**Example 6.1**

USE sample;  
SELECT dept\_no, dept\_name, location  
 FROM department;

**Example 6.2**

USE sample;  
SELECT dept\_name, dept\_no  
   FROM department  
   WHERE location = 'Dallas';

**Example 6.3**

USE sample;  
SELECT emp\_lname, emp\_fname   
   FROM employee  
   WHERE emp\_no >= 15000;

**Example 6.4**

USE sample;  
SELECT project\_name  
   FROM project

  WHERE budget\*0.51 > 60000;

**Example 6.5**

USE sample;  
SELECT project\_no, emp\_no  
   FROM works\_on  
   WHERE project\_no = 'p1'  
   OR project\_no = 'p2';

**Example 6.6 (Example of an Illegal Statement)**

USE sample;  
SELECT emp\_fname, DISTINCT emp\_no  
        FROM employee  
       WHERE emp\_lname = 'Moser';

**Example 6.7**

USE sample;  
SELECT emp\_no, emp\_fname, emp\_lname  
   FROM employee  
   WHERE emp\_no = 25348 AND emp\_lname = 'Smith'  
   OR emp\_fname = 'Matthew' AND dept\_no = 'd1';

SELECT emp\_no, emp\_fname, emp\_lname  
   FROM employee  
   WHERE ((emp\_no = 25348 AND emp\_lname = 'Smith')  
   OR emp\_fname ='Matthew') AND dept\_no = 'd1';

**Example 6.8**

USE sample  
SELECT emp\_no, emp\_lname  
   FROM employee  
   WHERE NOT dept\_no = 'd2';

**Example 6.9**

USE sample;  
SELECT emp\_no, emp\_fname, emp\_lname  
   FROM employee  
   WHERE emp\_no IN (29346, 28559, 25348);

**Example 6.10**

USE sample;  
SELECT emp\_no, emp\_fname, emp\_lname, dept\_no  
   FROM employee  
   WHERE emp\_no NOT IN (10102, 9031);

**Example 6.11**

USE sample;  
SELECT project\_name, budget  
   FROM project  
   WHERE budget BETWEEN 95000 AND 120000;

**Example 6.12**

USE sample;  
SELECT project\_name, budget  
   FROM project  
   WHERE budget >= 95000 AND budget <= 120000;

**Example 6.13**

USE sample;  
SELECT project\_name  
  FROM project  
   WHERE budget NOT BETWEEN 100000 AND 150000;

**Example 6.14**

USE sample;  
SELECT emp\_no, project\_no  
   FROM works\_on  
   WHERE project\_no = 'p2'  
   AND job IS NULL;

**Example 6.15**

USE sample;  
SELECT project\_no, job   
   FROM works\_on  
   WHERE  job <> NULL;

**Example 6.16**

USE sample;  
SELECT emp\_no, ISNULL(job, 'Job unknown') AS task  
   FROM works\_on   
   WHERE project\_no = 'p1';

**Example 6.17**

USE sample;  
SELECT emp\_fname, emp\_lname, emp\_no  
   FROM employee  
   WHERE emp\_fname LIKE '\_a%';

**Example 6.18**

USE sample;  
SELECT \*  
   FROM department  
   WHERE location LIKE '[C-F]%';

**Example 6.19**

USE sample;  
SELECT emp\_no, emp\_fname, emp\_lname  
   FROM employee  
   WHERE emp\_lname LIKE '[^J-O]%'  
   AND emp\_fname LIKE '[^EZ]%';

**Example 6.20**

USE sample;  
SELECT emp\_no, emp\_fname, emp\_lname  
   FROM employee  
   WHERE emp\_fname NOT LIKE '%n';

**Example 6.21**

USE sample;  
SELECT project\_no, project\_name  
   FROM project  
   WHERE project\_name LIKE '%[\_]%';

SELECT project\_no, project\_name  
          FROM project  
          WHERE project\_name LIKE '%!\_%' ESCAPE '!';

**Example 6.22**

USE sample;  
SELECT job  
   FROM works\_on  
 GROUP BY job;

