

ΠΑΝΕΠΙΣΤΗΜΙΟ ΔΥΤΙΚΗΣ ΑΤΤΙΚΗΣ

Τμήμα Μηχανικών Πληροφορικής και Υπολογιστών



Μάθημα : Βάσεις Δεδομένων 1

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ΑΣΚΗΣΗ 3

1. Δημιουργία βάσης new personnel

```
DROP DATABASE IF EXISTS new_personnel;

CREATE DATABASE new_personnel;

USE new_personnel;

CREATE TABLE DEPT(
    DEPTNO INT(2) NOT NULL,
    DNAME VARCHAR(14),
    LOC VARCHAR(14),
    PRIMARY KEY(DEPTNO)
);

CREATE TABLE EMP(
    EMPNO INT(4) NOT NULL, ENAME VARCHAR(10), JOB VARCHAR(25),
    HIREDATE DATE, MGR INT(4), SAL FLOAT(7,2), COMM FLOAT(7,2),
    DEPTNO INT(2),
    PRIMARY KEY(EMPNO),
    FOREIGN KEY(DEPTNO) REFERENCES DEPT(DEPTNO)
);

CREATE TABLE PROJ(PROJNO INT(3) NOT NULL,
    PNAME VARCHAR(15),
    BUDGET FLOAT(12,2),
    PRIMARY KEY(PROJNO));

CREATE TABLE ASSIGN(EMPNO INT(4) NOT NULL,
    PROJNO INT(3) NOT NULL, PTIME INT(3),
    PRIMARY KEY(EMPNO, PROJNO),
    FOREIGN KEY(EMPNO) REFERENCES EMP(EMPNO),
    FOREIGN KEY(PROJNO) REFERENCES PROJ(PROJNO));

INSERT INTO DEPT VALUES(10, 'ACCOUNTING', 'NEW YORK');
INSERT INTO DEPT VALUES(20, 'RESEARCH', 'DALLAS');
INSERT INTO DEPT VALUES(30, 'SALES', 'CHICAGO');
INSERT INTO DEPT VALUES(40, 'OPERATIONS', 'BOSTON');

INSERT INTO EMP VALUES(10, 'CODD', 'ANALYST', '1989-01-01', 15,
3000, NULL, 10);
INSERT INTO EMP VALUES(15, 'ELMASRI', 'ANALYST', '1995-05-09', 15,
1200, 150, 10);
INSERT INTO EMP VALUES(20, 'NAVATHE', 'SALESMAN', '1977-07-07', 20,
2000, NULL, 20);
INSERT INTO EMP VALUES(30, 'DATE', 'PROGRAMMER', '2004-05-04', 15,
1800, 200, 10);

INSERT INTO PROJ VALUES(100, 'PAYROLL', 100000);
INSERT INTO PROJ VALUES(200, 'PERSONNEL', 200000);
```

```
INSERT INTO PROJ VALUES(300, 'SALES', 150000);
```

```
INSERT INTO ASSIGN VALUES(10, 100, 40);  
INSERT INTO ASSIGN VALUES(10, 200, 60);  
INSERT INTO ASSIGN VALUES(15, 100, 100);  
INSERT INTO ASSIGN VALUES(20, 200, 100);  
INSERT INTO ASSIGN VALUES(30, 100, 100);
```

2. Ασκήσεις εργαστηρίου

```
mysql> SELECT * FROM DEPT;
```

```
+-----+-----+-----+  
| DEPTNO | DNAME          | LOC          |  
+-----+-----+-----+  
|      10 | ACCOUNTING     | NEW YORK    |  
|      20 | RESEARCH       | DALLAS      |  
|      30 | SALES          | CHICAGO     |  
|      40 | OPERATIONS     | BOSTON      |  
+-----+-----+-----+  
4 rows in set (0.00 sec)
```

```
mysql> SELECT * FROM EMP;
```

```
+-----+-----+-----+-----+-----+-----+-----+  
| EMPNO | ENAME          | JOB          | HIREDATE    | MGR  | SAL      | COMM  | DEPTNO |  
+-----+-----+-----+-----+-----+-----+-----+  
|     10 | CODD          | ANALYST      | 1989-01-01  | 15   | 3000.00  | NULL  |     10 |  
|     15 | ELMASRI       | ANALYST      | 1995-05-09  | 15   | 1200.00  | 150.00 |     10 |  
|     20 | NAVATHE       | SALESMAN     | 1977-07-07  | 20   | 2000.00  | NULL  |     20 |  
|     30 | DATE          | PROGRAMMER   | 2004-05-04  | 15   | 1800.00  | 200.00 |     10 |  
+-----+-----+-----+-----+-----+-----+-----+  
4 rows in set (0.00 sec)
```

```
mysql> SELECT * FROM proj;
```

