



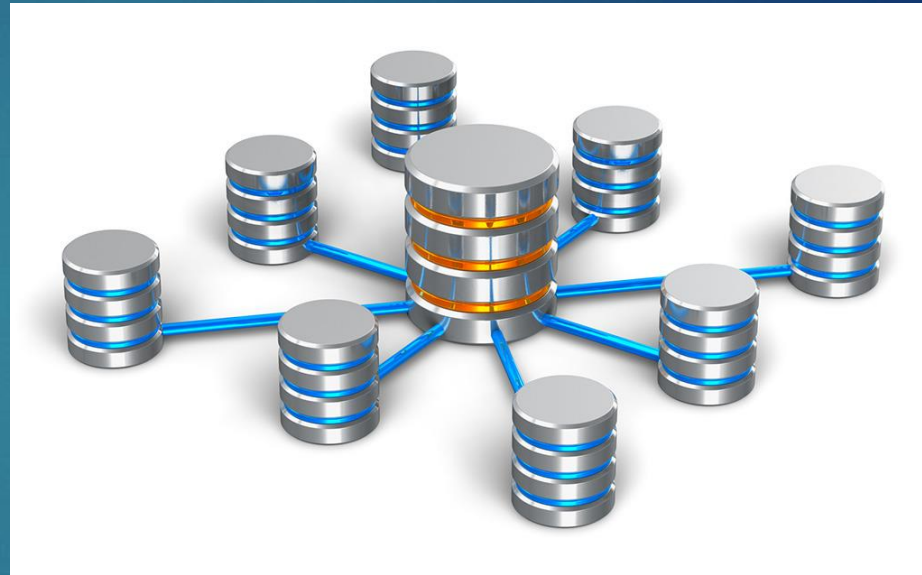
Logols Learning

WEEKEND WEB DEVELOPMENT BOOT CAMP

TRAINING: SQL

MySQL

- ▶ Database
- ▶ Tables



MySql Workbench

Select Statements

- ▶ Components in Logical Order

- ▶ SELECT

- ▶ FROM

- ▶ WHERE

- ▶ GROUP BY

- ▶ HAVING

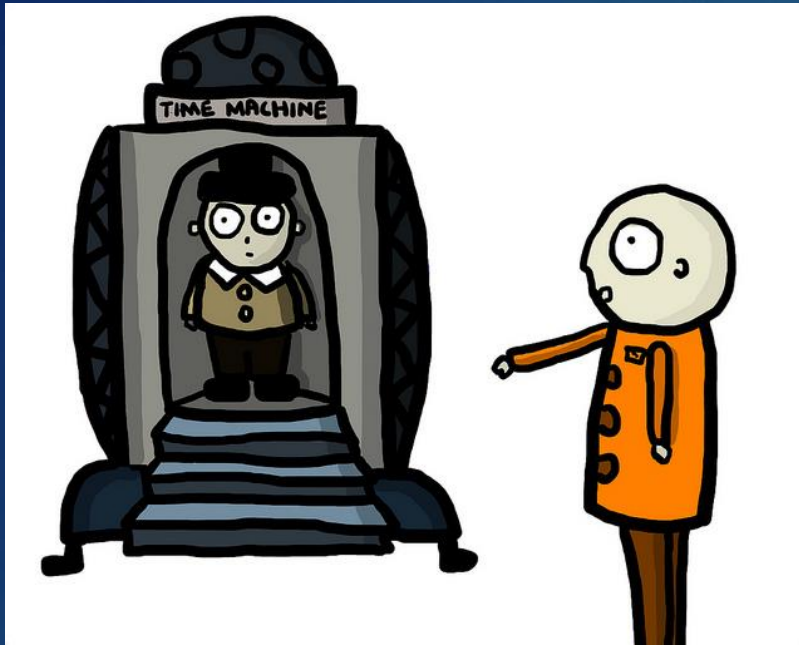
- ▶ ORDER BY

- ▶ Example:

```
SELECT FirstName,  
LastName
```

```
FROM dbo.Person
```

```
WHERE personId = 2
```



