



```
1  USE TSQVLV4;
2  GO
3  SELECT E.empid, E.firstname, E.lastname, N.n
4  FROM HR.Employees AS E
5  CROSS JOIN dbo.Nums AS N
6  WHERE N.n <= 5
7  ORDER BY n, empid;
8
9  --SELECT * FROM dbo.Nums
10
11
```

Commands completed successfully.

(45 rows affected)

Total execution time: 00:00:00.037



	empid	firstname	lastname	n
1	1	Sara	Davis	1
2	2	Don	Funk	1
3	3	Judy	Lew	1
4	4	Yael	Peled	1
5	5	Sven	Mortensen	1
6	6	Paul	Suurs	1
7	7	Russell	King	1
8	8	Maria	Cameron	1
9	9	Patricia	Doyle	1
10	1	Sara	Davis	2
11	2	Don	Funk	2
12	3	Judy	Lew	2
13	4	Yael	Peled	2
14	5	Sven	Mortensen	2
15	6	Paul	Suurs	2
16	7	Russell	King	2
17	8	Maria	Cameron	2
18	9	Patricia	Doyle	2
19	1	Sara	Davis	3
20	2	Don	Funk	3

1.2

```

1  USE TSQVLV4;
2  GO
3  SELECT E.empid, DATEADD(day, n-1, CAST('20160612' AS DATE)) AS dt
4  FROM HR.Employees AS E
5  CROSS JOIN DBO.Nums AS N
6  WHERE N <= DATEDIFF(day, '20160612', '20160616') + 1
7  ORDER BY E.empid, dt
8
9  --DATEADD(return type, added value, original value)
10 --CAST convert to data type CAST(converted data AS convert to data)
11 --DATEDIFF Return the difference between two date values DATEDIFF(data type, Subtracted number, Primary number)
12

```

Commands completed successfully.

(45 rows affected)

Total execution time: 00:00:00.057



	empid	dt
1	1	2016-06-12
2	1	2016-06-13
3	1	2016-06-14
4	1	2016-06-15
5	1	2016-06-16
6	2	2016-06-12
7	2	2016-06-13
8	2	2016-06-14
9	2	2016-06-15
10	2	2016-06-16
11	3	2016-06-12
12	3	2016-06-13
13	3	2016-06-14
14	3	2016-06-15
15	3	2016-06-16
16	4	2016-06-12
17	4	2016-06-13
18	4	2016-06-14
19	4	2016-06-15
20	4	2016-06-16

-- 2

-- Explain what's wrong in the following query and provide a correct alternative

```
SELECT Customers.custid, Customers.companyname, Orders.orderid, Orders.orderdate
```

```
FROM Sales.Customers AS C
```

```
INNER JOIN Sales.Orders AS O
```

```
ON Customers.custid = Orders.custid;
```

Answer: In the table above, its rename Sales.Customers AS C and Sales.Orders AS O, which mean select 'Customers' table and 'Orders' table can not be found

3.

```
1  USE TSQVL4;
2  GO
3  SELECT c.custid, COUNT(DISTINCT O.orderid) AS numorders, SUM(qty) AS totalqty
4  FROM sales.Customers AS C
5       INNER JOIN sales.Orders AS O
6       ON C.custid = O.custid
7       INNER JOIN sales.orderdetails AS D
8       ON O.orderid = D.orderid
9  WHERE C.country = 'USA'
10 GROUP BY C.custid;
11 --CROSS JOIN sales.OrderDetails AS D;
12
13 --sales.orderdetails table
14 --SELECT DISTINCT orderid, sum(qty)
15 --FROM sales.OrderDetails
16 --GROUP BY orderid;
17
18 --merge 2nd and 3rd table
19 --SELECT O.custid, COUNT(DISTINCT O.orderid) AS numorders, SUM(OD.qty) AS totalqty
20 -- FROM Sales.Orders AS O
21 -- INNER JOIN Sales.OrderDetails AS OD --MERGE
22 --   ON OD.orderid = O.orderid
23 -- GROUP BY O.custid;
```

Commands completed successfully.

