تمرین شماره 3 درس پایگاه داده

پارسا عیسی زاده ۹۷۴۱۲۳۶۴

سوال 1)

```
SELECT ID
FROM Masters
WHERE Age > 55
```

سوال 2)

```
CREATE TABLE classes (
        Name  VARCHAR (50),
        MasterName VARCHAR (50) ,
        ClassDay STRING,
        ClassHour TIME ,
        FirstClassTime DATETIME ,
        FinalExamDate DATETIME
)

CEATE TABLE Masters (
        FirstName VARCHAR(50) ,
        LastName VARCHAR(50) ,
        NationalCode CHAR(10) ,
        MasterCode CHAR(10) ,
        Phonenumber CHAR(11),
        Age INT ,
```

```
    Salary BIGINT(8) UNSIGNED,
    Record INT
)

CREATE TABLE students (
    FirstName VARCHAR(50) ,
    LastName VARCHAR(50) ,
    FatherName VARCHAR (100),
    NationalCode CHAR(10) ,
    StudentCode CHAR(10) ,
    Phonenumber CHAR(11),
    Age INT ,
    EntranceYear INT ,
    PassedUnits INT
    LastSemGrade FLOAT(4,2) ,
    Grade  FLOAT(4,2)
)
```

سوال 3)

الف)

```
SELECT Iname , price
FROM Item
```

ب)

```
SELECT orderNo , date
FROM Order
WHERE tax > ‘10’
```

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```
SELECT OrderNo , INo , Iname, price , quality
FROM Order INNER JOIN Contains ON orderNo
                JOIN Item ON INo
```

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```
SELECT c.custId , c.phoneId
FROM Customer c INNER JOIN Address a ON addId
WHERE a.city = ‘Tehran’
```

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```
SELECT *
FROM Customers AS C
WHERE (
        SELECT  COUNT (DISTINCT Item)
        FROM Customer c INNER JOIN Buys ON custId
                JOIN Order ON orderNo
                        JOIN Contains ON orderNo
                                JOIN Item ON INo
        WHERE C.custId = c.custId
) = (
```

```
        SELECT COUNT(*)
        FROM Item
)
```

ج)

```
SELECT SNo
FROM Suppliers AS S1
WHERE NOT EXISTS (
        SELECT SNo
        FROM Supplies  AS S2
        WHERE S1.SNo = S2.SNo
)
```

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```
SELECT *
FROM Customer AS C
WHERE EXISTS (
        SELECT *
        FROM Customer c INNER JOIN Buys ON custId
                LEFT OUTER JOIN Order o ON orderNo
                        INNER JOIN Address a ON o.addId = a.addId
        WHERE c.custId = C.custId
        AND (
                a.city = 'Yazd' OR a.city = 'Tehran'
        )
```

```
)
AND NOT EXISTS (
        SELECT *
        FROM Customer c INNER JOIN Buys ON custId
                LEFT OUTER JOIN Order o ON orderNo
                        INNER JOIN Address a ON o.addId = a. addId
        WHERE c.custId = C.custId AND
        a.city = 'Isfahan'
)
```

ج)

```
SELECT INo
FROM Items AS I
WHERE EXISTS (
        SELECT INo
        FROM Customer c INNER JOIN Buys ON custId
                LEFT OUTER JOIN Order o ON orderNo
                        INNER JOIN Contains ON orderNo
                                INNER JOIN Item i ON INo
                                        INNER JOIN Address a1 ON a1.addId = c.addId
                                        INNER JOIN Address a2 ON a2.addId = o.addId
        WHERE I.INo = i.INo AND  a1.city = a2.city
        AND EXISTS (
                SELECT INo
```

```
            FROM Item INNER JOIN Supplies ON INo
                JOIN Supplier ON SNo
                    JOIN Address ON addId
            WHERE INo = i.INo AND city = a1.city
        )
)
```

خ)

```
SELECT *
FROM Customers
WHERE NOT EXISTS (
        SELECT COUNT(*) AS count
        FROM Customer c INNER JOIN Buys ON custId
            LEFT OUTER JOIN Order o ON orderNo
                INNER JOIN Contains ON orderNo
                    INNER JOIN Item i ON INo
        GROUPBY INo
        WHERE count > 1

)
```

سوال 4)

الف)

```
SELECT student_id , COUNT(*)  as count
```

```
FROM  ( students INNER JOIN friends ON student_id  )
GROUP BY student_id
ORDER BY count  DESC
```

ب)

```
SELECT name
FROM students S INNER JOIN db_grades g1 ON student_id
WHERE g1.grade < 10 AND
 EXISTS (
            SELECT s.name , f.friend_id , g2.grade
            FROM  students s INNER JOIN friends f ON s.student_id = f.student_id
                        INNER JOIN db_grades g2 ON g2.student_id = f.friend_id
            WHERE  S.student_id = s.student_id AND
                        g2.grade > 10
)
```

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```
SELECT name
FROM students AS S
WHERE    S.student_id NOT IN (
            SELECT s.student_id
            FROM  students s LEFT OUTER  JOIN friends f ON s.student_id =
                        f.student_id
                  INNER JOIN db_grades g ON g.student_id = f.friend_id
            WHERE  g.grade > 10 OR f.friend_id IS NULL
```

)

ت)

```
SELECT name
FROM students AS S
WHERE EXISTS (
        SELECT s.name , g1.grade , f.friend_id , g2.grade
        FROM  students s  INNER JOIN db_grades g1 ON student_id
                INNER JOIN friends f ON s.student_id = f.student_id
                        INNER JOIN db_grades g2 ON g2.student_id = f.friend_id
        WHERE  S.student_id = s.student_id AND
                        g1.grade <  g2.grade
) AND EXISTS (
        SELECT s.name , g1.grade , f.friend_id , g2.grade
        FROM  students s  INNER JOIN db_grades g1 ON student_id
                INNER JOIN friends f ON s.student_id = f.student_id
                        INNER JOIN db_grades g2 ON g2.student_id = f.friend_id
        WHERE  S.student_id = s.student_id AND
                        g1.grade >  g2.grade
)
```