

Data Dev

Teaching Students about Data Management

teacher's quick-start tutorial

SQL Server



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Session Outline

- 30,000 ft view of Database Management (Computer Systems)
- HTML/CSS Overview
- Database Concepts
- PHP Basics
- Capstone Project / Mini Outline for Competition Projects

How Does the Internet Work?

- Looking at the forrest, not the trees. #ToTheWhiteboard



Resources for Today

- Teacher Resource Document:
tinyurl.com/datadev-2018
- Github Repository:
[github.com/mplyler](https://github.com/mplyler/devcat-datadev-2018) (devcat-datadev-2018)

HTML/CSS Overview

- sample-html > finished-version
- Review together
- Make small customizations

Installs and Configurations

- Let's get our new webpage on a server so other's can view our beautiful work.
- Teacher Resource Document: tinyurl.com/datadev-2018



Databases

What is a **Database**?

- a database consists of an organized collection of data for one or more uses, typically in digital form
- tables, records, rows, columns/fields
- a different kind of “spreadsheet” / more powerful

SQL

How do you say **SQL**?

/ɛs.kjuː'ɛl/

OR

/'siːkwəl/

Structured Query Language

- programming and managing data in RDBMS
- ubiquitous database language

SQL

SQL functions fit into broad categories:

Data definition language

create database objects: tables, indexes and views
define access rights to database objects

Data manipulation language

includes commands to INSERT, UPDATE, DELETE and retrieve (SELECT) data within database tables

Basic Query Structure

```
SELECT column1, column2, ...  
FROM table_name;
```

column1, column2, are the field names
table_name ... is the table name

Expanded Query Structure

```
SELECT column1, column2, ...  
FROM table_name  
WHERE predicate/condition  
ORDER BY columnX;
```

column1, column2, are the field names

table_name ... is the table name

predicate/condition ... allows us to filter our results

order by ... ASC or DESC

SQL Keywords (a few of them)

AND/OR

ALTER

AS

BETWEEN

CREATE

DELETE

DROP

EXISTS

GROUP BY

HAVING

JOIN

LIKE

ORDER BY

SELECT

TRUNCATE

UNION

UPDATE

WHERE

UML

- The **Unified Modeling Language** is a general-purpose, developmental, modeling language in the field of software engineering, that is intended to provide a standard way to visualize the design of a system.



Hands-On Exercises

Using Gungoo
(cPanel and phpMyAdmin - set up environment):

- **IDE** exploration
- **Database** creation
- **Table** creation
- **Data** insertion
- **Query** execution

PHP Basics

PHP (recursive acronym for **PHP**: Hypertext Preprocessor) is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML.

PHP Syntax

A **PHP** script starts with **<?php** and ends with **?>**:

```
<?php  
    // PHP code goes here  
?>
```

PHP Syntax

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<h1>Basic PHP Page</h1>
```

```
<?php
```

```
    echo "Hello World!";
```

```
?>
```

```
</body>
```

```
</html>
```

PHP Syntax Facts

- php scripts can be added anywhere in the document
- keywords, classes and functions are not case-sensitive
- variable names are case-sensitive
- variables start with \$, followed by name (cannot start with a number)

Hands-On Exercises

Using VS Code, Cyberduck and Gungoo:

- **Hello World**
- **Connect to Database**
- **Simple Data Submission**
- **Submission Form** (*with “AJAX” functionality*)

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Mini Project / Collaboration

- Create a database and web front-end for a fictitious retail store.
- What are our steps? Let's outline the process.
- Dive-in and create a functioning, data-driven website.

Questions?

