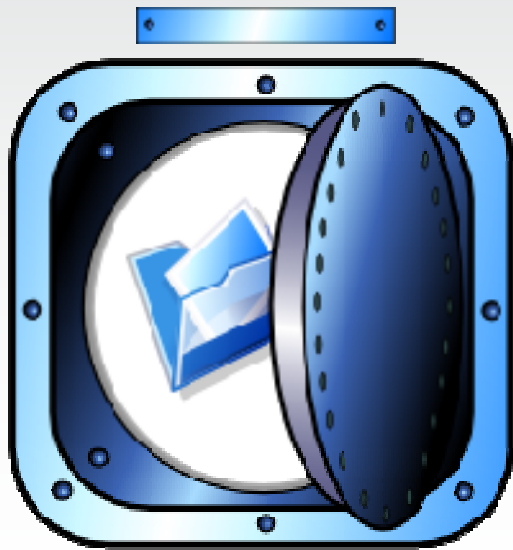


SQL for Testers



SQL for Testers ?

- Why testers need to be SQL literate
- Where to start as tester
- Pitfalls

Why ?

“Today's heterogeneous data environments place an increasingly heavy burden on test engineers.

Applications, whether web-based or client-server, must be tested for seamless interface with the backend databases; this typically goes far beyond what the popular test automation tools can provide.

Testers are required to know how to create and use SQL, stored procedures, and other database objects to effectively test today's data driven environments.“

-Mary R. Sweeney, Exceed Training - 2003

Why ?

“I've also found throughout my career that the most valued skill I have, whether as a tester or a developer, involves database ability. How do companies ensure the correctness of their data? Corrupt data is worse than no data at all.”

-Mary R. Sweeney, Exceed Training - 2003

Technical testers

- The days of “Monkey testers” bashing keyboards are numbered
- It takes a skilled tester to use limited testing time as effectively as possible
- Risk mitigation

Required skills

- Technically skilled
 - Excel power user
 - Essential for reporting
 - Generate test data
 - Compare data
 - SQL scripting
 - Coding in at least one language (other than SQL !)
- Skilled in test design techniques
 - EP & BVA
 - Classification trees
 - Cause – effect graphing

Initial areas to add value

- System exploration
 - Group-by summarisations
 - Data dictionary
- Test environment setup
 - Automated script to configure test users correctly
 - Rollback / delete script
- Test environment validation
 - Is UAT exactly the same as PROD / snapshot ?
 - Are all the test users configured correctly ?

More areas to add value

- Automated comparisons of data

- Do I have all 2063 branch codes with no duplicates ?
- Is Environment1.TableA – Environment2.TableA = 0 ?
- Comparisons of identical tables

- SELECT 'IN A NOT IN B' DIRECTION, TableA.* FROM TableA
- MINUS
- SELECT 'IN A NOT IN B' DIRECTION, TableB.* FROM TableB
- UNION
- SELECT 'IN B NOT IN A' DIRECTION, TableB.* FROM TableB
- MINUS
- SELECT 'IN B NOT IN A' DIRECTION, TableA.* FROM TableA

- The outcome of batch processes

- Were accounts aged correctly ?

Even more areas to add value

- Testing of stored procedures
 - Input & output
 - Performance
 - Even create stored procedures that test data
- Fish for anomalies
 - SQL injection