**Example 6.23**

USE sample;  
SELECT project\_no, job  
   FROM works\_on  
  GROUP BY project\_no, job;

**Example 6.24 (Example of an Illegal Statement)**

USE sample;  
SELECT emp\_lname, MIN(emp\_no)  
   FROM employee;

**Example 6.25**

USE sample;  
SELECT MIN(emp\_no) AS min\_employee\_no  
   FROM employee;

**Example 6.26**

USE sample;  
SELECT emp\_no, emp\_lname  
  FROM employee  
   WHERE emp\_no =  
   (SELECT MIN(emp\_no)  
        FROM employee);

**Example 6.27**

USE sample;  
SELECT emp\_no  
 FROM works\_on  
   WHERE enter\_date =  
   (SELECT MAX(enter\_date)  
       FROM works\_on  
       WHERE job = 'Manager');

**Example 6.28**

USE sample;  
SELECT SUM (budget) sum\_of\_budgets  
   FROM project;

**Example 6.29**

SELECT SUM (budget) sum\_of\_budgets  
 FROM project  
 GROUP BY();

**Example 6.30**

USE sample;  
SELECT AVG(budget) avg\_budget  
   FROM project  
   WHERE budget > 100000;

**Example 6.31**

USE sample;  
SELECT project\_no, COUNT(DISTINCT job) job\_count  
  FROM works\_on  
   GROUP BY project\_no;

**Example 6.32**

USE sample;  
SELECT job, COUNT(\*) job\_count  
   FROM works\_on  
  GROUP BY job;

**Example 6.33**

USE sample;  
SELECT project\_no  
   FROM works\_on  
   GROUP BY project\_no  
   HAVING COUNT(\*) < 4;

**Example 6.34**

USE sample;  
SELECT job  
   FROM works\_on  
  GROUP BY job  
   HAVING job LIKE 'M%';

**Example 6.35**

USE sample;  
SELECT emp\_fname, emp\_lname, dept\_no  
   FROM employee  
 WHERE emp\_no < 20000  
   ORDER BY emp\_lname, emp\_fname;

**Example 6.36**

USE sample;  
SELECT project\_no, COUNT(\*) emp\_quantity  
   FROM works\_on  
   GROUP BY project\_no  
   ORDER BY 2 DESC

**Example 6.37**

USE AdventureWorks;

SELECT BusinessEntityID, JobTitle, BirthDate

FROM HumanResources.Employee

WHERE Gender = 'F'

ORDER BY JobTitle

OFFSET 20 ROWS

FETCH NEXT 10 ROWS ONLY;

**Example 6.38**

USE sample;  
CREATE TABLE product  
   (product\_no INTEGER IDENTITY(10000,1) NOT NULL,  
   product\_name CHAR(30) NOT NULL,  
    price MONEY);

SELECT IDENTITYCOL  
         FROM product  
         WHERE product\_name = 'Soap';

**Example 6.39**

USE sample;  
CREATE SEQUENCE dbo.Sequence1

AS INT START WITH 1 INCREMENT BY 5

MINVALUE 1 MAXVALUE 256

CYCLE;

**Example 6.40**

USE sample;  
SELECT NEXT VALUE FOR dbo.sequence1;

SELECT NEXT VALUE FOR dbo.sequence1;

**Example 6.41**

USE sample;  
CREATE TABLE dbo.table1

(column1 INT NOT NULL PRIMARY KEY,

column2 CHAR(10));

INSERT INTO dbo.table1 VALUES (NEXT VALUE FOR dbo.sequence1, 'A');

INSERT INTO dbo.table1 VALUES (NEXT VALUE FOR dbo.sequence1, 'B');

**Example 6.42**

USE sample;  
SELECT current\_value

FROM sys.sequences

WHERE name = 'Sequence1';

**Example 6.43**

USE sample;  
ALTER SEQUENCE dbo.sequence1

RESTART WITH 100

INCREMENT BY 50

MINVALUE 50

MAXVALUE 200

NO CYCLE;

