

Announcing New Batch

ORACLE 11g (SQL, PL/SQL) (With Industry Oriented Problem Solution Approach)

Sathish Yellanki



Batch Starts on 25th June 2018

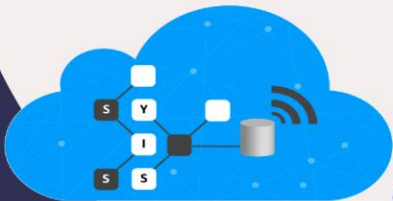


Time: 9am-10am
(Class Room and On-Line)

HIGHLIGHTS OF THE COURSE



Full Coverage On Sub-Queries.
Building Indexes For Performance.
Data Warehouse Using OLAP Queries.
Understanding PL/SQL Collections.
Control Structures in PL/SQL.
Business Transactions With Cursors.



For Registration Contact

040-23710047, 9985798869



9985798869

SkyEss Techno Solutions Pvt. Ltd.

Flat No. 201, II Floor, Abhilash Towers, BK Guda, Hyderabad – 500 038

Ph No. 040 23710047, Mobile: 9985798869, **WhatsApp:9985798869**

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SQL> cl scr

```
SQL> SELECT
  2  Ename,
  3  HireDate,
  4  COUNT(*)
  5  OVER
  6  (
  7  ORDER BY HireDate ASC
  8  RANGE 100 PRECEDING
  9  ) HireCnt
 10  FROM Emp
 11  ORDER BY HireDate ASC;
```

ENAME	HIREDATE	HIRECNT
SMITH	17-DEC-80	1
ALLEN	20-FEB-81	2
WARD	22-FEB-81	3
JONES	02-APR-81	3
BLAKE	01-MAY-81	4
CLARK	09-JUN-81	3
TURNER	08-SEP-81	2
MARTIN	28-SEP-81	2
KING	17-NOV-81	3
JAMES	03-DEC-81	5
FORD	03-DEC-81	5
MILLER	23-JAN-82	4
SCOTT	09-DEC-82	1
ADAMS	12-JAN-83	2

14 rows selected.

SQL> ED
Wrote file afiedt.buf

```
1  SELECT
2  Ename,
3  HireDate,
4  HireDate - 100 "100Days",
5  COUNT(*)
6  OVER
7  (
8  ORDER BY HireDate ASC
9  RANGE 100 PRECEDING
10 ) HireCnt
```

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```
11 FROM Emp
12* ORDER BY HireDate ASC
SQL> /
```

ENAME	HIREDATE	100Days	HIRECNT
SMITH	17-DEC-80	08-SEP-80	1
ALLEN	20-FEB-81	12-NOV-80	2
WARD	22-FEB-81	14-NOV-80	3
JONES	02-APR-81	23-DEC-80	3
BLAKE	01-MAY-81	21-JAN-81	4
CLARK	09-JUN-81	01-MAR-81	3
TURNER	08-SEP-81	31-MAY-81	2
MARTIN	28-SEP-81	20-JUN-81	2
KING	17-NOV-81	09-AUG-81	3
JAMES	03-DEC-81	25-AUG-81	5
FORD	03-DEC-81	25-AUG-81	5
MILLER	23-JAN-82	15-OCT-81	4
SCOTT	09-DEC-82	31-AUG-82	1
ADAMS	12-JAN-83	04-OCT-82	2

14 rows selected.

```
SQL> ED
Wrote file afiedt.buf
```

```
1  SELECT
2  Ename,
3  HireDate,
4  HireDate - 100 "100Days",
5  COUNT(*)
6  OVER
7  (
8  ORDER BY HireDate ASC
9  RANGE 100 PRECEDING
10 ) HireCnt,
11 SUM(Sal)
12 OVER
13 (
14 ORDER BY HireDate ASC
15 RANGE 100 PRECEDING
16 ) "100DaysSum",
17 AVG(Sal)
18 OVER
19 (
20 ORDER BY HireDate ASC
21 RANGE 100 PRECEDING
```

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```
22 ) "100DaysAvg"
23 FROM Emp
24* ORDER BY HireDate ASC
SQL> /.
```

