

5 MINUTES OF
CONTEXT

INTRO TO SQL

AGENDA

Background

DBMS Examples

Why use SQL?

Use cases

Workshop focus

SQL BACKGROUND (STRUCTURED QUERY LANGUAGE)

-
- Edgar F Codd in the 70s: responsible for mathematical theory underpins the modern *relational* database.
 - Relational database (definition): data in tables of rows and columns. Rows represent data of same type.
 - SQL is the language for interacting with relational database management systems (RDBMS).
 - CRUD: **C**reate, **R**ead, **U**ppdate, **D**eleate – Basic operations

SQL MAIN FEATURES



Data stored in tables:
Columns define type of
data. Rows are data entries.



Column datatypes (SQLite):
Null, Integer, Real, Text, Blob
(binary). SQLite has
date+time support as well.



Database needs a blue print
(schema) that dictates what
it can store, how data is
organized.



Information is queryable
and results are tables
themselves.

DBMS EXAMPLES

MySQL

Oracle

PostgreSQL

Microsoft
SQL Server

IBM DB2

WHY USE SQL?

Organization

Speed

Redundancy,
accuracy

Data
deduplication

Availability

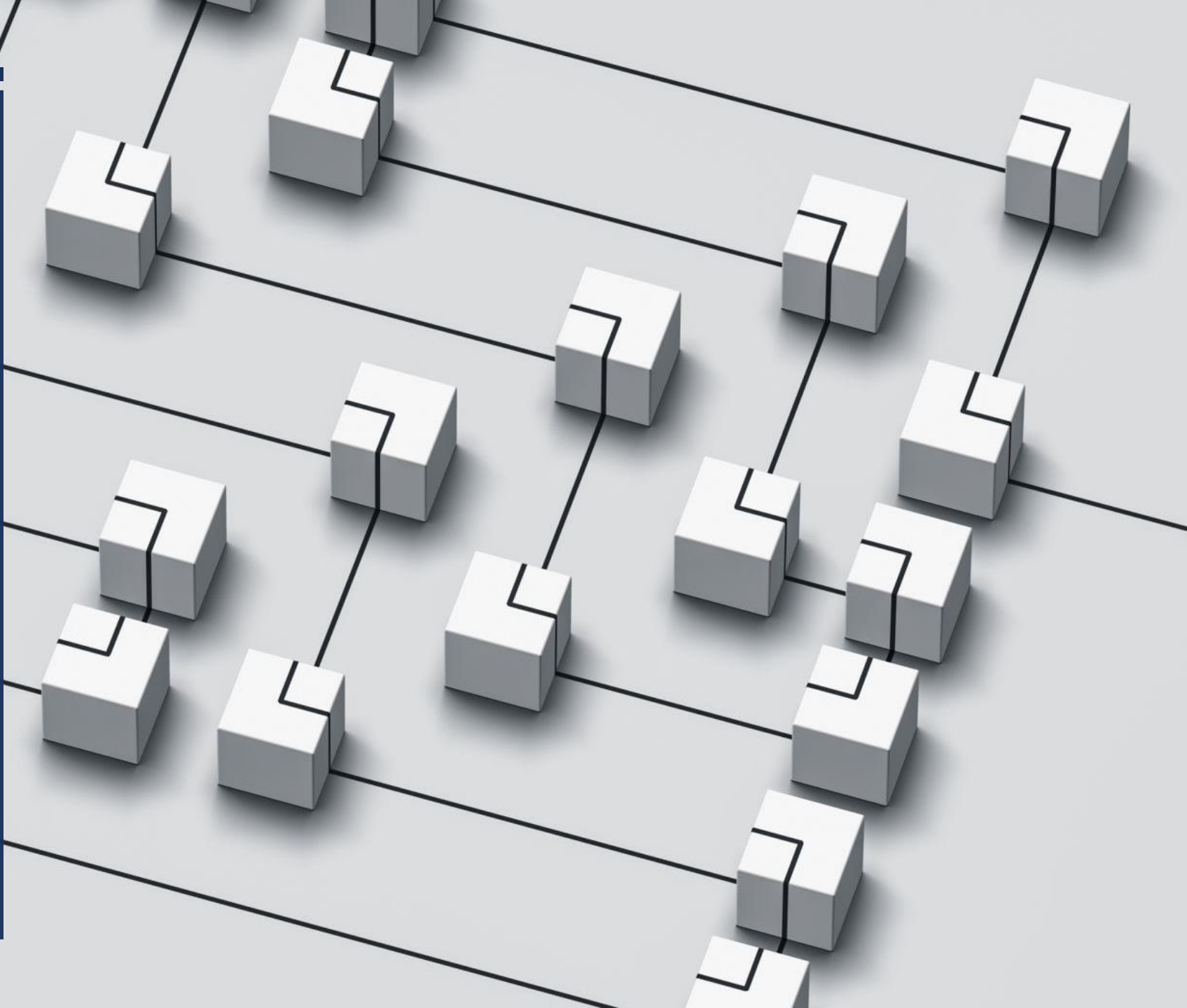
Queryable

Integration

And so much
more...

USE CASES

- Who uses relational databases?
Answer: EVERYONE.
- Non SQL Database types exist, but usually are for very specific purpose.
- Relational DB are defacto way of storing data.
- Building a website, hosting scientific/financial data, using software aggregates/uses data use relational databases.



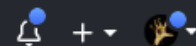
WORKSHOP 1-4 FOCUS

- **CreateReadUpdateDelete:** Read will be our focus
- Orientation of basic query operations, using Select: distinct, where, and,or,not, orderby like, in, wildwards, count, avg, sum
- Joins and aggregate operations (Group By)
- More advanced techniques: sub queries, union, intersection.
- Will use mock data, North Wind database, real world data.