EXAMPLE

SELECT QUERIES

ASSESSMENT

SELECT QUERIES



Insert Statements

- ▶ Components

- ▶ INSERT

- ▶ INTO

- ▶ VALUES

- ▶ Example:

```
INSERT INTO  
dbo.Person  
(FirstName, LastName)  
VALUES ('Joe',  
        'Mackie')
```

Update Statements

- ▶ Components

- ▶ UPDATE

- ▶ SET

- ▶ WHERE

- ▶ Example:

```
UPDATE dbo.Person
```

```
    SET FirstName = 'Joe'
```

```
WHERE LastName =  
'Mackie'
```


Delete Statements

- ▶ Components

- ▶ DELETE

- ▶ FROM

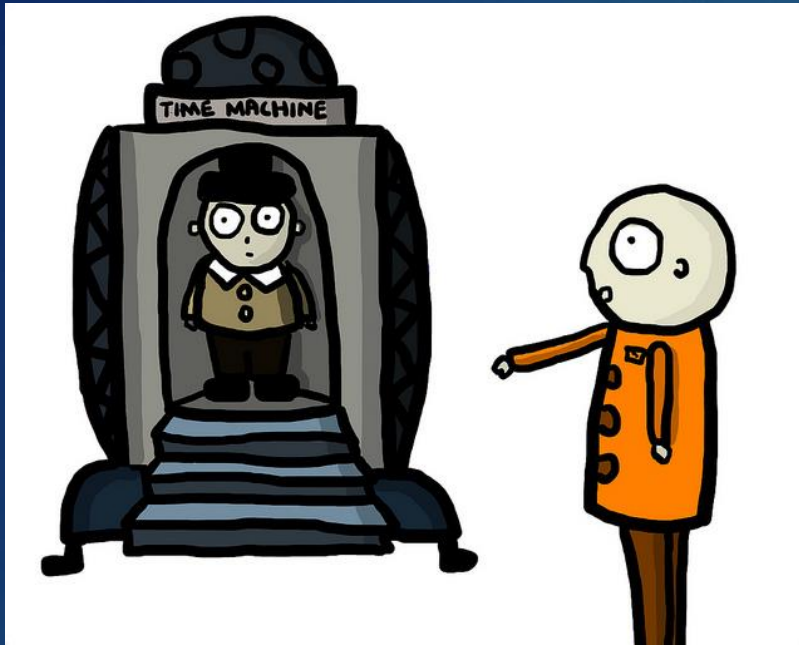
- ▶ WHERE

- ▶ Example:

```
DELETE
```

```
FROM dbo.Person
```

```
WHERE LastName =  
'Mackie'
```



EXAMPLE

INSERT, UPDATE, AND DELETE QUERIES

ASSESSMENT

INSERT, UPDATE, AND DELETE QUERIES



MySQL Data Types

- ▶ int, smallint, tinyint, bigint
- ▶ bit
- ▶ numeric, decimal
- ▶ date, datetime
- ▶ char, text, varchar