**Example 6.44**

USE sample;  
SELECT emp\_no, emp\_fname, emp\_lname, dept\_no  
   INTO employee\_enh  
   FROM employee;  
ALTER TABLE employee\_enh  
          ADD domicile CHAR(25) NULL;

**Example 6.45**

USE sample;  
SELECT domicile  
 FROM employee\_enh  
UNION  
SELECT location  
   FROM department;

**Example 6.46**

USE sample;  
SELECT emp\_no  
   FROM employee  
  WHERE dept\_no = 'd1'  
UNION  
SELECT emp\_no  
   FROM works\_on  
   WHERE enter\_date < '01.01.2017'  
ORDER BY 1;

**Example 6.47**

USE sample;  
SELECT emp\_no  
   FROM employee  
  WHERE dept\_no = 'd1'  
INTERSECT  
SELECT emp\_no  
   FROM works\_on  
   WHERE enter\_date < '01.01.2018';

**Example 6.48**

USE sample;  
SELECT emp\_no  
   FROM employee  
  WHERE dept\_no = 'd3'  
EXCEPT  
SELECT emp\_no  
   FROM works\_on  
   WHERE enter\_date > '01.01.2018';

**Example 6.49**

USE AdventureWorks;

GO

SELECT ProductNumber, Category =

CASE ProductLine

WHEN 'R' THEN 'Road'

WHEN 'M' THEN 'Mountain'

WHEN 'T' THEN 'Touring'

WHEN 'S' THEN 'Other sale items'

ELSE 'Not for sale'

END,

Name

FROM Production.Product;

**Example 6.50**

USE sample;  
SELECT project\_name,  
    CASE  
      WHEN budget > 0 AND budget < 100000  THEN 1  
      WHEN budget >= 100000 AND budget < 200000  THEN 2  
      WHEN budget >= 200000 AND budget < 300000 THEN 3  
      ELSE 4  
    END budget\_weight  
 FROM project;

USE sample;

SELECT project\_name,

CASE

WHEN p1.budget < (SELECT AVG(p2.budget) FROM project p2)

THEN 'below average'

WHEN p1.budget = (SELECT AVG(p2.budget) FROM project p2)

THEN 'on average'

WHEN p1.budget > (SELECT AVG(p2.budget) FROM project p2)

THEN 'above average'

END budget\_category

FROM project p1;

**Example 6.51**

USE sample;  
SELECT emp\_fname, emp\_lname  
   FROM employee  
   WHERE dept\_no =  
    (SELECT dept\_no  
       FROM department  
      WHERE dept\_name = 'Research');

**Example 6.52**

USE sample;  
SELECT \*  
   FROM employee  
   WHERE dept\_no IN  
   (SELECT dept\_no  
        FROM department  
        WHERE location = 'Dallas');

**Example 6.53**

USE sample;  
SELECT emp\_lname  
   FROM employee  
   WHERE emp\_no IN  
   (SELECT emp\_no  
      FROM works\_on  
      WHERE project\_no IN  
      (SELECT project\_no  
            FROM project  
           WHERE project\_name = 'Apollo'));

**Example 6.54**

USE sample  
SELECT DISTINCT emp\_no, project\_no, job  
   FROM works\_on  
   WHERE enter\_date > ANY   
   (SELECT  enter\_date  
       FROM works\_on)

**Example 6.55**

USE sample;  
CREATE TABLE #project\_temp  
   (project\_no CHAR(4) NOT NULL,  
    project\_name CHAR(25) NOT NULL);

**Example 6.56**

USE sample;  
SELECT project\_no, project\_name  
   INTO #project\_temp  
   FROM project;

**Example 6.57**

Explicit join syntax:

USE sample  
SELECT employee.\*, department.\*  
       FROM employee INNER JOIN department

“Old-style” join syntax:

USE sample;  
SELECT employee.\*, department.\*  
   FROM employee, department  
   WHERE employee.dept\_no = department.dept\_no;

**Example 6.58**

Explicit join syntax:

USE sample;  
SELECT emp\_no, project.project\_no, job, enter\_date, project\_name, budget   
      FROM works\_on JOIN project  
       ON project.project\_no = works\_on.project\_no  
      WHERE project\_name = 'Gemini';

