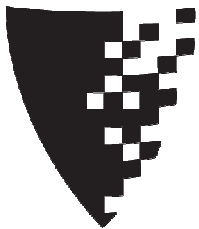


SQL: Part I

Introduction to Databases

CompSci 316 Fall 2014



DUKE
COMPUTER SCIENCE

Announcements (Tue. Sep. 15)

- Homework #1 due today 11:59pm
- Ben will have his office hours today 6-8pm in Link (instead of tomorrow)
 - This week only, for Homework #1
- Homework #2 to be posted on website tonight

SQL

- SQL: **Structured Query Language**
 - Pronounced “S-Q-L” or “sequel”
 - The standard query language supported by most DBMS
- A brief history
 - IBM System R
 - ANSI SQL89
 - ANSI SQL92 (SQL2)
 - ANSI SQL99 (SQL3)
 - ANSI SQL 2003 (added OLAP, XML, etc.)
 - ANSI SQL 2006 (added more XML)
 - ANSI SQL 2008, ...

Creating and dropping tables

- **CREATE TABLE** *table_name*
(..., *column_name_i* *column_type_i*, ...);
- **DROP TABLE** *table_name*;
- Examples

```
create table User(uid integer, name varchar(30),
                age integer, pop float);
create table Group(gid char(10), name varchar(100));
create table Member(uid integer, gid char(10));
drop table Member;
drop table Group;
drop table User;
-- everything from -- to the end of line is ignored.
-- SQL is insensitive to white space.
-- SQL is insensitive to case (e.g., ...Group... Is
-- equivalent to ...GROUP...)
```

Basic queries: SFW statement

- **SELECT** A_1, A_2, \dots, A_n
FROM R_1, R_2, \dots, R_m
WHERE *condition*;
- Also called an SPJ (select-project-join) query
- Corresponds to (**but not really equivalent to**) relational algebra query:

$$\pi_{A_1, A_2, \dots, A_n} \left(\sigma_{condition} (R_1 \times R_2 \times \dots \times R_m) \right)$$

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