Create Table

- ▶ Components

- ▶ CREATE TABLE

- ▶ {

- ▶ Column1 data type,

- ▶ Column2 data type

- ▶ };

```
CREATE TABLE People
```

```
(
```

```
    PersonID int,
```

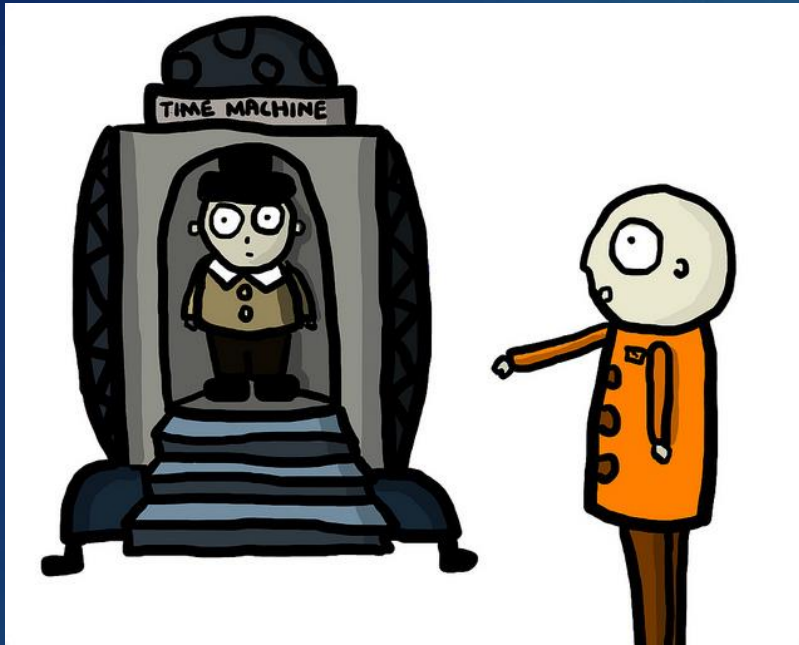
```
    LastName varchar(255),
```

```
    FirstName varchar(255),
```

```
    Address varchar(255),
```

```
    City varchar(255)
```

```
);
```

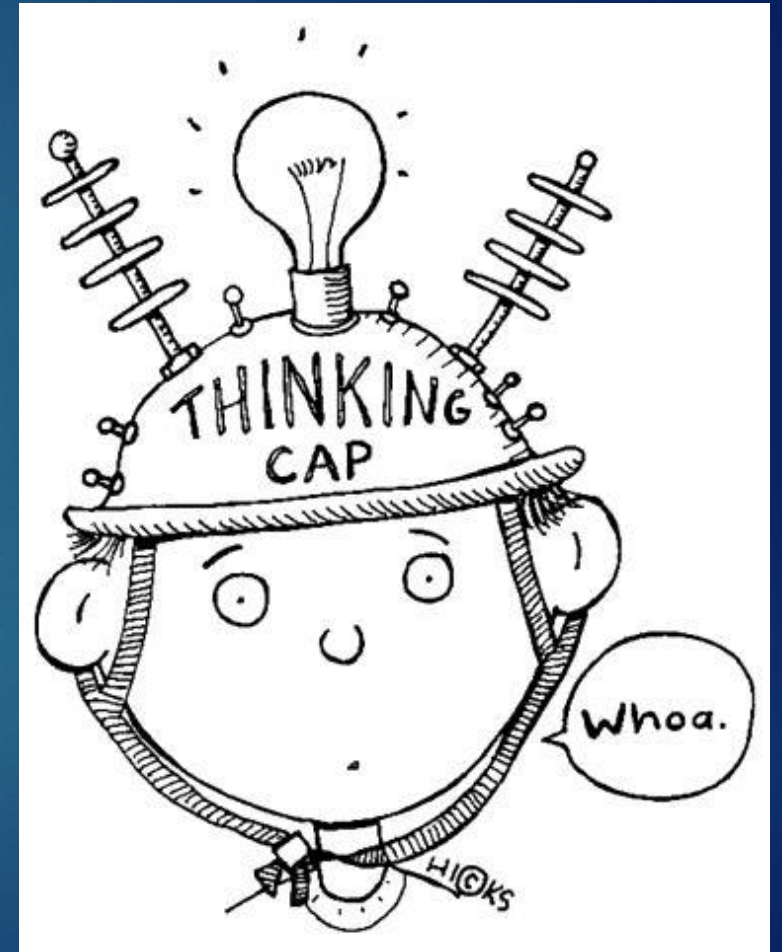


EXAMPLE

DATABASE AND TABLES

ASSESSMENT

CREATE TABLES



Assignment

- ▶ Create a table named Person with the following columns: PersonId, FirstName, LastName, and PersonStatusId.
- ▶ Create a table named PersonStatus with the following columns: PersonStatusId and StatusDescription.