ENAME	HIREDATE	100Days	HIRECNT	100DaysSum	100DaysAvg
SMITH	17-DEC-80	08-SEP-80	1	800	800
ALLEN	20-FEB-81	12-NOV-80	2	2400	1200
WARD	22-FEB-81	14-NOV-80	3	3650	1216.66667
JONES	02-APR-81	23-DEC-80	3	5825	1941.66667
BLAKE	01-MAY-81	21-JAN-81	4	8675	2168.75
CLARK	09-JUN-81	01-MAR-81	3	8275	2758.33333
TURNER	08-SEP-81	31-MAY-81	2	3950	1975
MARTIN	28-SEP-81	20-JUN-81	2	2750	1375
KING	17-NOV-81	09-AUG-81	3	7750	2583.33333
JAMES	03-DEC-81	25-AUG-81	5	11700	2340
FORD	03-DEC-81	25-AUG-81	5	11700	2340
MILLER	23-JAN-82	15-OCT-81	4	10250	2562.5
SCOTT	09-DEC-82	31-AUG-82	1	3000	3000
ADAMS	12-JAN-83	04-OCT-82	2	4100	2050

14 rows selected.

```
SQL> ED
Wrote file afiedt.buf
```

```
1  SELECT
2  Ename,
3  HireDate,
4  Sal,
5  COUNT(*)
6  OVER
7  (
8  ORDER BY HireDate ASC
9  RANGE 100 PRECEDING
10 ) HireCnt,
11 SUM(Sal)
12 OVER
13 (
14 ORDER BY HireDate ASC
15 RANGE 100 PRECEDING
16 ) "100DaysSum",
17 AVG(Sal)
18 OVER
19 (
20 ORDER BY HireDate ASC
```

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```

21  RANGE 100 PRECEDING
22  ) "100DaysAvg"
23  FROM Emp
24* ORDER BY HireDate ASC
SQL> /

```

ENAME	HIREDATE	SAL	HIRECNT	100DaysSum	100DaysAvg
SMITH	17-DEC-80	800	1	800	800
ALLEN	20-FEB-81	1600	2	2400	1200
WARD	22-FEB-81	1250	3	3650	1216.66667
JONES	02-APR-81	2975	3	5825	1941.66667
BLAKE	01-MAY-81	2850	4	8675	2168.75
CLARK	09-JUN-81	2450	3	8275	2758.33333
TURNER	08-SEP-81	1500	2	3950	1975
MARTIN	28-SEP-81	1250	2	2750	1375
KING	17-NOV-81	5000	3	7750	2583.33333
JAMES	03-DEC-81	950	5	11700	2340
FORD	03-DEC-81	3000	5	11700	2340
MILLER	23-JAN-82	1300	4	10250	2562.5
SCOTT	09-DEC-82	3000	1	3000	3000
ADAMS	12-JAN-83	1100	2	4100	2050

14 rows selected.

```
SQL> cl scr
```

```

SQL> SELECT
2  Ename,
3  HireDate,
4  Sal,
5  LAG(Sal)
6  OVER
7  (
8  ORDER BY HireDate
9  ) PreSal
10 FROM Emp;

```

ENAME	HIREDATE	SAL	PRESAL
SMITH	17-DEC-80	800	
ALLEN	20-FEB-81	1600	800
WARD	22-FEB-81	1250	1600
JONES	02-APR-81	2975	1250
BLAKE	01-MAY-81	2850	2975
CLARK	09-JUN-81	2450	2850
TURNER	08-SEP-81	1500	2450

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```
.....
MARTIN      28-SEP-81      1250      1500
KING        17-NOV-81      5000      1250
JAMES       03-DEC-81       950      5000
FORD        03-DEC-81      3000       950
MILLER      23-JAN-82      1300      3000
SCOTT       09-DEC-82      3000      1300
ADAMS       12-JAN-83      1100      3000
```

14 rows selected.

```
SQL> SELECT
      2  Ename,
      3  HireDate,
      4  Sal,
      5  LAG(Sal, 1, 0)
      6  OVER
      7  (
      8   ORDER BY HireDate
      9  ) PreSal
     10 FROM Emp;
```

ENAME	HIREDATE	SAL	PRESAL
SMITH	17-DEC-80	800	0
ALLEN	20-FEB-81	1600	800
WARD	22-FEB-81	1250	1600
JONES	02-APR-81	2975	1250
BLAKE	01-MAY-81	2850	2975
CLARK	09-JUN-81	2450	2850
TURNER	08-SEP-81	1500	2450
MARTIN	28-SEP-81	1250	1500
KING	17-NOV-81	5000	1250
JAMES	03-DEC-81	950	5000
FORD	03-DEC-81	3000	950
MILLER	23-JAN-82	1300	3000
SCOTT	09-DEC-82	3000	1300
ADAMS	12-JAN-83	1100	3000

