SQL

Middling into the Awesome

Ward Weatherford

25+ Years Technology Experience

- Product Development
- Software Engineering
- Project Management
- Customization
- Integration
- Database Design

What is RESA

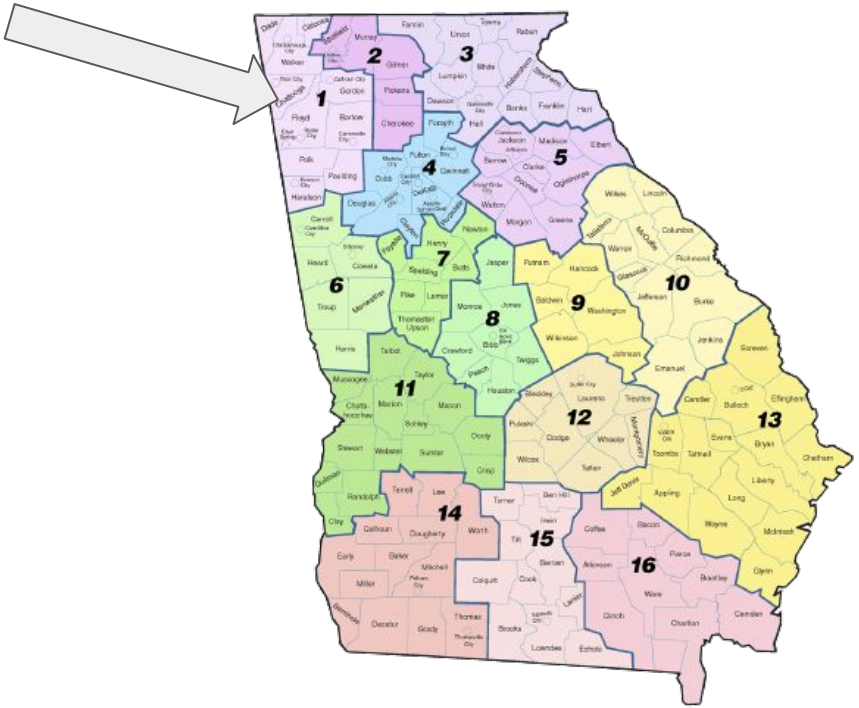
- It’s Not Candy
- **R**egional **E**ducational **S**ervice **A**gency
- Every School District in GA is a member
- 16 RESAs
- Support 180 School Districts

Required to provide these service areas

- Research and Planning
- Professional Development
- Curriculum and Instruction
- Assessment and Evaluation
- Technology
- Health
- School Improvement

