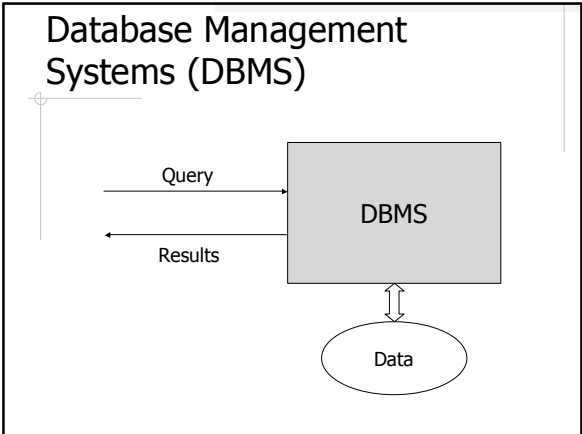


CS522 Advanced Database Systems
Introduction to DBMS

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Terminology

- ◆ Database
- ◆ Database Management System (DBMS), Database System
- ◆ Relation, table
- ◆ Tuple, record, row
- ◆ Attribute, field
- ◆ Column

DBMS Implementation

Introducing the

MEGATRON 3000

Database Management System

- ◆ Latest relational database technology!
- ◆ Unix compatible

Megatron 3000 Implementation– Relations

- ◆ Relations are stored in text files
 - file name is the same as the relation name
 - one tuple per line
 - fields are separated by #

e.g. /usr/db/students

```
Smith#123#CS
Jones#522#EE
...
```

Megatron 3000 Implementation– Schemas

- ◆ Schemas are stored in a catalog
- ◆ file name is the same as the relation name
 - one schema per line
 - "relation#attribute#type#attribute#type#..."

e.g. /usr/db/catalog

```
students#name#STR#id#INT#dept#STR
depts#name#STR#office#STR
...
```

Megatron 3000 – Selection

SELECT * FROM R WHERE *condition*;

- ◆ Read the catalog to get the attributes of R
- ◆ Read file R , and for each line
 - Check condition
 - Output tuple if the condition is true

Megatron 3000 – Join

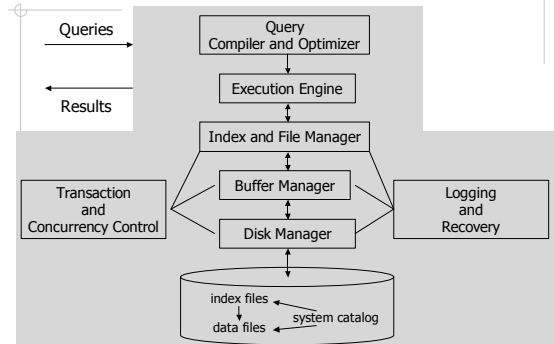
SELECT * FROM R, S WHERE *condition*;

- ◆ Read the catalog to get the attributes of R and S
- ◆ Read file R , and for each line
 - Read file S , and for each
 - create join tuple
 - check condition
 - Output tuple if the condition is true

What's Wrong with Megatron 3000?

◆??

A Real DBMS



Class Goals

- ◆ What this class is about
 - All aspects of DBMS implementation
 - Established algorithms
- ◆ What this class is not
 - Distributed systems (??)
 - New research and development (CS594)