PROJNO	PNAME	BUDGET
100	PAYROLL	100000.00
200	PERSONNEL	200000.00
300	SALES	150000.00

```
3 rows in set (0.00 sec)
```

```
mysql> SELECT * FROM ASSIGN;
```

EMPNO	PROJNO	PTIME
10	100	40
10	200	60
15	100	100
20	200	100
30	100	100

```
5 rows in set (0.00 sec)
```

```
mysql> SELECT DEPTNO,AVG(SAL)
-> FROM EMP GROUP BY DEPTNO;
```

```
+-----+-----+
| DEPTNO | AVG(SAL) |
+-----+-----+
|      10 | 2000.000000 |
|      20 | 2000.000000 |
+-----+-----+
```

2 rows in set (0.00 sec)

```
mysql> SELECT JOB,AVG(SAL)
-> FROM EMP
->
-> GROUP BY JOB
-> HAVING AVG(SAL) > 1250;
```

```
+-----+-----+
| JOB          | AVG(SAL) |
+-----+-----+
| ANALYST      | 2100.000000 |
| SALESMAN     | 2000.000000 |
| PROGRAMMER   | 1800.000000 |
+-----+-----+
```

3 rows in set (0.00 sec)

```
mysql> SELECT JOB,AVG(SAL),COUNT(*)
-> FROM EMP
-> GROUP BY JOB
-> HAVING COUNT(*) >= 2;
```

```
+-----+-----+-----+
| JOB      | AVG(SAL)      | COUNT(*) |
+-----+-----+-----+
| ANALYST  | 2100.000000   | 2        |
+-----+-----+-----+

1 row in set (0.01 sec)
```

```
mysql> SELECT ENAME,JOB,SAL,LOC
-> FROM EMP,DEPT
-> WHERE JOB='SALESMAN'
-> AND EMP.DEPTNO=DEPT.DEPTNO;
```

```
+-----+-----+-----+-----+
| ENAME    | JOB          | SAL      | LOC      |
+-----+-----+-----+-----+
| NAVATHE  | SALESMAN     | 2000.00  | DALLAS   |
+-----+-----+-----+-----+

1 row in set (0.00 sec)
```

```
mysql> SELECT *
-> FROM EMP,DEPT
-> WHERE EMP.DEPTNO=DEPT.DEPTNO;
```

EMPNO	ENAME	JOB	HIREDATE	MGR	SAL	COMM	DEPTNO	DEPTNO	DNAME	LOC
10	CODD	ANALYST	1989-01-01	15	3000.00	NULL	10	10	ACCOUNTING	NEW YORK
15	ELMASRI	ANALYST	1995-05-09	15	1200.00	150.00	10	10	ACCOUNTING	NEW YORK
20	NAVATHE	SALESMAN	1977-07-07	20	2000.00	NULL	20	20	RESEARCH	DALLAS
30	DATE	PROGRAMMER	2004-05-04	15	1800.00	200.00	10	10	ACCOUNTING	NEW YORK

```
4 rows in set (0.00 sec)
```

```
mysql> SELECT ENAME, JOB, SAL, LOC
```

```
-> FROM EMP, DEPT
```

```
-> WHERE JOB='SALESMAN'
```

```
-> AND EMP.DEPTNO=DEPT.DEPTNO;
```

```
+-----+-----+-----+-----+
| ENAME   | JOB       | SAL      | LOC      |
+-----+-----+-----+-----+
| NAVATHE | SALESMAN  | 2000.00  | DALLAS   |
+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

```
mysql> SELECT * FROM SUPPLIER;
```

```
+-----+-----+
| suppl_name | suppl_city |
+-----+-----+
| NAVATHE    | NEWYORK    |
| ELMASRI    | ATHENS     |
+-----+-----+
2 rows in set (0.00 sec)
```

```
mysql> SELECT * FROM CUSTOMER;
```

```
+-----+-----+
| cust_name | cust_city |
+-----+-----+
| CODD      | NEW YORK  |
| DATE      | BERLIN    |
+-----+-----+
2 rows in set (0.00 sec)
```

```
mysql> SELECT emp.ename,emp.sal,dept.loc  
      -> from emp,dept;
```

ename	sal	loc
DATE	1800.00	NEW YORK
NAVATHE	2000.00	NEW YORK
ELMASRI	1200.00	NEW YORK
CODD	3000.00	NEW YORK
DATE	1800.00	DALLAS
NAVATHE	2000.00	DALLAS
ELMASRI	1200.00	DALLAS
CODD	3000.00	DALLAS
DATE	1800.00	CHICAGO
NAVATHE	2000.00	CHICAGO
ELMASRI	1200.00	CHICAGO
CODD	3000.00	CHICAGO
DATE	1800.00	BOSTON
NAVATHE	2000.00	BOSTON
ELMASRI	1200.00	BOSTON
CODD	3000.00	BOSTON

16 rows in set (0.00 sec)

3. Ερωτήματα

1.