Assignment

- ▶ Insert the following statuses into the PersonStatus table:
 - ▶ 1: Alive, 2: Zombie, 3: Dead, 4: Unknown
- ▶ Insert people into the Person table.



Assignment

- ▶ Perform a select of all people.
- ▶ Select all people that have an unknown status.
- ▶ Select all people that are alive or have an unknown status.
- ▶ Select all people that are alive and have first name Tom.



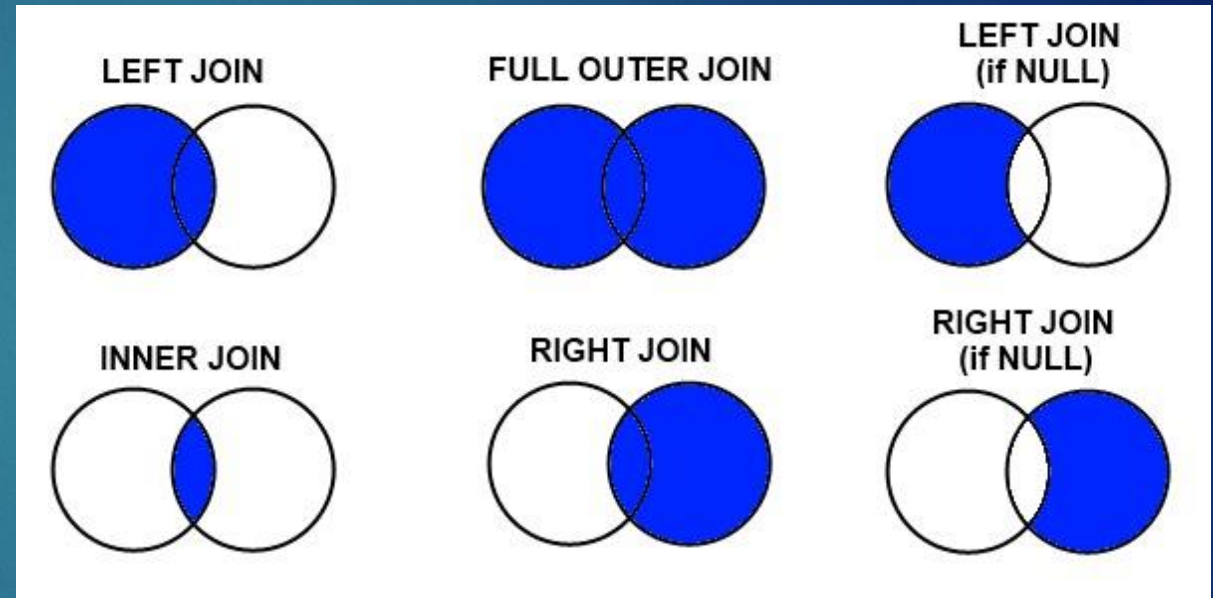
Assignment

- ▶ Update the status to Zombie for a given person based upon their name that currently has a status of Alive.
- ▶ Delete every person that is dead.



Join Types

- ▶ Inner Join
- ▶ Left Outer Join
- ▶ Right Outer Join



Inner Join

- ▶ Every row from the first table will be matched with every row from the second table based upon the on conditions specified.

```
SELECT c.ClassId, c.ClassName, t.TeacherId,  
t.FirstName, t.LastName
```

```
FROM dbo.Class c
```

```
INNER JOIN dbo.Teacher t
```

```
ON c.TeacherId = t.TeacherId
```

Left Outer Join

- ▶ Every row from the first table will be returned and results from the second table will be included only if the condition matches.

```
SELECT c.ClassId, c.ClassName, t.TeacherId,  
t.FirstName, t.LastName  
FROM dbo.Class c  
LEFT OUTER JOIN dbo.Teacher t  
ON c.TeacherId = t.TeacherId
```

Right Outer Join

- ▶ Every row from the second table will be returned and results from the first table will be included only if the condition matches.

```
SELECT c.ClassId, c.ClassName, t.TeacherId,  
t.FirstName, t.LastName  
FROM dbo.Class c  
RIGHT OUTER JOIN dbo.Teacher t  
ON c.TeacherId = t.TeacherId
```

