

Milestone 7 Bewijs in PDF

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Overzicht vergelijking:

```
[2023-05-14 21:30:24] De tabellen zijn leeggemaakt
[2023-05-14 21:30:24] 4.1 generateSchools(20)
[2023-05-14 21:30:24]   generateSchools(20) generated 20 schools
[2023-05-14 21:30:24] 5.1 We already have 20 schools --> Skip schools
[2023-05-14 21:30:24] 5.2 generateClassesForEachSchool(40)
[2023-05-14 21:30:24]   generateClassesForEachSchool(40) generated 800 classes
[2023-05-14 21:30:24] 5.3 generatePupilsForEachClass(50)
[2023-05-14 21:30:26]   generatePupilsForEachClass(50) generated 40000 pupils
[2023-05-14 21:30:26] The duration of generate_2_levels was: 1,63 s
[2023-05-14 21:30:26] De tabellen zijn leeggemaakt
[2023-05-14 21:30:26] 1.1 generateSchools_bulk(20)
[2023-05-14 21:30:26]   generateSchools_bulk(20) generated 20 schools
[2023-05-14 21:30:26] 2.1 We already have 20 schools --> Skip schools
[2023-05-14 21:30:26] 2.2 generateClassesForEachSchool_bulk(40)
[2023-05-14 21:30:26]   generateClassesForEachSchool_bulk(40) generated 800 classes
[2023-05-14 21:30:26] 2.3 generatePupilsForEachClass_bulk(50)
[2023-05-14 21:30:27]   generatePupilsForEachClass_bulk(50) generated 40000 pupils
[2023-05-14 21:30:27] The duration of generate_2_levels_bulk was: ,89 s
[2023-05-14 21:30:27] =====
[2023-05-14 21:30:27] Executed Comparison_Single_Bulk_M7(20, 40, 50)
[2023-05-14 21:30:27]   Single: 1,63s
[2023-05-14 21:30:27]   Bulk: ,89s
```

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[2023-05-14 21:30:28] De tabellen zijn leeggemaakt
[2023-05-14 21:30:28] 4.1 generateSchools(20)
[2023-05-14 21:30:28]   generateSchools(20) generated 20 schools
[2023-05-14 21:30:28] 5.1 We already have 20 schools --> Skip schools
[2023-05-14 21:30:28] 5.2 generateClassesForEachSchool(40)
[2023-05-14 21:30:28]   generateClassesForEachSchool(40) generated 800 classes
[2023-05-14 21:30:28] 5.3 generatePupilsForEachClass(500)
[2023-05-14 21:30:48]   generatePupilsForEachClass(500) generated 400000 pupils
[2023-05-14 21:30:48] The duration of generate_2_levels was: 20,01 s
[2023-05-14 21:30:51] De tabellen zijn leeggemaakt
[2023-05-14 21:30:51] 1.1 generateSchools_bulk(20)
[2023-05-14 21:30:51]   generateSchools_bulk(20) generated 20 schools
[2023-05-14 21:30:51] 2.1 We already have 20 schools --> Skip schools
[2023-05-14 21:30:51] 2.2 generateClassesForEachSchool_bulk(40)
[2023-05-14 21:30:51]   generateClassesForEachSchool_bulk(40) generated 800 classes
[2023-05-14 21:30:51] 2.3 generatePupilsForEachClass_bulk(500)
[2023-05-14 21:31:00]   generatePupilsForEachClass_bulk(500) generated 400000 pupils
[2023-05-14 21:31:00] The duration of generate_2_levels_bulk was: 9,28 s
[2023-05-14 21:31:00] =====
[2023-05-14 21:31:00] Executed Comparison_Single_Bulk_M7(20, 40, 500)
[2023-05-14 21:31:00]   Single: 20,01s
[2023-05-14 21:31:00]   Bulk: 9,28s
```

Conclusie:

Bij het invoegen van 40K rijen maakt de bulk niet zo'n gigantisch groot verschil in tijd. Bij het invoegen van 400K rijen is dit verschil wel al serieus merkbaar. In beide gevallen is de bulk import ongeveer de helft sneller.

Moeilijkheid:

Ik had bij M5 eigenlijk al met bulk gewerkt, dus heb dat nu aangepast zodat die niet met de bulk werkt. Voor de rest eigenlijk geen moeilijkheden gehad.

Hoe opgelost:

Gewoon wat meer werk gehad maar het is opgelost geraakt.

Overzicht functies:

