Lab 3

Daniel Gisolfi & Brooke Higgins

21. Name the restaurants that have orders of at least one dish ordered by customer C100.

```
SELECT R.RestaurantName
FROM Restaurants AS R, Orders AS O
WHERE O.CNum = 'C100'
AND O.RNum = R.RNum
```

```
RestaurantName
CheesecakeFactory
SiamPalace
```

Cardinality = 2

22. Get customer numbers for customers that ordered at least one dish ordered by at least one customer who ordered at least one dish whose ListPrice is \$9.99.

```
SELECT DISTINCT O.CNum
    FROM Orders AS O
3
   WHERE EXISTS
4
        (SELECT C.CNum
5
        FROM Customers AS C
6
        WHERE EXISTS
7
            (SELECT *
8
            FROM Dishes AS D
9
             WHERE D.ListPrice = 9.99
            AND O.CNum = C.CNum
10
            AND O.DNum = D.DNum));
11
12
```

CNum	
C100	
C300	
C400	
C500	

23. Get customer numbers for customers who have a Priority lower than that of customer C100.

```
1 SELECT C.CNum
2 FROM Customers AS C
3 WHERE C.Priority < 20;

CNum

C200
```

Cardinality = 1

24. Get restaurant numbers for restaurants whose HQLocation is first in the alphabetic list of such cities.

```
SELECT TOP 1 R.RNum
FROM Restaurants AS R
ORDER BY R.HQLocation;
```

```
RNum
R10
```

Cardinality = 1

25. Get restaurant numbers for restaurants that have orders of dish D1 in an average quantity less than the greatest quantity for any dish ordered from restaurant R10.

```
SELECT DISTINCT O.RNum
  FROM Orders AS O
3
  WHERE O.DNum = 'D1'
4
  AND EXISTS
5
       (SELECT AVG(O.Quant) AS QUANTAVG
        FROM Orders AS O
6
7
        HAVING AVG(O.Quant) < (SELECT MAX(O.Quant) AS MaximumQuant
8
                                FROM Orders AS O
9
                                WHERE O.RNum = 'R10');
```

```
RNum
R10
R40
```

26. Get customer numbers for customers that ordered dish D1 from some restaurant in a quantity greater than the average quantity of dish D1 for that restaurant.

```
SELECT O.Cnum
FROM Orders AS O
WHERE O.DNum = 'D1'
AND O.Quant > (SELECT AVG(O.Quant) AS AVGQuant

Orders AS O
WHERE O.DNum = 'D1')
```

```
CNum
C100
```

Cardinality = 1

27. Name the restaurants that have no \$9.99 (ListPrice) dishes that were ordered by any customer from Houston.

```
SELECT R.RestaurantName
FROM Orders AS O, Restaurants AS R, Dishes AS D, Customers AS C
WHERE D.ListPrice <> 9.99
AND C.Hometown <> 'Houston'
AND R.RNum = O.RNum
AND C.Cnum = O.CNum
AND D.DNum = O.DNum;
```

```
RestaurantName

BombayPalace

CheesecakeFactory

Giacomos

GoldenDragon

SiamPalace

SoupPlantation

SzechuanPalace
```

28. Name the restaurants whose only order(s) came from customer C200.

```
SELECT DISTINCT R.RestaurantName

FROM Restaurants AS R

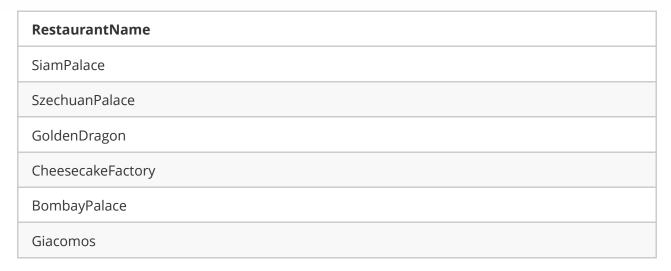
WHERE R.RNum IN

(SELECT O.RNum

FROM Orders AS O

GROUP BY O.RNum

HAVING SUM( If (O.CNum <> 'C200'));
```



29. Get dish numbers for dishes that have been ordered from all restaurants whose headquarters are in Houston.

```
SELECT DISTINCT O.DNum
FROM Orders AS O
WHERE O.RNum = R.RNum
AND R.HQLocation = 'Houston';
```

```
DNum

D3

D5

D6
```

Cardinality = 3

30. Get customer numbers for customers who ordered the same dish from all restaurants.

```
SELECT DISTINCT Ord1.CNum
FROM Orders AS Order1, Orders AS Order2
WHERE Order1.CNum = Order2.CNum
AND Order1.DNum = Order2.DNum
AND Order1.RNum = Order2.RNum;
```



31. Get restaurant numbers for restaurants that have at least all of the dishes ordered by customer C100.

```
SELECT DISTINCT R.RNum
  FROM Restaurants AS R
3
  WHERE NOT EXISTS
4
           (SELECT *
5
            FROM Customers AS C
            WHERE C.CNum = 'C100'
6
7
            AND NOT EXISTS
8
                  (SELECT *
                             FROM Orders AS O
9
                  WHERE O.CNum = C.CNum
                                                AND O.RNum = R.RNum);
```

```
        RNum

        R10

        R40
```

Cardinality = 2

32. Get all cities with which at least one customer, dish, or restaurant is associated.

```
SELECT C.Hometown

FROM Orders AS O, Customers as C, Restaurants AS R, Dishes AS D

WHERE C.Hometown = R.HQLocation

AND R.HQLocation = D.CityOfOrigin

AND C.Hometown = D.CityOfOrigin

AND O.CNum = C.CNum

AND R.RNum = O.RNum

AND D.DNum = O.DNum
```

```
Hometown

Boston

Houston
```

33. Get dish numbers for dishes that were ordered either by a customer from Houston or from a restaurant whose headquarters is in Houston.

```
SELECT O.DNum
FROM Orders AS O, Customers as C, Restaurants AS R
WHERE C.Hometown = 'Houston'
OR R.HQLocation = 'Houston'
AND O.CNum = C.CNum
AND R.RNum = O.RNum;
```

```
DNum
D1
D2
D3
D4
D5
D6
```

Cardinality = 6