**-- Example 30.1**

USE sample;

CREATE TABLE beverage\_markets

(id INTEGER IDENTITY(1,1),

name VARCHAR(25),

shape GEOMETRY);

INSERT INTO beverage\_markets

VALUES ('Coke', GEOMETRY::STGeomFromText

('POLYGON ((0 0, 150 0, 150 150, 0 150, 0 0))', 0));

INSERT INTO beverage\_markets

VALUES ('Pepsi', GEOMETRY::STGeomFromText

('POLYGON ((300 0, 150 0, 150 150, 300 150, 300 0))', 0));

INSERT INTO beverage\_markets

VALUES ('7UP', GEOMETRY::STGeomFromText

('POLYGON ((300 0, 150 0, 150 150, 300 150, 300 0))', 0));

INSERT INTO beverage\_markets

VALUES ('Almdudler', GEOMETRY::STGeomFromText('POINT (50 0)', 0));

**-- Example 30.2**

USE sample;

DECLARE @g geometry;

DECLARE @h geometry;

SELECT @h = shape FROM beverage\_markets WHERE name ='Almdudler';

SELECT @g = shape FROM beverage\_markets WHERE name = 'Coke';

SELECT @g.STContains(@h);

**-- Example 30.3**

USE sample;

SELECT id, shape.ToString() AS wkt, shape.STLength() AS length

FROM beverage\_markets

WHERE name = 'Almdudler' ;

**-- Example 30.4**

USE sample;

DECLARE @g geometry;

DECLARE @h geometry;

SELECT @h = shape FROM beverage\_markets WHERE name = 'Coke';

SELECT @g = shape FROM beverage\_markets WHERE name = 'Pepsi';

SELECT @g.STIntersects(@h);

**-- Example 30.5**

USE sample;

DECLARE @poly1 GEOMETRY = 'POLYGON ((1 1, 1 4, 4 4, 4 1, 1 1))';

DECLARE @poly2 GEOMETRY = 'POLYGON ((2 2, 2 6, 6 6, 6 2, 2 2))';

DECLARE @result GEOMETRY;

SELECT @result = @poly1.STIntersection(@poly2);

SELECT @result.STAsText();

**-- Example 30.6**

USE AdventureWorks;

SELECT SpatialLocation, City

FROM Person.Address

WHERE City = 'Dallas';

**-- Example 30.7**

USE sample;

GO

ALTER TABLE beverage\_markets

ADD CONSTRAINT prim\_key PRIMARY KEY(id);

GO

CREATE SPATIAL INDEX i\_spatial\_shape

ON beverage\_markets(shape)

USING GEOMETRY\_GRID

WITH (BOUNDING\_BOX = ( xmin=0, ymin=0, xmax=500, ymax=200 ),

GRIDS = (LOW, LOW, MEDIUM, HIGH), PAD\_INDEX = ON );

**-- Example 30.8**

CREATE SPATIAL INDEX auto\_grid\_index

ON beverage\_markets(shape)

USING GEOMETRY\_AUTO\_GRID

WITH (BOUNDING\_BOX = (xmin=0, ymin=0, xmax=500, ymax=200 ),

CELLS\_PER\_OBJECT = 32, DATA\_COMPRESSION = page);

**-- Example 30.9**

USE sample;

SELECT object\_id, name, type\_desc

FROM sys.spatial\_indexes;

**-- Example 30.10**

USE sample;

DECLARE @rectangle1 GEOMETRY = 'POLYGON((1 1, 1 4, 4 4, 4 1, 1 1))';

DECLARE @line GEOMETRY = 'LINESTRING (0 2, 4 4)';

SELECT @rectangle1

UNION ALL

SELECT @line

**-- Example 30.11**

DECLARE @g1 geometry =

'MultiPolygon(((2 0, 3 1, 2 2, 1.5 1.5, 2 1, 1.5 0.5, 2 0)),

((1 0, 1.5 0.5, 1 1, 1.5 1.5, 1 2, 0 1, 1 0)))';

select @g1

**-- Example 30.12**

DECLARE @query geometry

='POLYGON((-90.0 -180.0, -90.0 180.0, 90.0 180.0, 90.0 -180.0, -90.0 -180.0))';

EXEC sp\_help\_spatial\_geometry\_index

'beverage\_markets', 'auto\_grid\_index', 0, @query;

**-- Example 30.13**

USE sample;

CREATE TABLE dept\_temp

(dept\_no CHAR(4) NOT NULL PRIMARY KEY CLUSTERED,

dept\_name CHAR(25) NOT NULL,

location CHAR(30) NULL,

start\_date DATETIME2 GENERATED ALWAYS AS ROW START HIDDEN,

end\_date DATETIME2 GENERATED ALWAYS AS ROW END HIDDEN,

PERIOD FOR SYSTEM\_TIME (start\_date, end\_date))

WITH (SYSTEM\_VERSIONING = ON (HISTORY\_TABLE = dbo.Dept\_History));

**-- Example 30.14**

INSERT INTO dept\_temp (dept\_no, dept\_name, location)

VALUES ('d1', 'Research', 'Dallas' );

INSERT INTO dept\_temp (dept\_no, dept\_name, location)

VALUES ('d2', 'Accounting', 'Seattle');

INSERT INTO dept\_temp (dept\_no, dept\_name, location)

VALUES ('d3', 'Marketing', 'Dallas');

**-- Example 30.15**

UPDATE dept\_temp

SET location = 'Houston'

WHERE dept\_no = 'd1';

**-- Example 30.16**

USE sample;

DELETE FROM dept\_temp

WHERE dept\_no = 'd2';

**-- Example 30.17**

USE sample;

SELECT \* FROM dept\_temp

FOR SYSTEM\_TIME AS OF '2015-06-20 06:41:07.2902041';

**-- Example 30.18**

USE sample;

SELECT \* FROM dept\_temp FOR SYSTEM\_TIME

FROM '2015-06-19 06:41:07.2902041' TO '2015-06-20 06:41:07.2902041' ;

**-- Example 30.19**

USE sample;

SELECT name, type\_desc FROM sys.tables

WHERE object\_id IN (SELECT object\_id FROM sys.periods);

**--Example 30.20**

SELECT temporal\_type

FROM sys.tables

WHERE object\_id = OBJECT\_ID('dbo.dept\_temp', 'U');

**-- Example 30.21**

USE sample;

ALTER TABLE department ADD PRIMARY KEY (dept\_no);

GO

ALTER TABLE department ADD

SysStartTime datetime2 NOT NULL DEFAULT GETUTCDATE(),

SysEndTime datetime2 NOT NULL DEFAULT CONVERT(DATETIME2, '9999-12-31 23:59:59.99999999')

GO

ALTER TABLE department

ADD PERIOD FOR SYSTEM\_TIME (SysStartTime, SysEndTime);

GO

ALTER TABLE department

alter column SysStartTime ADD HIDDEN;

GO

ALTER TABLE department

alter column SysEndTime ADD HIDDEN;

ALTER TABLE department

SET (SYSTEM\_VERSIONING = ON

(HISTORY\_TABLE = dbo.department\_history, DATA\_CONSISTENCY\_CHECK = ON));

**-- Example 30.22**

USE sample;

ALTER TABLE department set (SYSTEM\_VERSIONING = OFF);

GO

DROP TABLE dbo.department;

GO

DROP TABLE dbo.department\_history;