```

1  CREATE OR REPLACE PACKAGE BODY pkg_scholen AS
2      -- =====
3      -- Utility methods
4      -- =====
5      > PROCEDURE print...;
13  > FUNCTION timestamp_diff...;
21
22      -- =====
23      -- Lookup functions
24      -- =====
25  > FUNCTION lookup_abonnement...;
36  > FUNCTION lookup_land...;
48  > FUNCTION lookup_gemeente...;
59  > FUNCTION lookup_school...;
71  > FUNCTION lookup_beheerder...;
84  > FUNCTION lookup_klas...;
99
100     -- =====
101     -- Random generator functions
102     -- =====
103  > FUNCTION random_number...;
111  > FUNCTION random_string...;
119  > FUNCTION random_date...;
129
130     -- =====
131     -- Random selector functions
132     -- =====
133  > FUNCTION random_first_name ...;
154  > FUNCTION random_last_name ...;
175
176  > FUNCTION random_street_name ...;
197  > FUNCTION random_email...;
218  > FUNCTION random_geslacht ...;
232

```

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232
233      -- =====
234      -- Random lookup functions
235      -- =====
236      > FUNCTION random_abonnement ...;
252      > FUNCTION random_postalcode ...;
273      > FUNCTION random_school ...;
292      > FUNCTION random_beheerder ...;
308
309      -- =====
310      -- Adding data procedures
311      -- =====
312      > PROCEDURE add_land...;
319
320      > PROCEDURE add_gemeente...;
331      > PROCEDURE add_gemeente...;
345
346      > PROCEDURE add_school...;
364      > PROCEDURE add_school_strings...;
387
388      > PROCEDURE add_beheerder...;
409
410      > PROCEDURE add_schoolbeheerder...;
417      > PROCEDURE add_schoolbeheerder...;
434
435      > PROCEDURE add_klas...;
446      > PROCEDURE add_klas_string...;
460
461      > PROCEDURE add_leerling...;
474      > PROCEDURE add_leerling...;
490
491      > PROCEDURE add_abonnement...;
501

```

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582      -- =====
583      -- Generating data
584      -- =====
585      > PROCEDURE generateSchools...;
524      > PROCEDURE generateBeheerders...;
546      > PROCEDURE generateRandomSchoolBeheerders...;
585      > PROCEDURE generateClassesForEachSchool...;
622      > PROCEDURE generatePupilsForEachClass...;
662      > PROCEDURE genereer_veel_op_veel...;
677      > PROCEDURE generate_2_levels...;
698
699      -- =====
700      -- Generating data (bulk)
701      -- =====
702      > PROCEDURE generateSchools_bulk...;
740      > PROCEDURE generateBeheerders_bulk...;
783      > PROCEDURE generateRandomSchoolBeheerders_bulk...;
842      > PROCEDURE generateClassesForEachSchool_bulk...;
889      > PROCEDURE generatePupilsForEachClass_bulk...;
942
943      > PROCEDURE genereer_veel_op_veel_bulk...;
958      > PROCEDURE generate_2_levels_bulk...;
979
980      -- =====
981      -- Milestone 5 & 7 bewijs
982      -- =====
983      > PROCEDURE bulk_import_prepare ...;
1000      > PROCEDURE bewijs_milestone_5 ...;
1026      > PROCEDURE bewijs_milestone_7 ...;
1039      > PROCEDURE Comparison_Single_Bulk_M7...;
1070
1071      -- =====
1072      -- Data management procedures
1073      -- =====
1074      > PROCEDURE empty_tables ...;
1104      > PROCEDURE calculate_pupils_of_gender_in_school...;
1153      > PROCEDURE printreport_2_levels...;
1299
1300      END pkg_scholen;

```