

Topics Basic structure of SQL statements Basic element of SQL Language Keywords Data types Expressions SQL's NULL value

| SQL Sta | ndards | |
|---|--|-----|
| SQL Version | ons | |
| | SQL-89, SQL-92 (SQL2) | |
| SQL:1999 | 9, SQL:2003, SQL:2008 | |
| Vendors Ir | mplementation / Extension | |
| Major ver (e.g. SQL | ndor products support SQL1 Server, Oracle, etc.) | |
| | only partially supported | |
| - Support (Subque | or example): ts some variants of the JOIN statement of support Domain / Assertion ts only simple Check constraints ery not allowed in Check constraints) | ent |
| Check ou | it software documentation | |

Statements About 40 statements Data Definition Language DDL (e.g.) Create / Alter / Drop Table Create / Drop View Create / Drop Index Create / Drop Schema (not in all DBMSs) Create / Alter / Drop Domain (not in all DBMSs) Data Manipulation Language DML (e.g.) Select Insert / Update / Delete

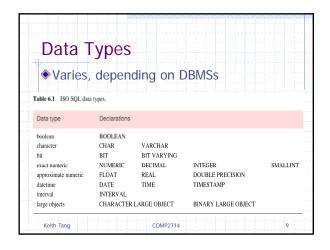
| Statem | onte | |
|--------------------------|-----------------------------------|---|
| Statem | EIIIS | |
| Access (| Control (e.g.) | |
| ■ Grant | / Revoke | |
| ◆Transac | tion Control (e.g.) | |
| ■ Comm | it / Rollback | |
| ■ Set Tra | ansaction | |
| ◆Program | nmatic SQL (e.g.) | |
| Declar | e / Open / Fetch / Close (Cursor) |) |
| Prepar | e / Execute (Dynamic SQL) | |
| | pe / Explain (Query access plan) | |
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| | E sales_rep sales < | | 00. | | |
|-----------|---------------------------|-------|------|--|--|
| • Verb | sares (| 20000 | .00; | | |
| • Clause | | | | | |
| Keywor | ds | | | | |
| ◆ Table n | ame | | | | |
| Column | name | | | | |
| Constant | nt | | | | |

Naming Conventions 1 to 18 characters, begin with a letter Can contain letters, digits and No spaces, no special characters (exceptions) SOL2 – max. to 128 characters Need a name for: Table Column User Schema Constraint Store procedure

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Oualified Names ◆ Table names can be qualified by the table owner or schema name, separated by a period: e.g. Sam.Salesrep ◆ Some DBMS (e.g. SQL Server) supports server.database.schema.table ◆ Column names can be qualified by the table name (or alias), separated by a period: e.g. Salesrep.Sales or s.Sales (if s is specified as the alias for table Salesrep)



Constants Numeric 21 -375 200.00 1.5E3 String 'New York' 'I can"t' Date and time DBMS specific, date functions Symbolic CURRENT_DATE SYSDATE DATE '2014-09-24' Keith Tang COMP2714 10

| Expression | ns |
|---|--|
| For calculat (SALES * 1. | ions 05) – (TARGET * 0.95) |
| ◆4 arithmetic | operations: |
| Parentheses | s can be used |
| May be app | licable to date/time (Oracle) |
| Character c Oracle Other (SQL | oncatenation : 'Jim' 'Johnson' Server): 'Jim' + 'Johnson' |
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Built-in Functions Mostly vendor specific implementations - check out the vendor references SQL2 has incorporated some DBMS dependent (SQL chapter 5) Oracle: TO_DATE TO_CHAR TO_NUMBER

NULL Value Missing / unknown data Indicator to SQL that data is missing or not applicable It is not a space nor zero, not even a null string Need to check for NULL explicitly IS NULL IS NOT NULL Keth Tang COMP2714 13