“Old-style” join syntax:

USE sample;  
SELECT emp\_no, project.project\_no, job, enter\_date, project\_name, budget   
   FROM works\_on, project  
   WHERE project.project\_no = works\_on.project\_no  
   AND project\_name = 'Gemini';

**Example 6.59**

USE sample;  
SELECT dept\_no  
     FROM employee JOIN works\_on  
     ON employee.emp\_no = works\_on.emp\_no  
    WHERE enter\_date = '10.15.2017';

**Example 6.60**

USE sample;  
SELECT emp\_fname, emp\_lname  
       FROM works\_on JOIN employee ON works\_on.emp\_no=employee.emp\_no  
                                    JOIN department ON employee.dept\_no=department.dept\_no  
      AND location = 'Seattle'  
     AND job = 'analyst';

**Example 6.61**

USE sample;  
SELECT DISTINCT project\_name  
      FROM project JOIN works\_on  
      ON project.project\_no = works\_on.project\_no  
                 JOIN employee ON works\_on.emp\_no = employee.emp\_no  
                 JOIN department ON employee.dept\_no = department.dept\_no  
     WHERE dept\_name = 'Accounting';

**Example 6.62**

USE sample;  
SELECT employee.\*, department.\*  
    FROM employee CROSS JOIN department;

**Example 6.63**

USE sample;  
SELECT employee\_enh.\*, department.location  
     FROM employee\_enh JOIN department  
            ON domicile = location;

**Example 6.64**

USE sample;  
SELECT employee\_enh.\*, department.location  
      FROM employee\_enh LEFT OUTER JOIN department  
            ON domicile = location;

**Example 6.65**

USE sample;  
SELECT employee\_enh.domicile, department.\*  
      FROM employee\_enh RIGHT OUTER JOIN department  
            ON domicile =location;

**Example 6.66**

USE sample;  
SELECT employee\_enh.\*, department.location  
   FROM employee\_enh JOIN department  
   ON domicile = location  
UNION  
SELECT employee\_enh.\*, 'NULL'  
   FROM employee\_enh  
   WHERE NOT EXISTS  
   (SELECT \*  
       FROM department  
      WHERE location = domicile);

**Example 6.67**

USE sample;  
SELECT emp\_fname, emp\_lname, domicile, location  
   FROM employee\_enh JOIN department  
   ON domicile < location;

**Example 6.68**

USE sample;  
SELECT t1.dept\_no, t1.dept\_name, t1.location  
     FROM department t1 JOIN department t2  
          ON  t1.location = t2.location  
     WHERE t1.dept\_no <> t2.dept\_no;

**Example 6.69**

USE sample;  
SELECT emp\_no, emp\_lname, e.dept\_no  
 FROM employee e JOIN department d  
 ON e.dept\_no = d.dept\_no  
 WHERE location = 'Dallas';

**Example 6.70**

USE sample;  
SELECT emp\_lname  
   FROM employee  
   WHERE 'p3' IN  
   (SELECT project\_no  
       FROM works\_on  
      WHERE works\_on.emp\_no = employee.emp\_no);

**Example 6.71**

USE sample;  
SELECT emp\_lname  
   FROM employee  
   WHERE EXISTS  
   (SELECT \*  
       FROM works\_on  
      WHERE employee.emp\_no = works\_on.emp\_no  
     AND project\_no = 'p1');

**Example 6.72**

USE sample;  
SELECT emp\_lname  
   FROM employee  
   WHERE NOT EXISTS  
   (SELECT \*  
       FROM department  
       WHERE employee.dept\_no = department.dept\_no  
       AND location = 'Seattle');

**Example 6.73**

USE sample  
SELECT emp\_no, enter\_date  
    FROM works\_on  
    WHERE enter\_date = (SELECT min(enter\_date)  
                                             FROM works\_on)

**Example 6.74**

USE sample;  
SELECT employee.emp\_no, emp\_lname, job  
     FROM employee, works\_on  
    WHERE employee.emp\_no = works\_on.emp\_no  
    AND enter\_date = '10.15.2017';