14 rows selected.

```
SQL> ED
Wrote file afiedt.buf
```

```
1  SELECT
2  Ename,
3  HireDate,
4  Sal,
```

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```
5 LAG(Sal, 2, 0)
6 OVER
7 (
8 ORDER BY HireDate
9 ) PreSal
10* FROM Emp
SQL> /
```

ENAME	HIREDATE	SAL	PRESAL
SMITH	17-DEC-80	800	0
ALLEN	20-FEB-81	1600	0
WARD	22-FEB-81	1250	800
JONES	02-APR-81	2975	1600
BLAKE	01-MAY-81	2850	1250
CLARK	09-JUN-81	2450	2975
TURNER	08-SEP-81	1500	2850
MARTIN	28-SEP-81	1250	2450
KING	17-NOV-81	5000	1500
JAMES	03-DEC-81	950	1250
FORD	03-DEC-81	3000	5000
MILLER	23-JAN-82	1300	950
SCOTT	09-DEC-82	3000	3000
ADAMS	12-JAN-83	1100	1300

14 rows selected.

SQL> cl scr

```
SQL> SELECT
2 Ename,
3 HireDate,
4 Sal,
5 LEAD(Sal)
6 OVER
7 (
8 ORDER BY HireDate
9 ) NextSal
10 FROM Emp;
```

ENAME	HIREDATE	SAL	NEXTSAL
SMITH	17-DEC-80	800	1600
ALLEN	20-FEB-81	1600	1250
WARD	22-FEB-81	1250	2975
JONES	02-APR-81	2975	2850
BLAKE	01-MAY-81	2850	2450

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```
.....
CLARK      09-JUN-81      2450      1500
TURNER     08-SEP-81      1500      1250
MARTIN     28-SEP-81      1250      5000
KING       17-NOV-81      5000       950
JAMES      03-DEC-81       950      3000
FORD       03-DEC-81      3000      1300
MILLER     23-JAN-82      1300      3000
SCOTT      09-DEC-82      3000      1100
ADAMS      12-JAN-83      1100
```

14 rows selected.

SQL> ED
Wrote file afiedt.buf

```
1  SELECT
2  Ename,
3  HireDate,
4  LAG(Sal)
5  OVER
6  (
7  ORDER BY HireDate
8  ) PrevSal,
9  Sal,
10 LEAD(Sal)
11 OVER
12 (
13 ORDER BY HireDate
14 ) NextSal
15* FROM Emp
SQL> /
```

ENAME	HIREDATE	PREVSAL	SAL	NEXTSAL
SMITH	17-DEC-80		800	1600
ALLEN	20-FEB-81	800	1600	1250
WARD	22-FEB-81	1600	1250	2975
JONES	02-APR-81	1250	2975	2850
BLAKE	01-MAY-81	2975	2850	2450
CLARK	09-JUN-81	2850	2450	1500
TURNER	08-SEP-81	2450	1500	1250
MARTIN	28-SEP-81	1500	1250	5000
KING	17-NOV-81	1250	5000	950
JAMES	03-DEC-81	5000	950	3000
FORD	03-DEC-81	950	3000	1300
MILLER	23-JAN-82	3000	1300	3000
SCOTT	09-DEC-82	1300	3000	1100

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ADAMS 12-JAN-83 3000 1100

14 rows selected.

SQL> ED

Wrote file afiedt.buf

```
1  SELECT
2  Ename,
3  HireDate,
4  Sal,
5  LEAD(Sal, 1, 0)
6  OVER
7  (
8  ORDER BY HireDate
9  ) NextSal01,
10 LEAD(Sal, 2, 0)
11 OVER
12 (
13 ORDER BY HireDate
14 ) NextSal02,
15 LEAD(Sal, 3, 0)
16 OVER
17 (
18 ORDER BY HireDate
19 ) NextSal03,
20 LEAD(Sal, 4, 0)
21 OVER
22 (
23 ORDER BY HireDate
24 ) NextSal04,
25 LEAD(Sal, 5, 0)
26 OVER
27 (
28 ORDER BY HireDate
29 ) NextSal05
30* FROM Emp
SQL> /
```

ENAME	HIREDATE	SAL	NEXTSAL01	NEXTSAL02	NEXTSAL03
NEXTSAL04	NEXTSAL05				
SMITH	17-DEC-80	800	1600	1250	2975
2850	2450				
ALLEN	20-FEB-81	1600	1250	2975	2850
2450	1500				

