



Stored Procedure Test Case Project

MSSQL - Performance

2 things

- SQL Tuning
- Automated Testing

SQL Tuning

- ▲ Single SQL
- ▲ User-defined function
- ▲ View
- ▲ Stored procedure

Automated Testing

- Python
- DOS
- ▲ Correctness Validation
- ▲ Performance comparison

Performance comparison

```

1 USE CA
2 SET TRANSACTION ISOLATION LEVEL READ UNCOMMITTED
3
4 SELECT * FROM DBO.DBCodesTestResults ORDER BY 1 DESC

```

Testing Result Data

program after tuning

program before tuning

parameters specified

PKID	ProgramName1	ElapsedTime1	ProgramName2	ElapsedTime2	ParameterValues	CreatedDT	ModifiedDT
132	dbo.rpt_TransactionDetailByAgent_BY_eliu2	49	dbo.rpt_TransactionDetailByAgent	31	("200003-089", 200003, NULL, "01/01/2016", "09/30/2016", NULL)	2018-01-22 12:15:42.317	2018-01-22 12:16:17.443
131	dbo.rpt_StatementDetailTotals_BY_eliu2	4	dbo.rpt_StatementDetailTotals	41	(200003, "200003-089", "10/06/2015", 84)	2018-01-22 12:14:04.143	2018-01-22 12:14:49.473
130	dbo.rpt_PercentageOfRevenue_BY_eliu2	40	dbo.rpt_PercentageOfRevenue	243	("01/01/2017", "01/31/2017", 20)	2018-01-22 12:09:49.733	2018-01-22 12:13:56.830
129	dbo.rpt_EventNoticeForCreditBalance_BY_eliu2	4	NULL	NULL	()	2018-01-22 12:08:48.530	NULL
128	dbo.rpt_CurrentInventoryListing_BY_eliu2	4	dbo.rpt_CurrentInventoryListing	24	(310001, NULL)	2018-01-22 12:08:13.670	2018-01-22 12:08:41.060
127	dbo.rpt_TransactionDetailByAgent_BY_eliu2	66	dbo.rpt_TransactionDetailByAgent	32	("200003-089", 200003, NULL, "01/01/2016", "09/30/2016", NULL)	2018-01-22 10:36:25.170	2018-01-22 10:37:00.797
126	dbo.rpt_StatementDetailTotals_BY_eliu2	4	dbo.rpt_StatementDetailTotals	35	(200003, "200003-089", "10/06/2015", 84)	2018-01-22 10:34:36.543	2018-01-22 10:35:15.233
125	dbo.rpt_PercentageOfRevenue_BY_eliu2	65	dbo.rpt_PercentageOfRevenue	209	("01/01/2017", "01/31/2017", 20)	2018-01-22 10:30:55.627	2018-01-22 10:34:28.920
124	dbo.rpt_EventNoticeForCreditBalance_BY_eliu2	5	NULL	NULL	()	2018-01-22 10:29:30.517	NULL
123	dbo.rpt_CurrentInventoryListing_BY_eliu2	7	dbo.rpt_CurrentInventoryListing	43	(310001, NULL)	2018-01-22 10:28:34.283	2018-01-22 10:29:21.957
122	dbo.rpt_internetsales_BY_eliu2	93	NULL	NULL	(NULL, 2017)	2018-01-19 20:18:26.090	NULL
121	dbo.rpt_TransactionDetailByAgent_BY_eliu2	8	dbo.rpt_TransactionDetailByAgent	21	("200003-089", 200003, NULL, "01/01/2016", "09/30/2016", NULL)	2018-01-19 20:16:24.387	2018-01-19 20:16:49.137
120	dbo.rpt_StatementDetailTotals_BY_eliu2	3	dbo.rpt_StatementDetailTotals	37	(200003, "200003-089", "10/06/2015", 84)	2018-01-19 20:15:31.940	2018-01-19 20:16:13.010
119	dbo.rpt_PercentageOfRevenue_BY_eliu2	34	dbo.rpt_PercentageOfRevenue	246	("01/01/2017", "01/31/2017", 20)	2018-01-19 20:11:15.107	2018-01-19 20:15:24.933
118	dbo.rpt_EventNoticeForCreditBalance_BY_eliu2	4	NULL	NULL	()	2018-01-19 20:10:20.193	NULL
117	dbo.rpt_CurrentInventoryListing_BY_eliu2	3	dbo.rpt_CurrentInventoryListing	24	(310001, NULL)	2018-01-19 20:09:45.183	2018-01-19 20:10:12.553
116	dbo.rpt_TransactionDetailByAgent_BY_eliu2	7	dbo.rpt_TransactionDetailByAgent	19	("200003-089", 200003, NULL, "01/01/2016", "09/30/2016", NULL)	2018-01-19 20:00:06.917	2018-01-19 20:00:29.580
115	dbo.rpt_StatementDetailTotals_BY_eliu2	3	dbo.rpt_StatementDetailTotals	40	(200003, "200003-089", "10/06/2015", 84)	2018-01-19 19:59:12.747	2018-01-19 19:59:56.457
114	dbo.rpt_PercentageOfRevenue_BY_eliu2	56	dbo.rpt_PercentageOfRevenue	251	("01/01/2017", "01/31/2017", 20)	2018-01-19 19:54:51.087	2018-01-19 19:59:05.773
113	dbo.rpt_EventNoticeForCreditBalance_BY_eliu2	4	NULL	NULL	()	2018-01-19 19:53:33.317	NULL
112	dbo.rpt_CurrentInventoryListing_BY_eliu2	5	dbo.rpt_CurrentInventoryListing	20	(310001, NULL)	2018-01-19 19:53:02.330	2018-01-19 19:53:26.147
111	dbo.rpt_TransactionDetailByAgent_BY_eliu2	25	dbo.rpt_TransactionDetailByAgent	23	("200003-089", 200003, NULL, "01/01/2016", "09/30/2016", NULL)	2018-01-19 19:22:21.823	2018-01-19 19:22:48.043
110	dbo.rpt_StatementDetailTotals_BY_eliu2	3	dbo.rpt_StatementDetailTotals	40	(200003, "200003-089", "10/06/2015", 84)	2018-01-19 19:21:09.857	2018-01-19 19:21:53.230
109	dbo.rpt_PercentageOfRevenue_BY_eliu2	34	dbo.rpt_PercentageOfRevenue	243	("01/01/2017", "01/31/2017", 20)	2018-01-19 19:16:56.307	2018-01-19 19:21:02.947
108	dbo.rpt_EventNoticeForCreditBalance_BY_eliu2	5	NULL	NULL	()	2018-01-19 19:16:01.457	NULL