NOTEBOOK SETUP

- Open up the Github repo @ https://github.com/BrockDSL/DASA_2023_SQL_Collaboration
- Click on the green Code button and download as a zip file

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✓ b0b6f76 yesterday 8 commits



Northwind_ERD.png

Updated landing page with dets.

yesterday



README.md

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yesterday



SQL_splash.png

Updated landing page with dets.

yesterday



_config.yml

adding config

3 weeks ago



w1.html

workshop 1-3 content

2 weeks ago



w2.html

workshop 1-3 content

2 weeks ago



w3.html

workshop 1-3 content

2 weeks ago



w4.html

Week 4 initial creation

4 days ago



week4_answers.md

Week 4 initial creation

4 days ago



week_4_emissions.csv

Week 4 initial creation

4 days ago



README.md



DSL / DASA Winter 2023 Workshop Series

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[Readme](#)

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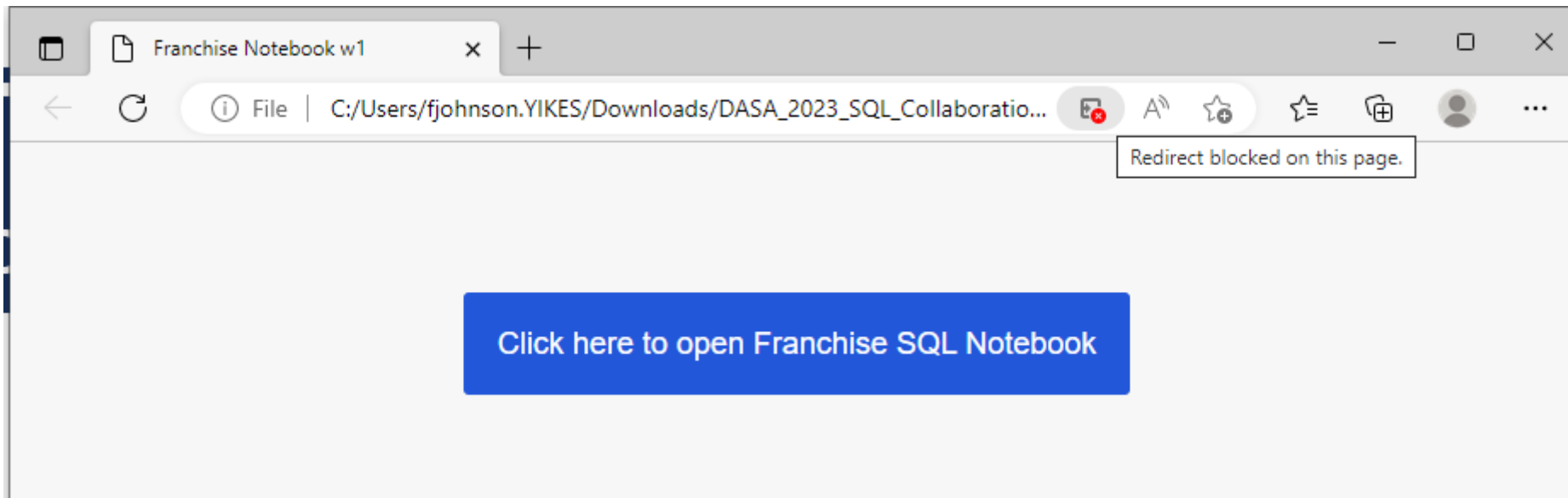
[Publish your first package](#)

Contributors 2

[elibtronic](#) Tim Ribaric[fjohnson](#) Fletcher Johnson

NOTEBOOK SETUP

- Open the appropriate week's notebook in your browser i.e w1.html for week 1 (Chrome, Edge)
- Don't click the blue "Click here to open Franchise SQL Notebook", it doesn't work!
- Instead, once open, enable redirection and reload the page (CTRL+R)




NOTEBOOK SETUP

- Once open, click on “Connect to a Database”
- Choose SQLite, then click “Browse Data file”. Navigate to the folder where you extracted the zip file and select northwind.db

Franchise

what you get when you add a lot of sequels

 Download



Connect to a Database

Settings ▲

SQLite

PostgreSQL

MySQL

BigQuery

MongoDB

Microsoft SQL Server

Oracle

IBM DB2

Teradata



Franchise includes an in-browser version of the powerful SQLite engine.

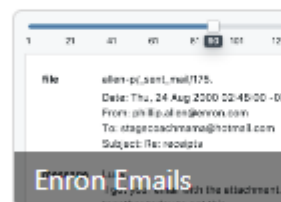
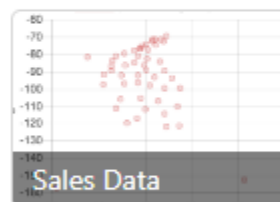
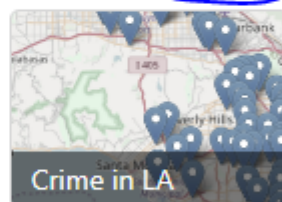
Click the button below to browse for **CSV**, **XLSX**, **JSON**, **SQLite**, or **SQL** files on your computer.



Browse
Data File

or create a [blank notebook](#)

Don't have any data handy? No problem, check out one of our **sample notebooks**:



NOTEBOOK SETUP

- Now you should be all set up and ready to run!
- But there are a few extras in the code repository you should be aware of...
- When we start working with the NorthWind database, this diagram will come in very handy for interpreting its organization
 - https://raw.githubusercontent.com/BrockDSL/DASA_2023_SQL_Collaboration/main/Northwind_ERD.png
- Answers for each weeks exercises exist in [week1-3_answers.md](#) and [week4_answers.md](#). View them on Github.

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main

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