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SQLDay 2018

Identity, Sequence and ROW_NUMBER

Itzik Ben-Gan, SolidQ

Source code: http://tsql.solidq.com/
(go to Resources, Downloads, Source Code for Recent Conferences)

Meet Itzik Ben-Gan | @ItzikBenGan

- T-SQL trainer and co-founder, SolidQ
  - Delivering T-SQL training around the world
    (see courses at http://tsql.solidq.com/)
  - Author of many T-SQL books
  - Columnist, sqlperformance.com
  - Regular speaker at events like SQL PASS and SQLBits
 - Over 25 years of experience with SQL and databases

Agenda

- Sequences vs. Identity
- Performance Test
- Generating a Sequence with ROW_NUMBER

Sequences vs. Identity

Aspect	Identity	Sequence
Table-independent	No	Yes
Can associate/disassociate with an existing column	No	Yes
Used with a NULLable column	No	Yes
Obtain value before use	No	Yes
Used in SELECT	No * IDENTITY() function can be used in SELECT INTO	Yes
Control order	Not in SELECT INTO Yes in INSERT SELECT	Yes
Used in UPDATE	No	Yes
Can define minimum and maximum values	No	Yes
Can cycle	No	Yes
Can change current value	Yes	Yes
Can change increment	No	Yes
Supports user-defined cache value	No, can disable with TF272	scoped config (2017+)	Yes
Default cache value	Depends on type (TINYINT-10, SMALLINT-100, INT-1000, BIGINT and NUMERIC-10000)	50
Affected by rollback	No	No
Requires log flush on write to disk	No	Yes
Obtain range of values	No	Yes

Performance Test
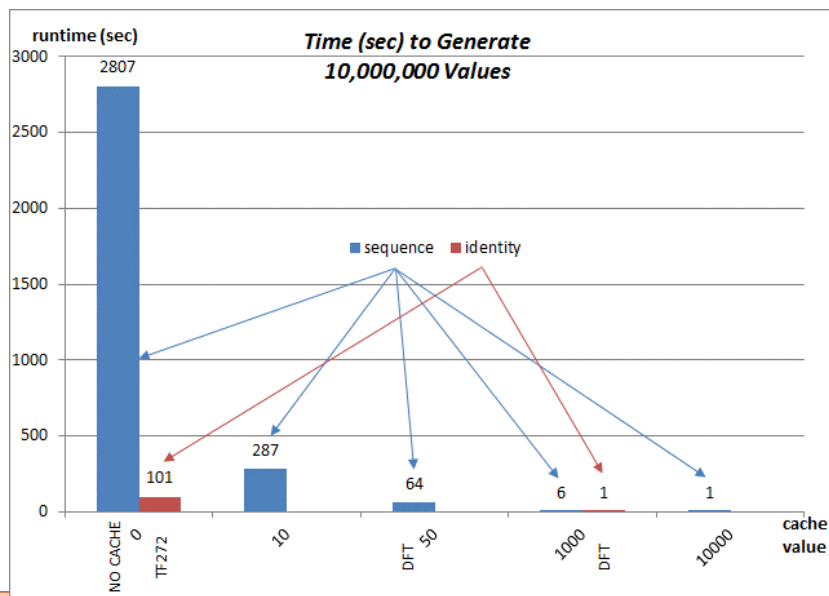
Generating a Sequence with ROW_NUMBER

```
CREATE FUNCTION dbo.GetNums(@low AS BIGINT, @high AS BIGINT) RETURNS TABLE
AS
RETURN
  WITH
    L0   AS (SELECT c FROM (SELECT 1 UNION ALL SELECT 1) AS D(c)),
    L1   AS (SELECT 1 AS c FROM L0 AS A CROSS JOIN L0 AS B),
    L2   AS (SELECT 1 AS c FROM L1 AS A CROSS JOIN L1 AS B),
    L3   AS (SELECT 1 AS c FROM L2 AS A CROSS JOIN L2 AS B),
    L4   AS (SELECT 1 AS c FROM L3 AS A CROSS JOIN L3 AS B),
    L5   AS (SELECT 1 AS c FROM L4 AS A CROSS JOIN L4 AS B),
    Nums AS (SELECT ROW_NUMBER() OVER(ORDER BY (SELECT NULL)) AS rownum
              FROM L5)
  SELECT TOP(@high - @low + 1) @low + rownum - 1 AS n
  FROM Nums
  ORDER BY rownum;
GO
```
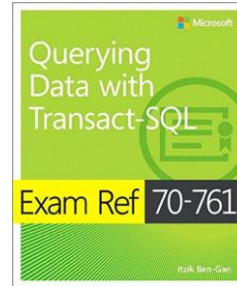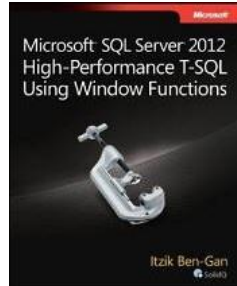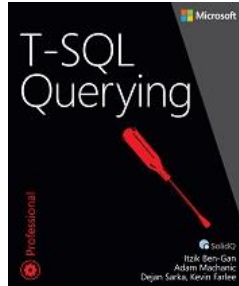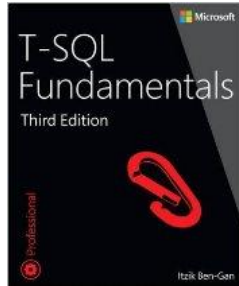
Review

- Sequences vs. Identity
- Performance Test
- Generating a Sequence with ROW_NUMBER

More Info

5-day Advanced T-SQL class

For details, see http://tsql.solidq.com

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Questions?

Thanks!

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