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```

WARD      22-FEB-81      1250      2975      2850      2450
1500      1250
JONES     02-APR-81      2975      2850      2450      1500
1250      5000
BLAKE     01-MAY-81      2850      2450      1500      1250
5000      950
CLARK     09-JUN-81      2450      1500      1250      5000
950      3000
TURNER    08-SEP-81      1500      1250      5000      950
3000      1300
MARTIN    28-SEP-81      1250      5000      950      3000
1300      3000
KING      17-NOV-81      5000      950      3000      1300
3000      1100
JAMES     03-DEC-81      950      3000      1300      3000
1100      0
FORD      03-DEC-81      3000      1300      3000      1100
0      0
MILLER    23-JAN-82      1300      3000      1100      0
0      0
SCOTT     09-DEC-82      3000      1100      0      0
0      0
ADAMS     12-JAN-83      1100      0      0      0
0      0
  
```

14 rows selected.

SQL> cl scr

```

SQL> SELECT
  2  Ename,
  3  HireDate,
  4  Sal,
  5  Sal - LAG(Sal, 1, 0)
  6  OVER
  7  (
  8    ORDER BY HireDate
  9  ) DiffPreSal
10  FROM Emp;
  
```

ENAME	HIREDATE	SAL	DIFFPRESAL
SMITH	17-DEC-80	800	800
ALLEN	20-FEB-81	1600	800
WARD	22-FEB-81	1250	-350
JONES	02-APR-81	2975	1725
BLAKE	01-MAY-81	2850	-125

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```
.....
CLARK      09-JUN-81      2450      -400
TURNER     08-SEP-81      1500      -950
MARTIN     28-SEP-81      1250      -250
KING       17-NOV-81      5000      3750
JAMES      03-DEC-81        950     -4050
FORD       03-DEC-81      3000      2050
MILLER     23-JAN-82      1300     -1700
SCOTT      09-DEC-82      3000      1700
ADAMS      12-JAN-83      1100     -1900
```

14 rows selected.

```
SQL> SELECT
      2  Ename,
      3  HireDate,
      4  Sal,
      5  Sal - LEAD(Sal, 1, 0)
      6  OVER
      7      (
      8      ORDER BY HireDate
      9      ) DiffNextSal
     10 FROM Emp;
```

ENAME	HIREDATE	SAL	DIFFNEXTSAL
SMITH	17-DEC-80	800	-800
ALLEN	20-FEB-81	1600	350
WARD	22-FEB-81	1250	-1725
JONES	02-APR-81	2975	125
BLAKE	01-MAY-81	2850	400
CLARK	09-JUN-81	2450	950
TURNER	08-SEP-81	1500	250
MARTIN	28-SEP-81	1250	-3750
KING	17-NOV-81	5000	4050
JAMES	03-DEC-81	950	-2050
FORD	03-DEC-81	3000	1700
MILLER	23-JAN-82	1300	-1700
SCOTT	09-DEC-82	3000	1900
ADAMS	12-JAN-83	1100	1100

14 rows selected.

```
SQL> cl scr
```

```
SQL> COLUMN Remarks FORMAT A30
```

```
SQL> SELECT
      2  E1.Ename,
```

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```
3  E1.HireDate,
4  E1.Sal,
5  ABS(E1.DiffNextSal) || DECODE
6      (
7      SIGN(E1.DiffNextSal),
8      1, ' More Than Next Salary.',
9      -1, ' Less Than Next Salary.',
10     ' Salaries Equal.'
11     ) Remarks
12 FROM
13   (
14   SELECT
15     Ename,
16     HireDate,
17     Sal,
18     Sal - LEAD(Sal, 1, 0)
19         OVER
20         (
21         ORDER BY HireDate
22         ) DiffNextSal
23   FROM   Emp
24   ) E1;
```

ENAME	HIREDATE	SAL	REMARKS
SMITH	17-DEC-80	800	800 Less Than Next Salary.
ALLEN	20-FEB-81	1600	350 More Than Next Salary.
WARD	22-FEB-81	1250	1725 Less Than Next Salary.
JONES	02-APR-81	2975	125 More Than Next Salary.
BLAKE	01-MAY-81	2850	400 More Than Next Salary.
CLARK	09-JUN-81	2450	950 More Than Next Salary.
TURNER	08-SEP-81	1500	250 More Than Next Salary.
MARTIN	28-SEP-81	1250	3750 Less Than Next Salary.
KING	17-NOV-81	5000	4050 More Than Next Salary.
JAMES	03-DEC-81	950	2050 Less Than Next Salary.
FORD	03-DEC-81	3000	1700 More Than Next Salary.
MILLER	23-JAN-82	1300	1700 Less Than Next Salary.
SCOTT	09-DEC-82	3000	1900 More Than Next Salary.
ADAMS	12-JAN-83	1100	1100 More Than Next Salary.

14 rows selected.

SQL> cl scr

SQL> COLUMN Remarks FORMAT A40

SQL> SELECT

2 E1.Deptno,

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```
3  E1.DeptSalSum,
4  ABS(E1.DeptSalSum - NextSal)||
5  DECODE
6  (
7    NVL
8      (
9        SIGN(E1.DeptSalSum - NextSal), 0
10     ),
11  1, ' More Budget Than Next Department',
12  -1, ' Less Budget Than Next Department',
13  0, ' Terminating Department'
14  ) Remarks
15  FROM
16  (
17    SELECT
18    Deptno,
19    SUM(Sal) DeptSalSum,
20    LEAD(SUM(Sal), 1, NULL)
21    OVER
22      (
23        ORDER BY Deptno
24      ) NextSal
25  FROM Emp
26  GROUP BY Deptno
27  ) E1;
```

