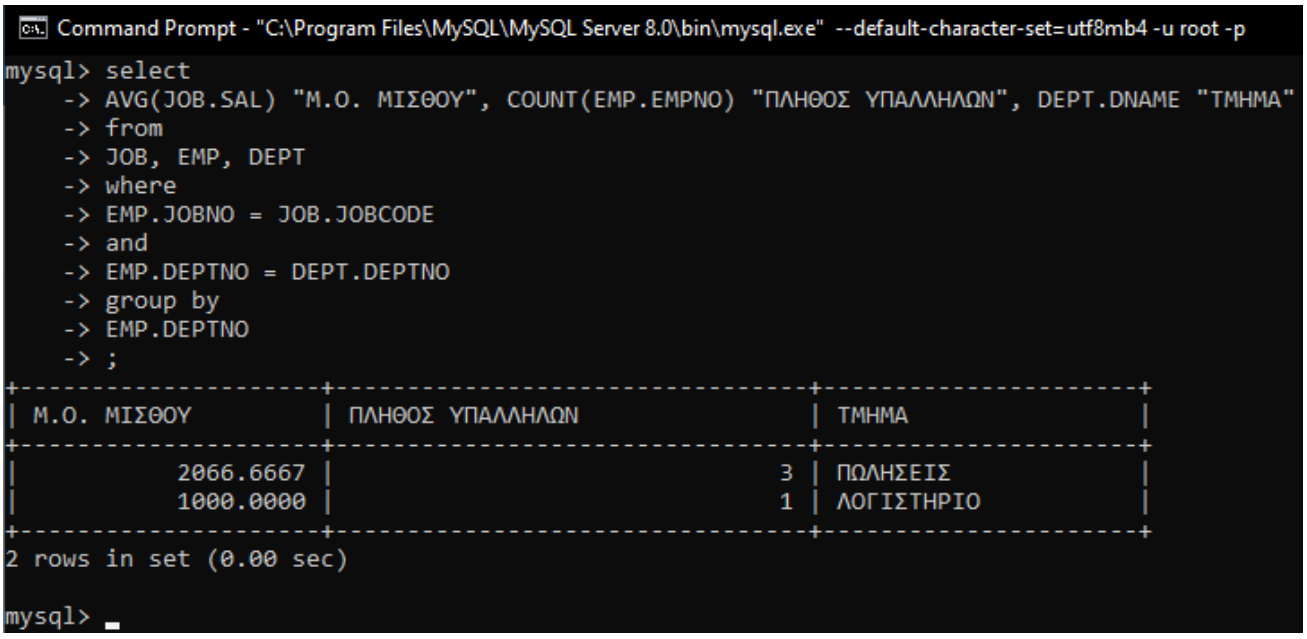
12.1. Statement

```
select

AVG(JOB.SAL) "SALARY NO", COUNT(EMP.EMPNO) "NUMBER OF EMPLOYEES", DEPT.DNAME
"DEPARTMENT"

     from

JOB, EMP, DEPT

     where

EMP.JOBNO = JOB.JOBCODE

     and

EMP.DEPTNO = DEPT.DEPTNO

     group by

EMP.DEPTNO

;
```

12.2. Result

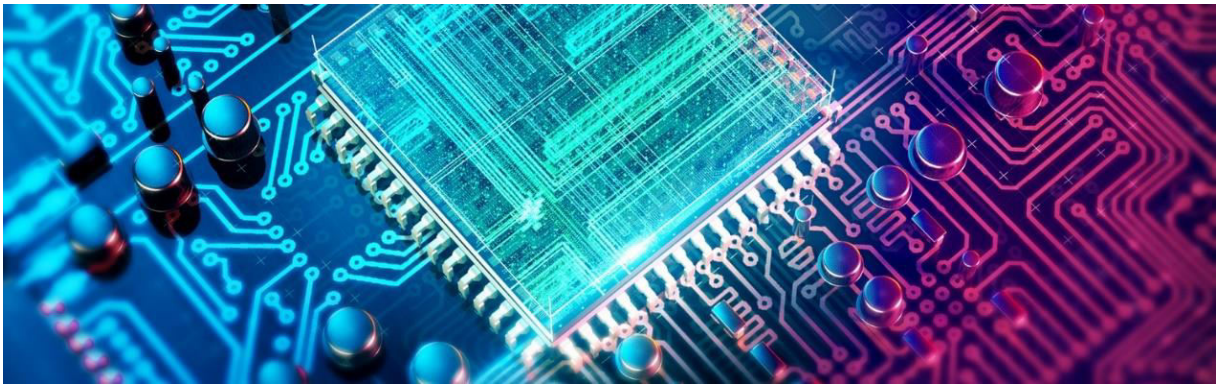
```
+------------ +---------------------------+------ ----------------+

| M. The . SALARY | HOST OF EMPLOYEES | SECTION |

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

| 2066.6667 | 3 | SALES |

| 1000.0000 | 1 | ACCOUNTING |

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

2 rows in set (0.00 sec)
```

12.3. Snapshot



DATA BASES II

Thank you for your attention.



DATA BASES II