Table Alias

- ▶ Short name that can be given to a table

- ▶ Example:

```
SELECT c.ClassId, c.ClassName, t.TeacherId,  
t.FirstName, t.LastName
```

```
FROM dbo.Class c
```

```
INNER JOIN dbo.Teacher t
```

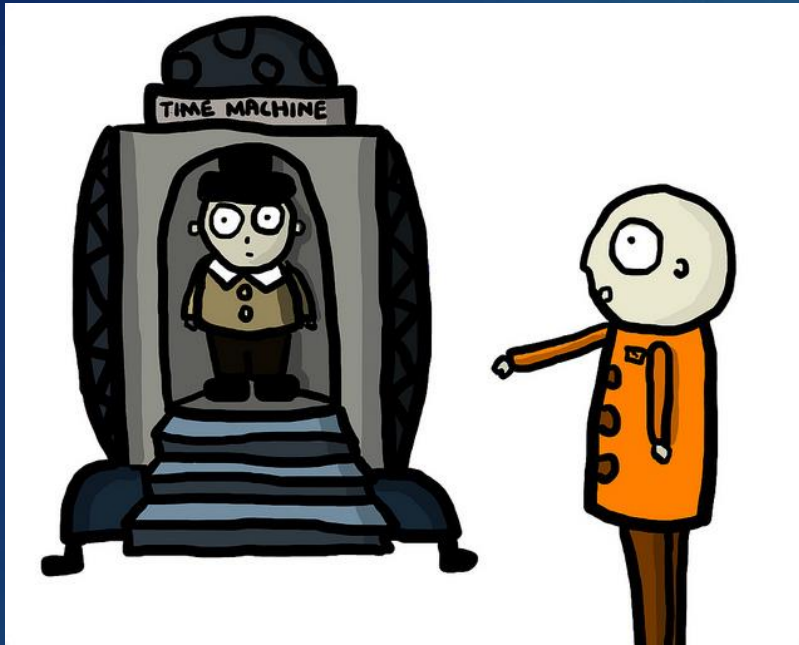
```
ON c.TeacherId = t.TeacherId
```

Column Alias

- ▶ Short name that can be given to a column

- ▶ Example:

```
SELECT c.ClassId, c.ClassName, t.TeacherId,  
t.FirstName AS TeacherFirstName, t.LastName AS  
TeacherLastName  
FROM dbo.Class c  
INNER JOIN dbo.Teacher t  
ON c.TeacherId = t.TeacherId
```