DEPTNO	DEPTSALSUM	REMARKS
10	8750 2125	Less Budget Than Next Department
20	10875 1475	More Budget Than Next Department
30	9400	Terminating Department

SQL> cl scr

```
SQL> BREAK ON Deptno SKIP 1
SQL> COLUMN DaysDiff FORMAT A40
SQL> COLUMN DEPTNO FORMAT 99
SQL> COLUMN ENAME FORMAT A10
SQL> SELECT
2  Deptno,
3  Ename,
4  HireDate,
5  LAG(HireDate, 1, NULL)
6  OVER
7  (
8    PARTITION BY Deptno
9    ORDER BY HireDate, Ename
```

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```
10 ) Last_Hire,
11 NVL
12 (
13 HireDate - LAG(HireDate, 1, Null)
14 OVER
15 (
16 PARTITION BY Deptno
17 ORDER BY HireDate, Ename
18 ), 0
19 )||' Days of Difference.' DaysDiff
20 FROM Emp
21 ORDER BY DeptNo, HireDate;
```

DEPTNO	ENAME	HIREDATE	LAST_HIRE	DAYSDIFF
10	CLARK	09-JUN-81		0 Days of Difference.
	KING	17-NOV-81	09-JUN-81	161 Days of Difference.
	MILLER	23-JAN-82	17-NOV-81	67 Days of Difference.
20	SMITH	17-DEC-80		0 Days of Difference.
	JONES	02-APR-81	17-DEC-80	106 Days of Difference.
	FORD	03-DEC-81	02-APR-81	245 Days of Difference.
	SCOTT	09-DEC-82	03-DEC-81	371 Days of Difference.
	ADAMS	12-JAN-83	09-DEC-82	34 Days of Difference.
30	ALLEN	20-FEB-81		0 Days of Difference.
	WARD	22-FEB-81	20-FEB-81	2 Days of Difference.
	BLAKE	01-MAY-81	22-FEB-81	68 Days of Difference.
	TURNER	08-SEP-81	01-MAY-81	130 Days of Difference.
	MARTIN	28-SEP-81	08-SEP-81	20 Days of Difference.
	JAMES	03-DEC-81	28-SEP-81	66 Days of Difference.

14 rows selected.

SQL> cl scr

```
SQL> SELECT
2  Ename,
3  Deptno,
4  Sal,
5  FIRST_VALUE (Ename)
6  OVER
7  (
8  PARTITION BY DeptNo
9  ORDER BY Sal DESC
```

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```
10 ) FIRST_VALUE
11 FROM Emp
12 ORDER BY Deptno, Sal DESC, Ename DESC;
```

ENAME	DEPTNO	SAL	FIRST_VALU
KING	10	5000	KING
CLARK		2450	KING
MILLER		1300	KING
SCOTT	20	3000	SCOTT
FORD		3000	SCOTT
JONES		2975	SCOTT
ADAMS		1100	SCOTT
SMITH		800	SCOTT
BLAKE	30	2850	BLAKE
ALLEN		1600	BLAKE
TURNER		1500	BLAKE
WARD		1250	BLAKE
MARTIN		1250	BLAKE
JAMES		950	BLAKE