(13 rows affected)

Total execution time: 00:00:00.067



	custid	numorders	totalqty
1	32	11	345
2	36	5	122
3	43	2	20
4	45	4	181
5	48	8	134
6	55	10	603
7	65	18	1383
8	71	31	4958
9	75	9	327
10	77	4	46
11	78	3	59
12	82	3	89
13	89	14	1063

4.

```

[59] 1  USE TSQVLV4;
      2  GO
      3  SELECT c.custid,c.companyname,o.orderid,o.orderdate
      4  FROM sales.Customers AS C
      5       LEFT OUTER JOIN sales.orders AS O
      6       ON c.custid = o.custid
      7
      8  -- LEFT OUTER JOIN
      9  -- Customers and their orders, including customers with no orders

```

Commands completed successfully.

(832 rows affected)

Total execution time: 00:00:00.052



	custid	companyname	orderid	orderdate
1	85	Customer ENQZT	10248	2014-07-04
2	79	Customer FAPSM	10249	2014-07-05
3	34	Customer IBVRG	10250	2014-07-08
4	84	Customer NRCSK	10251	2014-07-08
5	76	Customer SFOGW	10252	2014-07-09
6	34	Customer IBVRG	10253	2014-07-10
7	14	Customer WNMAF	10254	2014-07-11
8	68	Customer CCKOT	10255	2014-07-12
9	88	Customer SRQVM	10256	2014-07-15
10	35	Customer UMTLM	10257	2014-07-16
11	20	Customer THHDP	10258	2014-07-17
12	13	Customer VMLOG	10259	2014-07-18
13	56	Customer QNIVZ	10260	2014-07-19
14	61	Customer WULWD	10261	2014-07-19
15	65	Customer NYUHS	10262	2014-07-22
16	20	Customer THHDP	10263	2014-07-23
17	24	Customer CYZTN	10264	2014-07-24
18	7	Customer QXVLA	10265	2014-07-25
19	87	Customer ZHYOS	10266	2014-07-26
20	25	Customer A71FD	10267	2014-07-29

5.

```
[64] 1  USE TSQVLV4;
      2  GO
      3  SELECT c.custid,c.companyname
      4  FROM sales.Customers AS C
      5       LEFT OUTER JOIN sales.orders AS O
      6       On c.custid = o.custid
      7  WHERE O.orderid IS NULL
      8  -- LEFT OUTER JOIN
      9  -- Customers and their orders, including customers with no orders
```

Commands completed successfully.

(2 rows affected)

Total execution time: 00:00:00.039



	custid	companyname
1	22	Customer DTDMM
2	57	Customer WVAXS

-- 6

-- Return customers with orders placed on Feb 12, 2016 along with their orders

-- Tables involved: TSQVLV4 database, Customers and Orders tables

6.

-- 6

-- Return customers with orders placed on Feb 12, 2016 along with their orders

-- Tables involved: TSQLV4 database, Customers and Orders tables

```
[60] 1  USE TSQLV4;
      2  GO
      3  SELECT
      4      c.custid, c.companyname, o.orderid, o.orderdate
      5  FROM sales.Customers AS C
      6      LEFT OUTER JOIN sales.orders AS O
      7      on c.custid = o.custid
      8  WHERE o.orderdate = '2016-02-12'
```

Commands completed successfully.

(3 rows affected)

Total execution time: 00:00:00.050



	custid ▾	companyname ▾	orderid ▾	orderdate ▾
1	48	Customer DVFMB	10883	2016-02-12
2	45	Customer QXPPT	10884	2016-02-12
3	76	Customer SFOGW	10885	2016-02-12

7.



```
1  USE TSQLV4;
2  GO
3  SELECT c.custid, c.companyname, o.orderid,
4         O.orderdate
5  FROM sales.Customers AS C
6       LEFT OUTER JOIN sales.Orders AS O
7       ON C.custid = O.custid
8       --AND DATEADD(day, 0, CAST('20160211' AS DATE)) = O.orderdate
9       AND o.orderdate = '20160212'
```

Commands completed successfully.

