

FIGS: Exploring Computer Science

Week Three: Deal With Thy Databases

SQL

- Structured Query Language
- Uses a server which hosts SQL: Oracle and MySQL.
- Communicate by passing commands or asking questions to a database.
- CRUD: Create, Read, Update, Delete
- Tables

```
UPDATE clause [UPDATE country  
SET clause [SET population = population + 1  
WHERE clause [WHERE name = 'USA'];
```

Expression

Statement

Expression

Predicate

SQL

Example: Countries

(Source: SQLZoo)

name	continent	area	population	gdp
Afghanistan	Asia	652230	25500100	20343000000
Albania	Europe	28748	2831741	12960000000
Algeria	Africa	2381741	37100000	188681000000
Andorra	Europe	468	78115	3712000000
Angola	Africa	1246700	20609294	100990000000
....				

SQL Queries

```
CREATE TABLE table_name (column_name type constraints);
```

```
INSERT INTO table_name(column_name,...) VALUES (...);
```

```
SELECT column_names FROM table_name WHERE column_name = value;
```

```
SELECT * FROM table_name WHERE column_name LIKE "%a";
```

```
UPDATE table_name SET column_name= new_value WHERE ...
```

Exercise: Querying the database

[Link](#)

Databases

- DBMS
- What are they involved with?
- Why are they used?
- How are they used? File based vs. table based
- Problems with Database Systems
- Deadlock
- Synchronizations

Puzzles in Computer Science

The Sleeping Barber Puzzle

The Dining Philosophers Puzzle

Information Literacy

RU Libraries

[Research in Computer Science](#)

Content Literacy:

1. Scholarly journals : their usefulness and how to find them
2. Internet articles : authenticity vs readability
3. Going to the library vs. research online

Parts of a research paper

Title

Abstract

Introduction

Methods

Results

Discussion

Acknowledgments

Literature cited

Puzzle: Towers of Hanoi

Closing
