

Lab 3

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

```
1 SELECT R.RestaurantName
2 FROM Restaurants AS R, Orders AS O
3 WHERE O.CNum = 'C100'
4 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.

```
1 SELECT DISTINCT O.CNum
2 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
10              AND O.CNum = C.CNum
11              AND O.DNum = D.DNum));
12
```

CNum
C100
C300
C400
C500

Cardinality = 4

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.

```

1  SELECT TOP 1 R.RNum
2  FROM Restaurants AS R
3  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.

```

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

```

RNum
R10
R40

Cardinality = 2

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.

```

1  SELECT O.CNum
2  FROM Orders AS O
3  WHERE O.DNum = 'D1'
4  AND O.Quant > (SELECT AVG(O.Quant) AS AVGQuant
                  FROM
                  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.

```

1  SELECT R.RestaurantName
2  FROM Orders AS O, Restaurants AS R, Dishes AS D, Customers AS C
3  WHERE D.ListPrice <> 9.99
4  AND C.Hometown <> 'Houston'
5  AND R.RNum = O.RNum
6  AND C.CNum = O.CNum
7  AND D.DNum = O.DNum;
8
9
10
11 SELECT DISTINCT R.RestaurantName
12 FROM Restaurants AS R
13 WHERE NOT EXISTS
14     (SELECT *
15      FROM Dishes AS D
16      WHERE (D.ListPrice <> 9.99)
17      AND EXISTS
18          (SELECT *
19           FROM Customers AS C
20           WHERE (C.Hometown = 'Houston')
21           AND EXISTS
22               (SELECT *
23                FROM Orders AS O
24                WHERE (O.CNum = C.CNum)
25                AND (O.DNum = D.DNum)
26                AND (O.RNum = R.RNum))));

```

RestaurantName
BombayPalace
CheesecakeFactory
Giacomos
GoldenDragon
SiamPalace
SoupPlantation
SzechuanPalace

Cardinality = 7

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

```
1  SELECT R.RestaurantName
2  FROM Orders AS O, Restaurants AS R
3  WHERE O.CNum = 'C200'
4  AND
5  AND R.RNum = O.RNum;
6
7  SELECT DISTINCT R.RestaurantName
8  FROM Restaurants AS R
9  WHERE R.RNum IN
10     (SELECT O.RNum
11      FROM Orders AS O
12      GROUP BY O.RNum
13      HAVING SUM( If ([O.CNum] <> 'C200', 1, 0)) = 0);
```

RestaurantName
SoupPlantation

Cardinality =

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

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

DNum
D3
D5
D6

Cardinality = 3

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

```

1 SELECT DISTINCT Ord1.CNum
2 FROM Orders AS Order1, Orders AS Order2
3 WHERE Order1.CNum = Order2.CNum
4 AND Order1.DNum = Order2.DNum
5 AND Order1.RNum = Order2.RNum;

```

CNum
C100
C200
C300
C400
C500

Cardinality = 5

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

```

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

```

RNum
R10
R40

Cardinality = 2

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

```
1  SELECT C.Hometown
2  FROM Orders AS O, Customers as C, Restaurants AS R, Dishes AS D
3  WHERE C.Hometown = R.HQLocation
4  AND R.HQLocation = D.CityOfOrigin
5  AND C.Hometown = D.CityOfOrigin
6  AND O.CNum = C.CNum
7  AND R.RNum = O.RNum
8  AND D.DNum = O.DNum
9
10 SELECT DISTINCT C.Hometown
11 FROM Customers AS C, Restaurants AS R, Dishes AS D
12 WHERE (C.Hometown = R.HQLocation)
13 AND (C.Hometown = D.CityOfOrigin)
```

Hometown
Boston
Houston

Cardinality = 2

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

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

DNum
D1
D2
D3
D4
D5
D6

Cardinality = 6