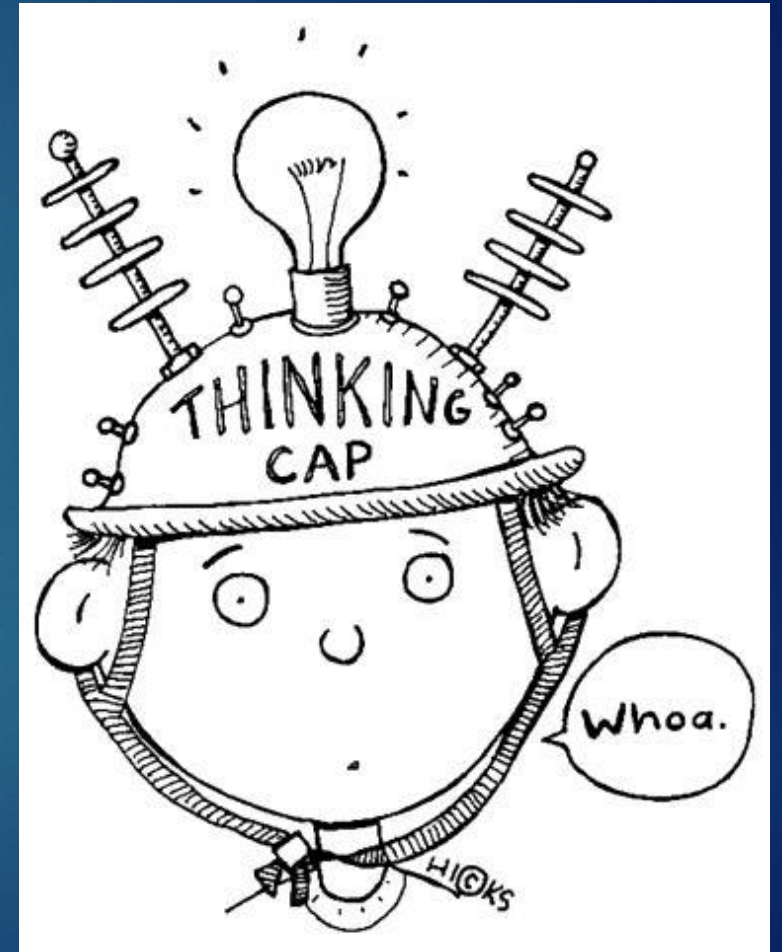


EXAMPLE

JOINS

ASSESSMENT

JOINS



Assignment

- ▶ Select all statuses joined with people to get a full list of everyone and their status.
- ▶ Change the select so that it shows all statuses regardless of whether the status is currently associated with any person.



What is an ORM?

- ▶ Object Relational Mapper
- ▶ Mismatch between Object Model and Relational Model
- ▶ ORM converts between the two
- ▶ Provides Query and Persistence Capability

Entity Framework

- ▶ Implementation of an ORM
- ▶ Created by Microsoft
- ▶ Linq Syntax used for Queries
- ▶ Data Model First vs. Code First

Dapper

- ▶ Micro ORM
- ▶ Performs only mapping and nothing else
- ▶ Fast
- ▶ Why are we using it?
 - ▶ Allows practice with database queries
 - ▶ Visibility into database and application interaction

Base Repository

```
Private string connectionString =  
@"server=localhost;port=3306;database=Assessment;user=[user];  
password=[password]";
```

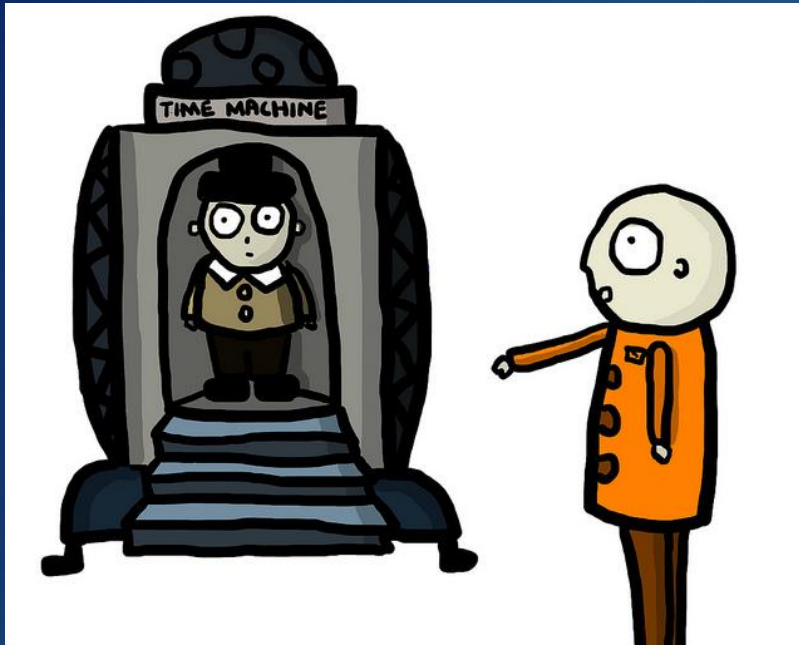
```
public IDbConnection Connection  
{  
    get  
    {  
        return new MySqlConnection(connectionString);  
    }  
}
```