Northwest RESA

- 17 Member School Districts
- 25 Employees
- + GNETS Staffing



Northwest RESA

Whatsit

Review-Style

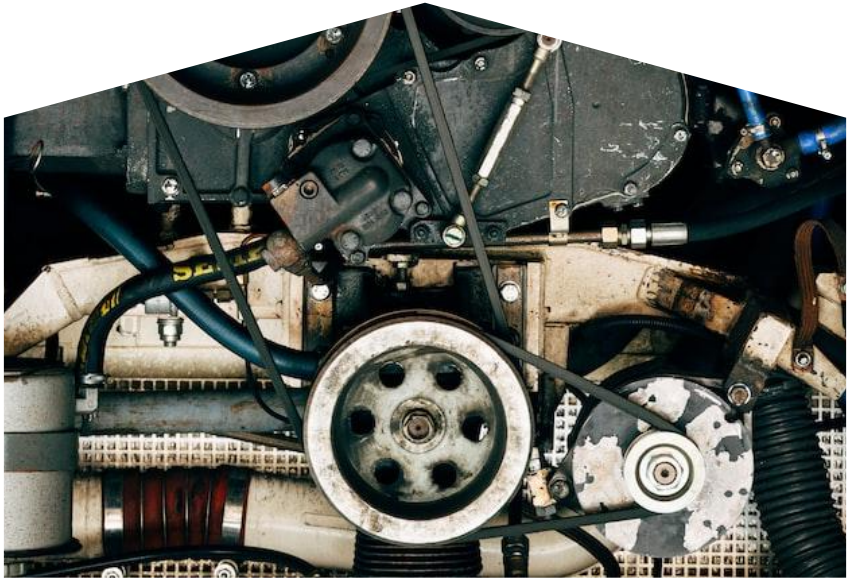
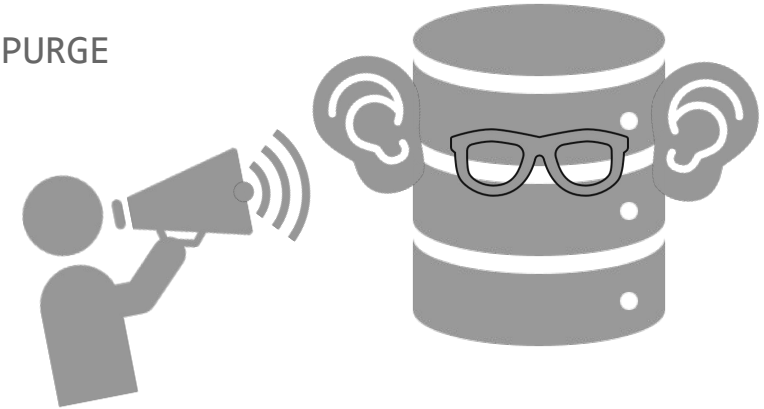


Photo by Michal Matlon on Unsplash

Northwest RESA

Types of SQL Statements

- Data Retrieval
  - `SELECT`
- Data Manipulation Language
  - `INSERT, UPDATE, DELETE, MERGE, LOCK, CALL`
- Data Definition Language
  - `ALTER, CREATE, DROP, RENAME, TRUNCATE, PURGE`
- Data Control Language
  - `GRANT, REVOKE`
- Transaction Control Language
  - `COMMIT, ROLLBACK, SAVEPOINT`



What Answer Are You Looking For?

- Load Up the Wayback Machine
  - Writing Composition Strategies
  - Who, What, Where, When, Why, How
- Determine the Target
- Get that Data Dictionary

Anatomy of a SELECT Statement

- `SELECT`
  - Get it all with a splat (*)
  - List fields
  - Expressions
- `FROM`
  - Tables
  - Views
  - CTE
- Optional
  - `WHERE` Clause
    - Filters Results
  - `ORDER BY` Clause
    - You guessed it. Orders the results
  - `GROUP BY` Clause
    - Provides grouping for aggregate expressions like SUM, AVG…
  - `HAVING` Clause
    - Filters groups

SQL Statement

```
SELECT column1, column2 FROM table_name;

SELECT * FROM table_name
```

The Set Up

Our Sample Data

Students

Fictional listing of students

- ID
- Name Fields
- Date of Birth
- State Identifier
- Gender

```
CREATE TABLE student (
    id INT PRIMARY KEY,
    first_name VARCHAR(50) NOT NULL,
    middle_name VARCHAR(50),
    last_name VARCHAR(50) NOT NULL,
    dob DATE NOT NULL,
    state_id BIGINT NOT NULL,
    gender VARCHAR(10) NOT NULL
);
```

Our Sample Data

School Years

- ID
- Name Fields
- First Day of School
- Last Day of School

```
CREATE TABLE school_year (
    id INT PRIMARY KEY,
    name VARCHAR(100) NOT NULL,
    short_name VARCHAR(10) NOT NULL,
    first_day DATE NOT NULL,
    last_day DATE NOT NULL
);
```

