

Agenda

6 areas of specific advice
General design advice

What's that smell?



Common general code smells

Extensive use of:

- Cursors (and default options)
- Temporary tables (and table variables)
- Dynamic SQL
- Triggers
- T-SQL functions (scalar UDFs in particular)

Common specific code smells

TOP 100 PERCENT

- Tables/views have no "default" order
- NOT IN with nullable lists

Let's take a look

- TOP 100 PERCENT
- NOT IN

Love your data



Naming

No one correct answer
 Personal preference: avoid prefixes
 Use schemas appropriately
 Obscurity isn't a virtue

ST	Students
DF	Families
SF	Staff
SKAB	Half Day Absences
SKABCONV	Converted Student Half-Day Absences
UR	Addresses
KCL	Languages
KGT	Countries
SCI	School Information
SKGS	All Schools



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Creativity isn't always a virtue

```

+ ReportServer
+ ReportServer2
+ ReportServer2TempDB
+ ReportServerTempDB
+ respondent
+ SAM
+ sample
+ SecureDatabase
+ X:\ProgramData\Microsoft\SQL Server\Instance1\ReportServerTempDB\ReportServerTempDB.MDF
+ Security
+ Server Objects
+ Databases
  
```



Data types

Use appropriate types (no text, ntext, image)
 Avoid money, float
 Use appropriate lengths
 Strings really are slow to sort
 And be consistent...



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SDU Tools

Free DBA and Developer toolset

<http://sqldownunder.com/Resources/SDUTools>



ListMismatchedDataTypes
 ListAllDataTypesInUse
 ListUseOfDeprecatedDataTypes
 FindSubsetIndexes



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Constraints

Matter
 Always name them (no system default names)

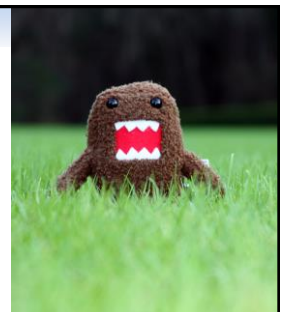


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Don't be a lousy
 neighbour

Image: Robert Goss (2013)
<http://www.flickr.com/photos/robertgoss/10400000000/>



Locking

Isn't something to be avoided
Understand lock escalation

If NOLOCK is your answer, you are probably
asking the wrong question...



Image: Mark N. Taylor (2015)
https://www.flickr.com/photos/markntaylor/20854310

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Concurrency

Learn to recognise and avoid race conditions
Use correct isolation levels

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Breaking up
shouldn't be hard to
do



Image: Luke Taylor (2012)
https://www.flickr.com/photos/luke_taylor/778224884

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Connections – what we hope for

Solid
Reliable
Quality



Image: Anthony Taylor (2012)
https://www.flickr.com/photos/ANTHONYTAYLOR/1214124040

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Connections - reality

Plan for failure
Consider isolating read-only
workloads if latency OK
Connect to generic names
Not actual server names



Image: Mark Tomlinson (2012)
https://www.flickr.com/photos/marktomlinson/709838201

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Try, try again

Recognise situations where retries can help
Deadlocks
Errors 823, 824, 829
Error 3960



Image: Neil Robinson (2012)
https://www.flickr.com/photos/neilrobinson/180784018

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T-SQL is not a dirty word




Image: Mike Ward (2012)
TSQL (Data Community) and SQLDay 2017

T-SQL

- Learn to use it
- Hint: Has changed since SQL 2000
- Learn to think in sets
- Don't use old style joins

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Common T-SQL issues

- COUNT vs EXISTS
- SELECT * is rarely a good idea
- DISTINCT doesn't fix your join issues
- UNION ALL vs UNION

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Performance is a feature




Image: Paul Dwyer (2012)
Microsoft SQL Server 2012 (MSDN)

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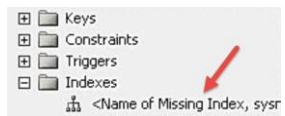
Optimisations (Optimizations)

- Separate staging databases (with simple recovery)
- Always optimise common-use cases even on generic queries
- Avoid query hints

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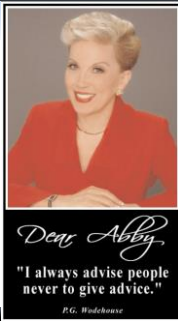
Indexing

- Indexing isn't a job for someone else later
- Most single column indexes are often fairly useless
- Filtered indexes can be wonderful but...
- Don't add all indexes suggested by DMVs
- Don't optimise for small/skewed datasets
- Avoid blind faith in tools



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Dear Greg



Dear Abby
"I always advise people
never to give advice."
P.G. Wodehouse

Image: Tom Merton (2008)
https://www.flickr.com/photos/tomerton/1604403377/

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Design

Agile isn't a synonym for sloppy

Randy Knight:
"95% of my business is fixing perf problems
from agile teams"

At least one layer of abstraction in the DB

Data models: logical vs physical




Image: Thomas Kelly (2003)
https://www.flickr.com/photos/kelly/146203801/

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AdventureWorks

Does not represent best practice

Not at all typical

Designed to use every possible feature

Many forced design decisions and scenarios

Wide World Importers better
(But still had required trade-offs)




Image: John Drenth
https://www.flickr.com/photos/jdrenth/4451476742/

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Online advice

Much online advice is incorrect

All online advice ages quickly

Consider having a data person on teams




Image: John Drenth
https://www.flickr.com/photos/jdrenth/4451476742/

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Don't roll your own

Use built-in features

- Queues
- Security

(Almost always a bad idea)



Image: Chris Ward (2007)
https://www.flickr.com/photos/chrisward/1902020532/

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Keep it safe

If app connects as dbo or sa, you're
probably doing it wrong...

Separate admin functions from regular
functionality




Image: Alan Williams (2002)
https://www.flickr.com/photos/alanwilliams/1602482176/

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Removing code

Removing and/or refactoring code
 As important as writing code
 New features often replace messy, slow
 existing code



Image: NATHAN DAVIS
<https://www.flickr.com/photos/nathan/1237578885/>

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Thanks !

Thanks!
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