(91 rows affected)

Total execution time: 00:00:00.050



	custid	companyname	orderid	orderdate
3	3	Customer KBUDE	NULL	NULL
4	4	Customer HFBZG	NULL	NULL
5	5	Customer HGVLZ	NULL	NULL
6	6	Customer XHXJV	NULL	NULL
7	7	Customer QXVLA	NULL	NULL
8	8	Customer QUHWH	NULL	NULL
9	9	Customer RTXGC	NULL	NULL
10	10	Customer EEALV	NULL	NULL
11	11	Customer UBHAU	NULL	NULL
12	12	Customer PSNMQ	NULL	NULL
13	13	Customer VMLOG	NULL	NULL
14	14	Customer WNMAF	NULL	NULL
15	15	Customer JUWXX	NULL	NULL
16	16	Customer GYBBY	NULL	NULL
17	17	Customer FEVNN	NULL	NULL
18	18	Customer BSVAR	NULL	NULL
19	19	Customer RFNQC	NULL	NULL
20	20	Customer THHDP	NULL	NULL
21	21	Customer KIDPX	NULL	NULL
22	22	Customer DTD MN	NULL	NULL

8.

-- 8 (Optional, Advanced)

-- Explain why the following query isn't a correct solution query for exercise 7.

```
1
2
3 SELECT C.custid, C.companyname, O.orderid, O.orderdate
4 FROM Sales.Customers AS C
5 LEFT OUTER JOIN Sales.Orders AS O
6   ON O.custid = C.custid
7 WHERE O.orderdate = '20160212'
8    OR O.orderid IS NULL;
9
10
11 --WHERE O.orderdate = '20160212'
12 --OR O.orderid IS NULL;
13
14 --ANSWER: WHERE Clause select date with '20160212' only and OR select order.id NULL ONLY, this will result those rows contain null date and null id to be filtered.
```

(5 rows affected)

Total execution time: 00:00:00.028

	custid	companyname	orderid	orderdate
1	48	Customer DVFMB	10883	2016-02-12
2	45	Customer QXPPT	10884	2016-02-12
3	76	Customer SFOGW	10885	2016-02-12
4	22	Customer DTDWN	NULL	NULL
5	57	Customer WVAXS	NULL	NULL

9.

```

1  USE TSQVLV4;
2  GO
3  SELECT C.custid,C.companyname, HasOrderOn20160212 =
4  CASE
5  WHEN O.orderdate = '20160212' THEN 'YES'
6  ELSE 'NO'
7  END
8  FROM sales.Customers AS C
9  LEFT OUTER JOIN sales.orders AS O
10 ON O.custid = C.custid AND O.orderdate = '20160212'
11

```

Commands completed successfully.

(91 rows affected)

Total execution time: 00:00:00.044



	custid	companyname	HasOrderOn20160212
5	5	Customer HGVLZ	NO
6	6	Customer XHXJV	NO
7	7	Customer QXVLA	NO
8	8	Customer QUHWH	NO
9	9	Customer RTXGC	NO
10	10	Customer EEALV	NO
11	11	Customer UBHAU	NO
12	12	Customer PSNMQ	NO
13	13	Customer VMLOG	NO
14	14	Customer WNMAF	NO
15	15	Customer JUWXX	NO
16	16	Customer GYBBY	NO
17	17	Customer FEVNN	NO
18	18	Customer BSVAR	NO
19	19	Customer RFNQC	NO
20	20	Customer THHDP	NO
21	21	Customer KIDPX	NO
22	22	Customer DTDMM	NO
23	23	Customer WVFAF	NO
24	24	Customer CYZTN	NO