14 rows selected.

```
SQL> COL DeptNo DUP
SP2-0158: unknown COLUMN option "DUP"
SQL> SET DeptNo DUP
SP2-0158: unknown SET option "DeptNo"
SQL> BREAK ON DeptNo DUp
SQL> cl scr
```

```
SQL> SELECT
  2 Ename,
  3 Deptno,
  4 Sal,
  5 FIRST_VALUE(Ename)
  6 OVER
  7 (
  8 PARTITION BY DeptNo
  9 ORDER BY Sal DESC
 10 ) FIRST_VALUE
 11 FROM Emp
 12 ORDER BY Deptno, Sal DESC, Ename DESC;
```

ENAME	DEPTNO	SAL	FIRST_VALU
-------	--------	-----	------------

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```
-----  
KING          10          5000 KING  
CLARK         10          2450 KING  
MILLER        10          1300 KING  
SCOTT         20          3000 SCOTT  
FORD          20          3000 SCOTT  
JONES         20          2975 SCOTT  
ADAMS         20          1100 SCOTT  
SMITH         20           800 SCOTT  
BLAKE         30          2850 BLAKE  
ALLEN         30          1600 BLAKE  
TURNER        30          1500 BLAKE  
WARD          30          1250 BLAKE  
MARTIN        30          1250 BLAKE  
JAMES         30           950 BLAKE
```

14 rows selected.

SQL> ED

Wrote file afiedt.buf

```
1  SELECT  
2  Ename,  
3  Deptno,  
4  Sal,  
5  FIRST_VALUE(Ename)  
6  OVER  
7  (  
8  PARTITION BY DeptNo  
9  ORDER BY Sal DESC  
10 ) FIRST_VALUE,  
11 LAST_VALUE(Ename)  
12 OVER  
13 (  
14 PARTITION BY DeptNo  
15 ORDER BY Sal DESC  
16 ) LAST_VALUE  
17 FROM Emp  
18* ORDER BY Deptno, Sal DESC, Ename DESC  
SQL> /
```

ENAME	DEPTNO	SAL	FIRST_VALU	LAST_VALUE
KING	10	5000	KING	KING
CLARK	10	2450	KING	CLARK
MILLER	10	1300	KING	MILLER
SCOTT	20	3000	SCOTT	FORD

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```
.....
FORD          20          3000 SCOTT      FORD
JONES         20          2975 SCOTT      JONES
ADAMS         20          1100 SCOTT      ADAMS
SMITH         20           800 SCOTT      SMITH
BLAKE         30          2850 BLAKE      BLAKE
ALLEN         30          1600 BLAKE      ALLEN
TURNER        30          1500 BLAKE      TURNER
WARD          30          1250 BLAKE      MARTIN
MARTIN        30          1250 BLAKE      MARTIN
JAMES         30           950 BLAKE      JAMES
```

14 rows selected.

SQL> ED
Wrote file afiedt.buf

```
1  SELECT
2  Ename,
3  Deptno,
4  Sal,
5  FIRST_VALUE(Ename)
6  OVER
7  (
8  PARTITION BY DeptNo
9  ORDER BY Sal DESC
10 ) FIRST_VALUE,
11 LAST_VALUE(Ename)
12 OVER
13 (
14 PARTITION BY DeptNo
15 ORDER BY Sal DESC
16 ROWS BETWEEN
17 UNBOUNDED PRECEDING AND
18 UNBOUNDED FOLLOWING
19 ) LAST_VALUE
20 FROM Emp
21* ORDER BY Deptno, Sal DESC, Ename DESC
SQL> /
```

ENAME	DEPTNO	SAL	FIRST_VALU	LAST_VALUE
KING	10	5000	KING	MILLER
CLARK	10	2450	KING	MILLER
MILLER	10	1300	KING	MILLER
SCOTT	20	3000	SCOTT	SMITH
FORD	20	3000	SCOTT	SMITH
JONES	20	2975	SCOTT	SMITH

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```
ADAMS          20          1100 SCOTT      SMITH
SMITH          20           800 SCOTT      SMITH
BLAKE          30         2850 BLAKE      JAMES
ALLEN          30         1600 BLAKE      JAMES
TURNER         30         1500 BLAKE      JAMES
WARD           30         1250 BLAKE      JAMES
MARTIN         30         1250 BLAKE      JAMES
JAMES          30           950 BLAKE      JAMES
```

14 rows selected.