Seconds

Can NOT complete in expected time.

Test Case Output

```
C:\> Stored Procedures Performance Testing

#-----#
#                Stored Procedures Performance Testing                #
#-----#
# Description :                                                    #
# You should specify the database info in the following files:      #
# 1. .\TestCases\PDBC\conf\db.json                                  #
# 2. .\run.bat                                                       #
#-----#
#                Begin running the Test Cases now!!!                #
#-----#
[INFO]: Test Case rpt_CurrentInventoryListing is running
[INFO]: Test Case dbo.rpt_CurrentInventoryListing completed successfully! [6s VS 26s]
[INFO]: Test Case rpt_EventNoticeForCreditBalance is running
[WARN]: Test Case rpt_EventNoticeForCreditBalance is timed out and terminated (25 seconds limitation)...
[INFO]: Test Case rpt_PercentageOfRevenue is running
[INFO]: Test Case dbo.rpt_PercentageOfRevenue completed successfully! [36s VS 246s]
[INFO]: Test Case rpt_StatementDetailTotals is running
[INFO]: Test Case dbo.rpt_StatementDetailTotals completed successfully! [6s VS 41s]
[INFO]: Test Case rpt_TransactionDetailByAgent is running
[INFO]: Test Case dbo.rpt_TransactionDetailByAgent completed successfully! [56s VS 27s]
[INFO]: Test Case rpt_internetsales is running
[WARN]: Test Case rpt_internetsales is timed out and terminated (100 seconds limitation)...
Press any key to continue . . .
```