Repository

```
public Subject Get(int subjectID)
{
    using (IDbConnection dbConnection = Connection)
    {
        dbConnection.Open();
        return dbConnection.Query<Subject>("Select SubjectId, Name,
        Description From Subject Where SubjectId = @SubjectId", new {
        SubjectId = subjectID }, commandType:
        CommandType.Text).FirstOrDefault();
    }
}
```

CLI Commands

- ▶ mkdir – Create Directory
- ▶ cd – Change Directory
- ▶ Add project:
 - ▶ dotnet new classlib
 - ▶ dotnet new webapi
- ▶ Add reference:
 - ▶ dotnet add reference [path]/[name.csproj]
 - ▶ dotnet add package Dapper
 - ▶ dotnet add package MySql.Data

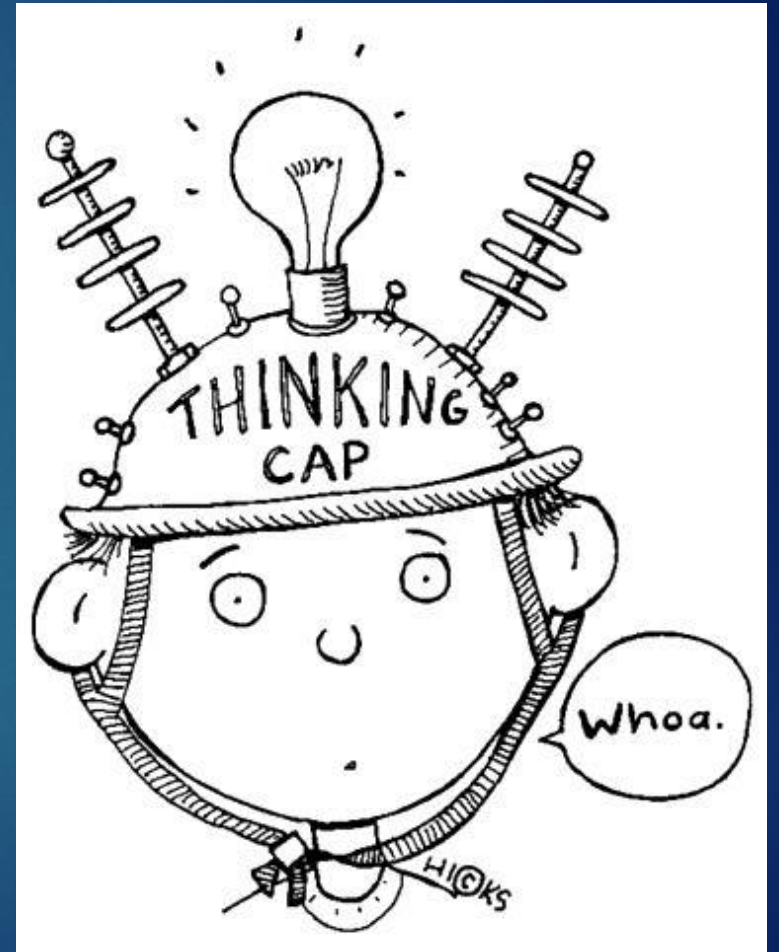


EXAMPLE

DAPPER

ASSESSMENT

DAPPER



Assignment

- ▶ A status report is needed of all government employees. Statuses are:
 - ▶ 1: Alive, 2: Zombie, 3: Dead, 4: Unknown
- ▶ Retrieve the data from the tables we created with a join.
- ▶ Loop through each record to display the status of each person in the database.



QUICK REVIEW

SQL



Additional Resources

- ▶ Code Katas

- ▶ <https://www.codewars.com/>

- ▶ UDacity

- ▶ <https://www.udacity.com/course/intro-to-relational-databases--ud197>

- ▶ MySql

- ▶ <https://www.mysql.com/>

- ▶ Sql Bolt

- ▶ <https://sqlbolt.com>

Keep Practicing!

- ▶ Try creating more tables.
- ▶ Try different selects, inserts, deletes, and updates.
- ▶ Try different joins.
- ▶ Try connecting your new tables to an application using Dapper.