```
SQL> ED
Wrote file afiedt.buf
```

```
1  SELECT
2  Ename,
3  Deptno,
4  Sal,
5  FIRST_VALUE(Ename)
6  OVER
7  (
8  PARTITION BY DeptNo
9  ORDER BY Sal DESC
10 ROWS BETWEEN
11 UNBOUNDED PRECEDING AND
12 UNBOUNDED FOLLOWING
13 ) FIRST_VALUE,
14 LAST_VALUE(Ename)
15 OVER
16 (
17 PARTITION BY DeptNo
18 ORDER BY Sal DESC
19 ROWS BETWEEN
20 UNBOUNDED PRECEDING AND
21 UNBOUNDED FOLLOWING
22 ) LAST_VALUE
23 FROM Emp
24* ORDER BY Deptno, Sal DESC, Ename DESC
SQL> /
```

ENAME	DEPTNO	SAL	FIRST_VALU	LAST_VALUE
KING	10	5000	KING	MILLER
CLARK	10	2450	KING	MILLER
MILLER	10	1300	KING	MILLER
SCOTT	20	3000	SCOTT	SMITH
FORD	20	3000	SCOTT	SMITH

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```
.....
JONES          20          2975 SCOTT      SMITH
ADAMS          20          1100 SCOTT      SMITH
SMITH          20           800 SCOTT      SMITH
BLAKE          30          2850 BLAKE      JAMES
ALLEN          30          1600 BLAKE      JAMES
TURNER         30          1500 BLAKE      JAMES
WARD           30          1250 BLAKE      JAMES
MARTIN         30          1250 BLAKE      JAMES
JAMES          30           950 BLAKE      JAMES
```

14 rows selected.

```
SQL> ED
Wrote file afiedt.buf
```

```
1  SELECT
2  Ename,
3  Deptno,
4  Sal,
5  SUM(Sal)
6  OVER
7  (
8  ORDER BY Sal DESC, Empno
9  ) RunSal
10* FROM Emp
SQL> /
```

ENAME	DEPTNO	SAL	RUNSAL
KING	10	5000	5000
SCOTT	20	3000	8000
FORD	20	3000	11000
JONES	20	2975	13975
BLAKE	30	2850	16825
CLARK	10	2450	19275
ALLEN	30	1600	20875
TURNER	30	1500	22375
MILLER	10	1300	23675
WARD	30	1250	24925
MARTIN	30	1250	26175
ADAMS	20	1100	27275
JAMES	30	950	28225
SMITH	20	800	29025

14 rows selected.

```
SQL> ED
```

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Wrote file afiedt.buf

```
1  SELECT
2  Ename,
3  Deptno,
4  Sal,
5  SUM(Sal)
6  OVER
7  (
8  ORDER BY Sal DESC, Empno
9  ROWS BETWEEN
10 UNBOUNDED PRECEDING AND
11 UNBOUNDED FOLLOWING
12 ) RunSal
13* FROM Emp
SQL> /
```

ENAME	DEPTNO	SAL	RUNSAL
KING	10	5000	29025
SCOTT	20	3000	29025
FORD	20	3000	29025
JONES	20	2975	29025
BLAKE	30	2850	29025
CLARK	10	2450	29025
ALLEN	30	1600	29025
TURNER	30	1500	29025
MILLER	10	1300	29025
WARD	30	1250	29025
MARTIN	30	1250	29025
ADAMS	20	1100	29025
JAMES	30	950	29025
SMITH	20	800	29025

14 rows selected.

```
SQL> ED
Wrote file afiedt.buf
```

```
1  SELECT
2  Ename,
3  Deptno,
4  Sal,
5  SUM(Sal)
6  OVER
7  (
8  ORDER BY Sal DESC, Empno
```

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```
9  ROWS BETWEEN
10 UNBOUNDED PRECEDING AND
11 0 FOLLOWING
12 ) RunSal
13* FROM Emp
SQL> /
```

ENAME	DEPTNO	SAL	RUNSAL
KING	10	5000	5000
SCOTT	20	3000	8000
FORD	20	3000	11000
JONES	20	2975	13975
BLAKE	30	2850	16825
CLARK	10	2450	19275
ALLEN	30	1600	20875
TURNER	30	1500	22375
MILLER	10	1300	23675
WARD	30	1250	24925
MARTIN	30	1250	26175
ADAMS	20	1100	27275
JAMES	30	950	28225
SMITH	20	800	29025

14 rows selected.

```
SQL> ED
Wrote file afiedt.buf
```

```
1  SELECT
2  Ename,
3  Deptno,
4  Sal,
5  SUM(Sal)
6  OVER
7  (
8  ORDER BY Sal DESC, Empno
9  ROWS BETWEEN
10 0 PRECEDING AND
11 UNBOUNDED FOLLOWING
12 ) RunSal
13* FROM Emp
SQL> /
```

ENAME	DEPTNO	SAL	RUNSAL
KING	10	5000	29025

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```
.....
SCOTT      20      3000      24025
FORD       20      3000      21025
JONES      20      2975      18025
BLAKE      30      2850      15050
CLARK      10      2450      12200
ALLEN      30      1600      9750
TURNER     30      1500      8150
MILLER     10      1300      6650
WARD       30      1250      5350
MARTIN     30      1250      4100
ADAMS      20      1100      2850
JAMES      30      950       1750
SMITH      20      800       800
```

14 rows selected.