Still more areas to add value

- Data integrity

- Search for duplicates

- `SELECT COUNT(Field1) FROM TableA`

- `SELECT COUNT(DISTINCT Field1) FROM TableA`

- Null first record

- Date = -1

- Automated daily extracts

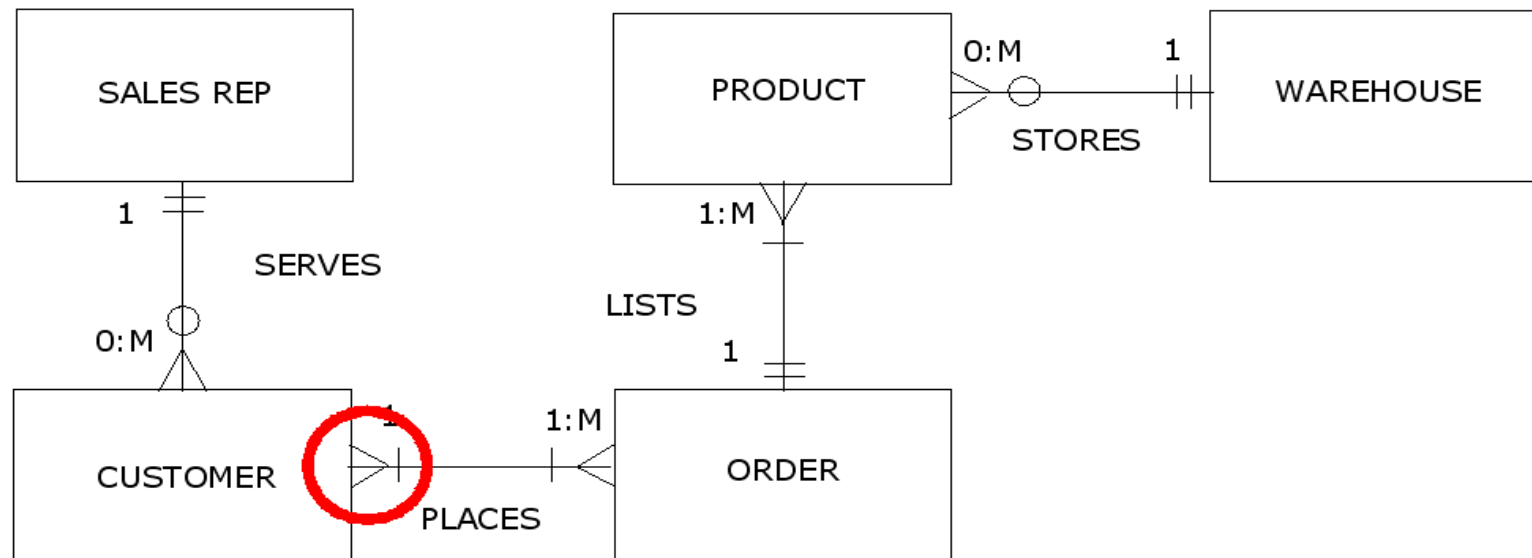
- Design integrity

- Design flaws -cardinality

- Data warehouse testing

- Automated testing of ETL results

Design flaw



- 1 INSTANCE OF A SALES REP SERVES 0 TO MANY CUSTOMERS AND A CUSTOMER IS SERVICED BY ONLY 1 SALES REP
- 1 INSTANCE OF A CUSTOMER PLACES 1 TO MANY ORDERS AND EACH ORDER **CAN HAVE ONLY 1 CUSTOMER**
- 1 INSTANCE OF AN ORDER LISTS 1 TO MANY PRODUCTS AND EACH PRODUCT CAN ONLY BE LISTED ON 1 ORDER
- 1 INSTANCE OF A WAREHOUSE STORES 0 TO MANY PRODUCTS AND EACH PRODUCT CAN ONLY BE STORED IN 1 WAREHOUSE

Pitfalls

...of letting testers muck about in your database

- Too interested
- May expose
 - Bad DBA practice
 - Bad developer practice
 - Poorly designed or enforced policies
- Don't become dependant on database tests
 - Access may be revoked for whatever reason
- Bad scripts executed by the inexperienced
 - Cartesian join

Where to start as tester

- Get permission !
- Ask how, what and when to access
 - Client tools, login with select rights only
- Learn about
 - SQL
 - RDBMS – Syntax dialects, vendor tool idiosyncrasies
 - Structure of target - ERD, data model
- Prove the value of having access
- Prove yourself trustworthy
 - Average 6 months on last three sites
 - I eventually had production access

Do not...

- Break the database
 - Delete stuff to see what will happen
 - Change fundamental data like passwords
 - Remember the trustworthiness ?
- Store login credentials insecurely
 - Even if everyone knows that the password is “password”
- Become arrogant
 - You are just a tester

Thanks

- Questions ?

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