**Example 24.1**

USE sample;

CREATE TABLE project\_dept

( dept\_name CHAR( 20 ) NOT NULL,

emp\_cnt INT,

budget FLOAT,

date\_month DATE );

**Example 24.2**

USE sample;

INSERT INTO project\_dept VALUES ('Research', 5, 50000, '01.01.2007');

INSERT INTO project\_dept VALUES ('Research', 10, 70000, '02.01.2007');

INSERT INTO project\_dept VALUES ('Research', 5, 65000, '07.01.2007');

INSERT INTO project\_dept VALUES ('Accounting', 5, 10000, '07.01.2007');

INSERT INTO project\_dept VALUES ('Accounting', 10, 40000, '02.01.2007');

INSERT INTO project\_dept VALUES ('Accounting', 6, 30000, '01.01.2007');

INSERT INTO project\_dept VALUES ('Accounting', 6, 40000, '02.01.2008');

INSERT INTO project\_dept VALUES ('Marketing', 6, 100000, '01.01.2008');

INSERT INTO project\_dept VALUES ('Marketing', 10, 180000, '02.01.2008');

INSERT INTO project\_dept VALUES ('Marketing', 3, 100000, '07.01.2008');

INSERT INTO project\_dept VALUES ('Marketing', NULL, 120000, '01.01.2008');

**Example 24.3**

USE sample;

SELECT dept\_name, budget,

SUM( emp\_cnt ) OVER( PARTITION BY dept\_name ) AS emp\_cnt\_sum,

AVG( budget ) OVER( PARTITION BY dept\_name ) AS budget\_avg

FROM project\_dept

WHERE dept\_name IN ('Accounting', 'Research');

**Example 24.4**

USE sample;

SELECT dept\_name, SUM(emp\_cnt) AS cnt, AVG( budget ) AS budget\_avg

FROM project\_dept

WHERE dept\_name IN ('Accounting', 'Research')

GROUP BY dept\_name;

**Example 24.5**

USE sample;

SELECT dept\_name, budget, emp\_cnt,

SUM(budget) OVER(PARTITION BY dept\_name ORDER BY budget) AS sum\_dept

FROM project\_dept;

**Example 24.6**

USE sample;

SELECT dept\_name, budget, emp\_cnt,

SUM(budget) OVER(PARTITION BY dept\_name ORDER BY budget

ROWS BETWEEN UNBOUNDED PRECEDING AND CURRENT ROW)

AS sum\_dept

FROM project\_dept;

**Example 24.7**

USE sample;

SELECT dept\_name, CAST( budget AS INT ) AS budget,

SUM( emp\_cnt ) OVER( PARTITION BY budget ) AS emp\_cnt\_sum,

AVG( budget ) OVER( PARTITION BY dept\_name ) AS budget\_avg

FROM project\_dept

WHERE dept\_name IN ('Accounting', 'Research');

**Example 24.8**

USE sample;

CREATE SEQUENCE Seq START WITH 1 INCREMENT BY 1;

GO

CREATE TABLE T1 (col1 CHAR(10), col2 CHAR(10));

GO

INSERT INTO dbo.T1(col1, col2)

SELECT NEXT VALUE FOR Seq OVER(ORDER BY dept\_name ASC), budget

FROM (SELECT dept\_name, budget

FROM project\_dept

ORDER BY budget, dept\_name DESC

OFFSET 0 ROWS FETCH FIRST 5 ROWS ONLY) AS D;

**Example 24.9**

USE sample;

SELECT dept\_name, emp\_cnt, SUM(budget) sum\_of\_budgets

FROM project\_dept

WHERE dept\_name IN ('Accounting', 'Research')

GROUP BY dept\_name, emp\_cnt;

**Example 24.10**

USE sample;

SELECT dept\_name, emp\_cnt, SUM(budget) sum\_of\_budgets

FROM project\_dept

WHERE dept\_name IN ('Accounting', 'Research')

GROUP BY CUBE (dept\_name, emp\_cnt);

-- Alternative way !!

USE sample;

SELECT dept\_name, emp\_cnt, SUM(budget) sum\_of\_budgets

FROM project\_dept

WHERE dept\_name IN ('Accounting', 'Research')

GROUP BY dept\_name, emp\_cnt

WITH CUBE;

**Example 24.11**

USE sample;

SELECT dept\_name, emp\_cnt, SUM(budget) sum\_of\_budgets

FROM project\_dept

WHERE dept\_name IN ('Accounting', 'Research')

GROUP BY ROLLUP (dept\_name, emp\_cnt);

**Example 24.12**

USE sample;

SELECT dept\_name, emp\_cnt, SUM(budget) sum\_b, GROUPING(emp\_cnt) gr

FROM project\_dept

WHERE dept\_name IN ('Accounting', 'Marketing')

GROUP BY ROLLUP (dept\_name, emp\_cnt);

**Example 24.13**

USE sample;

SELECT dept\_name, YEAR(date\_month), SUM(budget),

GROUPING\_ID (dept\_name, YEAR(date\_month)) AS gr\_dept

FROM project\_dept

GROUP BY ROLLUP (dept\_name, YEAR(date\_month));

**Example 24.14**

USE sample;

SELECT dept\_name, emp\_cnt, SUM(budget) sum\_budgets

FROM project\_dept

WHERE dept\_name IN ('Accounting', 'Research')

