

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
5
6                                FROM
7
8                                Orders AS O
9                                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;

```

RestaurantName
BombayPalace
CheesecakeFactory
Giacomos
GoldenDragon
SiamPalace
SoupPlantation
SzechuanPalace

Cardinality = 7

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

```

1  SELECT DISTINCT R.RestaurantName
2  FROM Restaurants AS R
3  WHERE R.RNum IN
4      (SELECT O.RNum
5       FROM Orders AS O
6       GROUP BY O.RNum
7       HAVING SUM( If (O.CNum <> 'C200' ));

```

RestaurantName
SiamPalace
SzechuanPalace
GoldenDragon
CheesecakeFactory
BombayPalace
Giacomos

Cardinality = 6

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 = 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

```

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