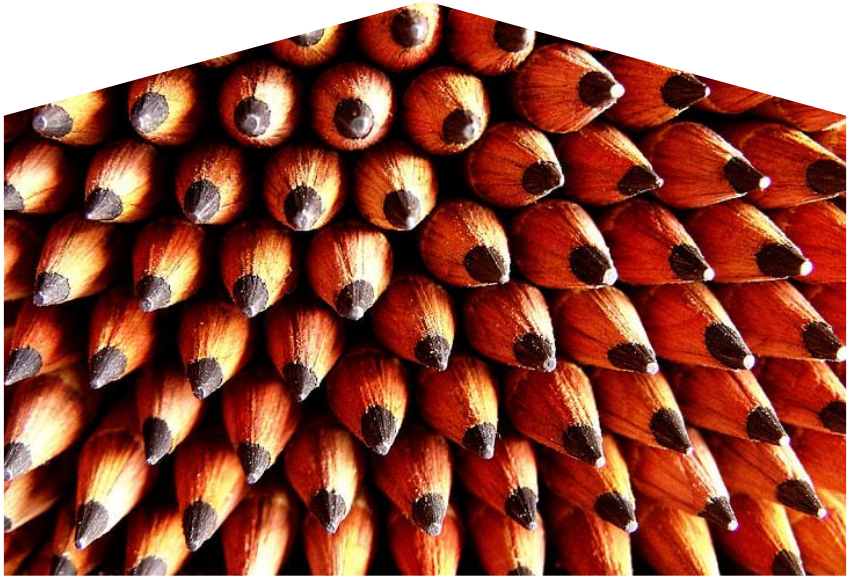
Our Sample Data

Enrollment

- ID
- Grade Level
- Reference Student
- Reference School Year

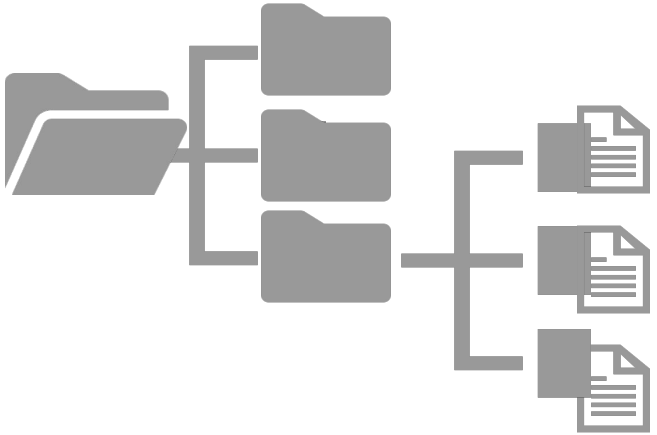
```
CREATE TABLE student_school_year (
   id INT PRIMARY KEY AUTO_INCREMENT,
   student_id INT NOT NULL,
   school_year_id INT NOT NULL,
   grade_level INT NOT NULL,
   FOREIGN KEY (student_id)
     REFERENCES student(id),
   FOREIGN KEY (school_year_id)
     REFERENCES school_year(id)
);
```

TIPS



Organize Your Work

- Save Your Work
- Build a Folder System
- Text Search the Folders



PowerShell

```
Get-ChildItem *.sql -Recurse | Select-String "login" -List | Select Path
```

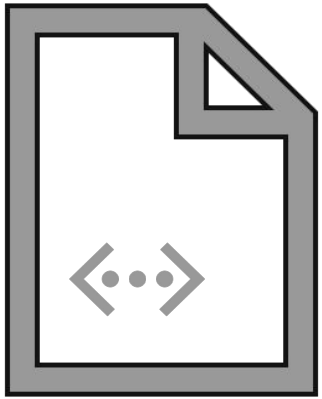
Bash

```
grep -r "login" *.sql | awk -F: '{print $1}'
```

Comments

Comment Your Queries

- Helps Others
- Complicated Code
- Poorly Named Fields
- Undocumented/Poorly Documented Schema



```
/* This is a block comment. Everything between the
slash and splat isn't processed by the interpreter */
select column1 -- Everything after the double dash is ignored
from table_name
```

Resources

- Search Engines
- Data Dictionary
- https://www.w3schools.com/sql
- https://livesql.oracle.com
- https://sqlfiddle.com
- https://stackoverflow.com