SQL> ED
Wrote file afiedt.buf

```
1  SELECT
2  Ename,
3  Deptno,
4  Sal,
5  SUM(Sal)
6  OVER
7  (
8  ORDER BY Sal DESC, Empno
9  ROWS BETWEEN
10 1 PRECEDING AND
11 1 FOLLOWING
12 ) RunSal
13* FROM Emp
SQL> /
```

ENAME	DEPTNO	SAL	RUNSAL
KING	10	5000	8000
SCOTT	20	3000	11000
FORD	20	3000	8975
JONES	20	2975	8825
BLAKE	30	2850	8275
CLARK	10	2450	6900
ALLEN	30	1600	5550
TURNER	30	1500	4400
MILLER	10	1300	4050
WARD	30	1250	3800
MARTIN	30	1250	3600

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```
ADAMS          20          1100          3300
JAMES          30           950          2850
SMITH          20           800          1750
```

14 rows selected.

SQL> cl scr

```
SQL> SELECT
  2  ROW_NUMBER()
  3  OVER
  4  (
  5  ORDER BY Sal DESC
  6  NULLS LAST
  7  ) RowNo,
  8  Ename,
  9  Deptno
 10  FROM Emp;
```

ROWNO	ENAME	DEPTNO
1	KING	10
2	SCOTT	20
3	FORD	20
4	JONES	20
5	BLAKE	30
6	CLARK	10
7	ALLEN	30
8	TURNER	30
9	MILLER	10
10	WARD	30
11	MARTIN	30
12	ADAMS	20
13	JAMES	30
14	SMITH	20

14 rows selected.

SQL> ED
Wrote file afiedt.buf

```
1  SELECT
2  ROW_NUMBER()
3  OVER
4  (
5  PARTITION BY Deptno
6  ORDER BY Sal DESC
```

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```
7  NULLS LAST
8  ) RowNo,
9  Ename,
10 Deptno
11* FROM Emp
SQL> /
```

ROWNO	ENAME	DEPTNO
1	KING	10
2	CLARK	10
3	MILLER	10
1	SCOTT	20
2	FORD	20
3	JONES	20
4	ADAMS	20
5	SMITH	20
1	BLAKE	30
2	ALLEN	30
3	TURNER	30
4	MARTIN	30
5	WARD	30
6	JAMES	30

14 rows selected.

```
SQL> ED
Wrote file afiedt.buf
```

```
1  SELECT E1.*
2  FROM
3  (
4  SELECT
5  ROW_NUMBER()
6  OVER
7  (
8  PARTITION BY Deptno
9  ORDER BY Sal DESC
10 NULLS LAST
11 ) RowNo,
12 Ename,
13 Deptno
14 FROM Emp
15 ) E1
16* WHERE E1.RowNo <= 3
SQL> /
```

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```
-----
      ROWNO  ENAME      DEPTNO
-----
          1 KING         10
          2 CLARK         10
          3 MILLER        10
          1 FORD          20
          2 SCOTT          20
          3 JONES          20
          1 BLAKE         30
          2 ALLEN         30
          3 TURNER        30
```

9 rows selected.

```
SQL> SELECT
      2 Deptno,
      3 MAX(DECODE(Seqno, 1, Ename, NULL)) First,
      4 MAX(DECODE(Seqno, 2, Ename, NULL)) Second,
      5 MAX(DECODE(Seqno, 3, Ename, NULL)) Third
      6 FROM
      7 (
      8   SELECT
      9     Deptno,
     10     Ename,
     11     ROW_NUMBER()
     12     OVER
     13       (
     14         PARTITION BY Deptno
     15         ORDER BY Sal DESC NULLS LAST
     16       ) SeqNo
     17   FROM Emp
     18  )
     19 WHERE SeqNo <= 3
     20 GROUP BY Deptno;
```

```
DEPTNO FIRST      SECOND      THIRD
-----
      10 KING      CLARK      MILLER
      20 FORD      SCOTT      JONES
      30 BLAKE      ALLEN      TURNER
```

SQL> SPOOL OFF

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