**Example 6.75 (Example of an Illegal Statement)**

USE sample;  
SELECT MONTH(enter\_date) as enter\_month  
FROM works\_on  
 GROUP BY enter\_month;

**Example 6.76**

USE sample;  
SELECT enter\_month  
 FROM (SELECT MONTH(enter\_date) as enter\_month  
 FROM works\_on) AS m  
GROUP BY enter\_month;

**Example 6.77**

USE sample;  
SELECT w.job, (SELECT e.emp\_lname   
 FROM employee e WHERE e.emp\_no = w.emp\_no) AS name  
 FROM works\_on w  
 WHERE w.job IN ('Manager', 'Analyst');

**Example 6.78**

USE AdventureWorks;  
SELECT SalesOrderID  
 FROM Sales.SalesOrderHeader  
 WHERE TotalDue > (SELECT AVG(TotalDue)  
 FROM Sales.SalesOrderHeader  
 WHERE YEAR(OrderDate) = '2002')  
 AND Freight > (SELECT AVG(TotalDue)  
 FROM Sales.SalesOrderHeader  
 WHERE YEAR(OrderDate) = '2002')/2.5;

**Example 6.79**

USE AdventureWorks;  
WITH price\_calc(year\_2002) AS  
 (SELECT AVG(TotalDue)  
 FROM Sales.SalesOrderHeader  
 WHERE YEAR(OrderDate) = '2002')  
SELECT SalesOrderID  
 FROM Sales.SalesOrderHeader  
 WHERE TotalDue > (SELECT year\_2002 FROM price\_calc)  
AND Freight > (SELECT year\_2002 FROM price\_calc)/2.5;

**Example 6.80**

USE sample;  
CREATE TABLE airplane  
 (containing\_assembly VARCHAR(10),  
 contained\_assembly VARCHAR(10),  
 quantity\_contained INT,  
 unit\_cost DECIMAL (6,2));  
insert into airplane values ( 'Airplane', 'Fuselage',1, 10);  
insert into airplane values ( 'Airplane', 'Wings', 1, 11);  
insert into airplane values ( 'Airplane', 'Tail',1, 12);  
insert into airplane values ( 'Fuselage', 'Cockpit', 1, 13);  
insert into airplane values ( 'Fuselage', 'Cabin', 1, 14);  
insert into airplane values ( 'Fuselage', 'Nose',1, 15);  
insert into airplane values ( 'Cockpit', NULL, 1,13);  
insert into airplane values ( 'Cabin', NULL, 1, 14);  
insert into airplane values ( 'Nose', NULL, 1, 15);  
insert into airplane values ( 'Wings', NULL,2, 11);  
insert into airplane values ( 'Tail', NULL, 1, 12);

**Example 6.81**

USE sample;  
WITH list\_of\_parts(assembly1, quantity, cost) AS  
 (SELECT containing\_assembly, quantity\_contained, unit\_cost  
 FROM airplane  
 WHERE contained\_assembly IS NULL  
 UNION ALL  
 SELECT a.containing\_assembly, a.quantity\_contained,  
 CAST(l.quantity\*l.cost AS DECIMAL(6,2))  
 FROM list\_of\_parts l,airplane a   
 WHERE l.assembly1 = a.contained\_assembly )  
SELECT \* FROM list\_of\_parts;

**Example 6.82**

USE sample;  
WITH list\_of\_parts(assembly, quantity, cost) AS  
 (SELECT containing\_assembly, quantity\_contained, unit\_cost  
 FROM airplane  
 WHERE contained\_assembly IS NULL  
 UNION ALL  
 SELECT a.containing\_assembly, a.quantity\_contained,  
 CAST(l.quantity\*l.cost AS DECIMAL(6,2))  
 FROM list\_of\_parts l,airplane a   
 WHERE l.assembly = a.contained\_assembly )  
SELECT assembly, SUM(quantity) parts, SUM(cost) sum\_cost  
 FROM list\_of\_parts  
 GROUP BY assembly;