GROUP BY GROUPING SETS ((dept\_name, emp\_cnt),(dept\_name));

**Example 24.15**

USE sample;

SELECT RANK() OVER(ORDER BY budget DESC) AS rank\_budget,

dept\_name, emp\_cnt, budget

FROM project\_dept

WHERE budget <= 30000;

**Example 24.16**

USE sample;

SELECT DENSE\_RANK() OVER( ORDER BY budget DESC ) AS dense\_rank,

ROW\_NUMBER() OVER( ORDER BY budget DESC ) AS row\_number,

dept\_name, emp\_cnt, budget

FROM project\_dept

WHERE budget <= 40000;

**Example 24.17**

USE sample;

SELECT date\_month, dept\_name, emp\_cnt, budget,

RANK() OVER( PARTITION BY date\_month ORDER BY emp\_cnt desc ) AS rank

FROM project\_dept;

**Example 24.18**

USE sample;

SELECT dept\_name, budget,

VAR(budget) OVER(PARTITION BY dept\_name) AS budget\_var,

STDEV(budget) OVER(PARTITION BY dept\_name) AS budget\_stdev

FROM project\_dept

WHERE dept\_name in ('Accounting', 'Research');

**Example 24.19**

USE sample;

SELECT TOP (4) dept\_name, budget

FROM project\_dept

ORDER BY budget DESC;

**Example 24.20**

USE sample;

SELECT dept\_name, budget

FROM (SELECT dept\_name, budget,

RANK() OVER (ORDER BY budget DESC) AS rank\_budget

FROM project\_dept) part\_dept

WHERE rank\_budget <= 4;

**Example 24.21**

USE sample;

SELECT TOP (25) PERCENT WITH TIES emp\_cnt, budget

FROM project\_dept

ORDER BY emp\_cnt ASC;

**Example 24.22**

USE sample;

UPDATE TOP (3) project\_dept

SET budget = budget \* 0.9

WHERE budget in (SELECT TOP (3) budget

FROM project\_dept

ORDER BY budget desc);

**Example 24.23**

USE sample;

DELETE TOP (4)

FROM project\_dept

WHERE budget IN

(SELECT TOP (4) budget FROM project\_dept

ORDER BY budget ASC);

**Example 24.24**

USE sample;

SELECT date\_month, budget, ROW\_NUMBER()

OVER (ORDER BY date\_month DESC, budget DESC) as row\_no

FROM project\_dept

ORDER BY date\_month DESC, budget DESC

OFFSET 5 ROWS FETCH NEXT 4 ROWS ONLY;

**Example 24.25**

USE sample;

SELECT \*, ROW\_NUMBER()

OVER (ORDER BY date\_month DESC, budget DESC) as row\_no

FROM (SELECT date\_month, budget

FROM project\_dept

ORDER BY date\_month DESC, budget DESC

OFFSET 5 ROWS FETCH NEXT 4 ROWS ONLY) c;

**Example 24.26**

USE sample;

SELECT dept\_name, budget,

CASE NTILE(3) OVER (ORDER BY budget ASC)

WHEN 1 THEN 'Low'

WHEN 2 THEN 'Medium'

WHEN 3 THEN 'High'

END AS groups

FROM project\_dept;

**Example 24.27**

USE sample;

SELECT budget, month(date\_month) as month, year(date\_month) as year

INTO project\_dept\_pivot

FROM project\_dept;

**Example 24.28**

USE sample;

SELECT year,

SUM(CASE WHEN month = 1 THEN budget END ) AS January,

SUM(CASE WHEN month = 2 THEN budget END ) AS February,

SUM(CASE WHEN month = 7 THEN budget END ) AS July

FROM project\_dept\_pivot

GROUP BY year;

**Example 24.29**

USE sample;

SELECT year, [1] as January, [2] as February, [7] July FROM

(SELECT budget, year, month from project\_dept\_pivot) p2

PIVOT (SUM(budget) FOR month IN ([1],[2],[7])) AS P;

**Example 24.30**

USE sample;

CREATE TABLE project\_dept\_pvt (year int, January float, February float, July float);

INSERT INTO project\_dept\_pvt VALUES (2007, 80000, 110000, 75000);

INSERT INTO project\_dept\_pvt VALUES (2008, 50000, 80000, 30000);

--UNPIVOT the table

SELECT year, month, budget

FROM (SELECT year, January, February, July

FROM project\_dept\_pvt) p

UNPIVOT (budget FOR month IN (January, February, July)

)AS unpvt;

**Example 24.31**

USE AdventureWorks;

SELECT p.LastName, STRING\_AGG(e.EmailAddress,';') Email\_list

FROM person.person p JOIN person.EmailAddress e

ON p.BusinessEntityID = e.BusinessEntityID

WHERE p.FirstName = 'Michael'

GROUP BY LastName;

**Example 24.32**

USE AdventureWorks;

SELECT p.LastName, STRING\_AGG(e.EmailAddress,';')

WITHIN GROUP (ORDER BY EmailAddress) Email\_list

FROM person.person p JOIN person.EmailAddress e

ON p.BusinessEntityID = e.BusinessEntityID

WHERE p.FirstName = 'Michael'

GROUP BY LastName;