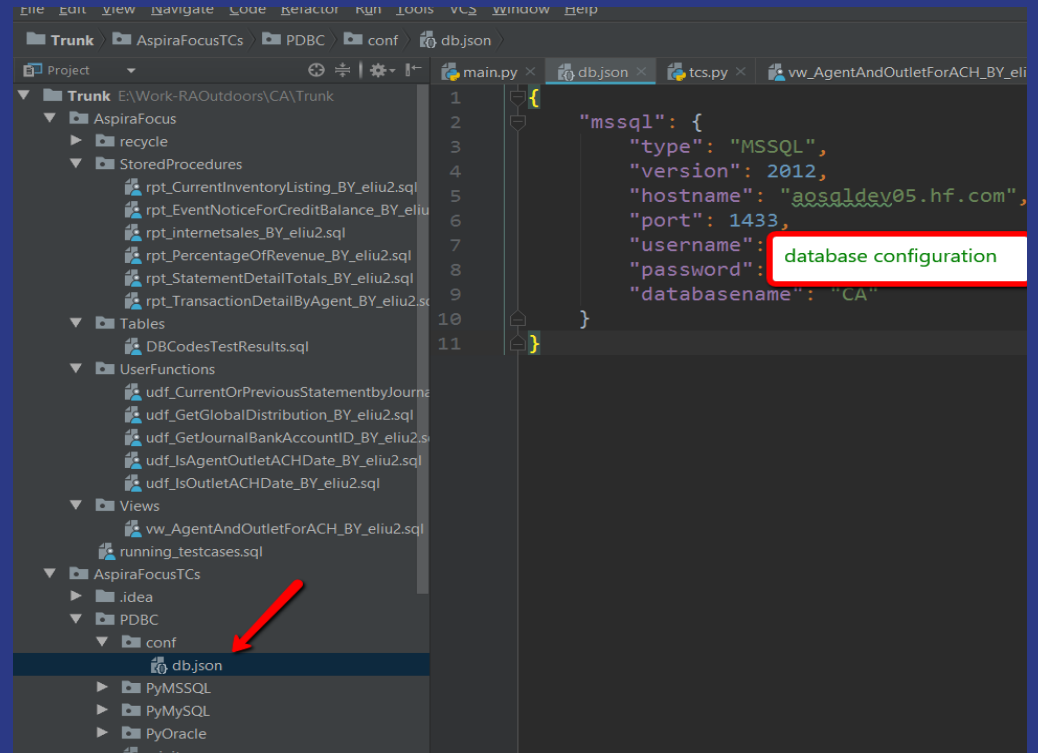
time used (after VS before)

TIME OUT

How to use it?

Database configuration file

run.cmd & db.json



How to add a new Test Case?

Specify the parameter

```
t = [dict(name=assert_sp, timeout=None, args=('dbo.rpt_CurrentInventoryListing_BY_elu2', 'dbo.rpt_CurrentInventoryListing', (310001, None))),  
      dict(name=assert_sp, timeout=25, args=('dbo.rpt_EventNoticeForCreditBalance_BY_elu2', 'dbo.rpt_EventNoticeForCreditBalance', ())),  
      dict(name=assert_sp, timeout=None, args=('dbo.rpt_PercentageOfRevenue_BY_elu2', 'dbo.rpt_PercentageOfRevenue', ('01/01/2017', '01/31/2017',  
      dict(name=assert_sp, timeout=None, args=('dbo.rpt_StatementDetailTotals_BY_elu2', 'dbo.rpt_StatementDetailTotals', (200003, '200003-089',  
      dict(name=assert_sp, timeout=None, args=('dbo.rpt_TransactionDetailByAgent_BY_elu2', 'dbo.rpt_TransactionDetailByAgent', ('200003-089', 200  
      dict(name=assert_sp, timeout=100, args=('dbo.rpt_internetsales_BY_elu2', 'dbo.rpt_internetsales', (None, 2017))),  
    ]
```

Demonstration