```
mysql> SELECT ENAME, DEPTNO FROM EMP
```

```
-> WHERE DEPTNO = 10
```

```
-> ORDER BY SAL;
```

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

```
| ENAME    | DEPTNO |
```

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

```
| ELMASRI  |      10 |
```

```
| DATE     |      10 |
```

```
| CODD     |      10 |
```

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

```
3 rows in set (0.00 sec)
```

2.

```
mysql> SELECT ENAME, JOB, SAL FROM EMP
```

```
-> ORDER BY JOB, SAL DESC;
```

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

```
| ENAME    | JOB          | SAL      |
```

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

```
| CODD     | ANALYST      | 3000.00 |
```

```
| ELMASRI  | ANALYST      | 1200.00 |
```

```
| DATE     | PROGRAMMER   | 1800.00 |
```

```
| NAVATHE  | SALESMAN     | 2000.00 |
```

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

```
4 rows in set (0.00 sec)
```

3.

```
mysql> SELECT AVG(SAL), COUNT(*), DEPTNO FROM EMP
```

```
-> GROUP BY DEPTNO
```

```
-> HAVING COUNT(*) >=1;
```

```
+-----+-----+-----+
| AVG(SAL) | COUNT(*) | DEPTNO |
+-----+-----+-----+
| 2000.000000 | 3 | 10 |
| 2000.000000 | 1 | 20 |
+-----+-----+-----+
```

```
2 rows in set (0.00 sec)
```

4.

```
mysql> SELECT DEPTNO "TMHMA", AVG(2020-SUBSTRING(HIREDATE, 1, 4)) AS
ΠΡΟΥΠΗΡΕΑΣΙΑ FROM EMP
```

```
-> GROUP BY DEPTNO;
```

```
+-----+-----+
| TMHMA | ΠΡΟΥΠΗΡΕΑΣΙΑ |
+-----+-----+
| 10 | 24 |
| 20 | 43 |
+-----+-----+
```

```
2 rows in set (0.00 sec)
```

5.

```
mysql> SELECT PROJ.PNAME, EMP.ENAME, EMP.JOB
-> FROM PROJ, EMP, ASSIGN
-> WHERE PROJ.PROJNO = ASSIGN.PROJNO
-> AND ASSIGN.EMPNO = EMP.EMPNO
-> ORDER BY PNAME, JOB;
```

```
+-----+-----+-----+
| PNAME      | ENAME      | JOB          |
+-----+-----+-----+
| PAYROLL    | CODD       | ANALYST      |
| PAYROLL    | ELMASRI    | ANALYST      |
| PAYROLL    | DATE       | PROGRAMMER   |
| PERSONNEL  | CODD       | ANALYST      |
| PERSONNEL  | NAVATHE    | SALESMAN     |
+-----+-----+-----+
5 rows in set (0.00 sec)
```

6.

```
mysql> SELECT
DEPT.DNAME"DEPARTMENT",X.ENAME"MANAGER",EMP.ENAME"EMPLOYEE"
-> FROM EMP X JOIN EMP ON X.EMPNO=EMP.MGR
-> JOIN DEPT ON EMP.DEPTNO=DEPT.DEPTNO;
```

```
+-----+-----+-----+
| DEPARTMENT | MANAGER    | EMPLOYEE     |
+-----+-----+-----+
| ACCOUNTING | ELMASRI    | CODD         |
| ACCOUNTING | ELMASRI    | ELMASRI      |
| ACCOUNTING | ELMASRI    | DATE         |
| RESEARCH   | NAVATHE    | NAVATHE      |
+-----+-----+-----+
4 rows in set (0.00 sec)
```

7.

```
mysql> SELECT EMP.ENAME,EMP.JOB,DEPT.LOC
-> FROM EMP,DEPT
-> WHERE DEPT.DNAME="RESEARCH" AND DEPT.DEPTNO=EMP.DEPTNO;

+-----+-----+-----+
| ENAME   | JOB       | LOC      |
+-----+-----+-----+
| NAVATHE | SALESMAN  | DALLAS   |
+-----+-----+-----+

1 row in set (0.00 sec)
```

8.

```
mysql> SELECT EMP.ENAME, PROJ.PNAME, ASSIGN.PTIME
-> FROM EMP, PROJ, ASSIGN
-> WHERE EMP.EMPNO = ASSIGN.EMPNO
-> AND ASSIGN.PROJNO = PROJ.PROJNO
-> AND PROJ.PNAME = 'PAYROLL'
-> AND ASSIGN.PTIME > 50;

+-----+-----+-----+
| ENAME   | PNAME     | PTIME    |
+-----+-----+-----+
| ELMASRI | PAYROLL   | 100      |
| DATE    | PAYROLL   | 100      |
+-----+-----+-----+

2 rows in set (0.00 sec)
```