

Getting Started

Welcome to this Course!

What Is SQL?

```
SELECT id, first_name, salary  
FROM employees  
WHERE salary > 10000;
```

```
INSERT INTO employees (first_name, salary)  
VALUES ('Max', 9000);
```

```
DELETE FROM employees  
WHERE id = 2;
```

SQL Is A Language For Handling Structured, Relational Data

Employees

id	name	salary	dep_id
1	Max	10000	1
2	Julie	15000	1
3	Marc	8000	3

You can define + create data tables with SQL

Departments

id	dep_name	location
1	Developers	Munich
2	Sales	Berlin
3	Accounting	Berlin

You define data types + values with SQL

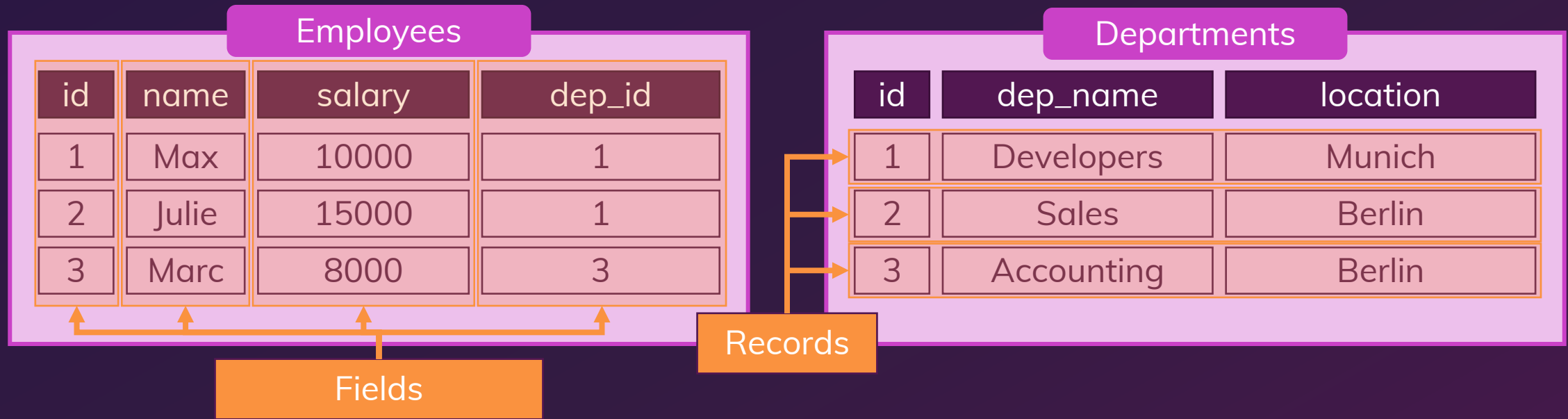
```
SELECT name, salary, dep_name, location
FROM employees INNER JOIN departments ON dep_id = departments.id
WHERE salary >= 10000
```

This is a SQL command

You can insert, update, delete & fetch + filter data with SQL

name	salary	dep_name	location
Max	10000	Developers	Munich
Julie	15000	Developers	Munich

SQL Is A Language For Handling Structured, Relational Data



Relations

In RDBMS & with SQL, data is commonly split across multiple tables which are related via record ids

SQL is typically used for managing data in relational database management systems (RDBMS)

Database systems that organize **normalized** data into multiple, **related tables** where each table contains multiple **fields (columns)** for various **records (rows)**

Normalized Data

Single tables don't contain nested or compound data; Instead, data is split across multiple tables

Relational Database Management Systems (RDBMS)

Relation Database Management Systems
(RDBMS)

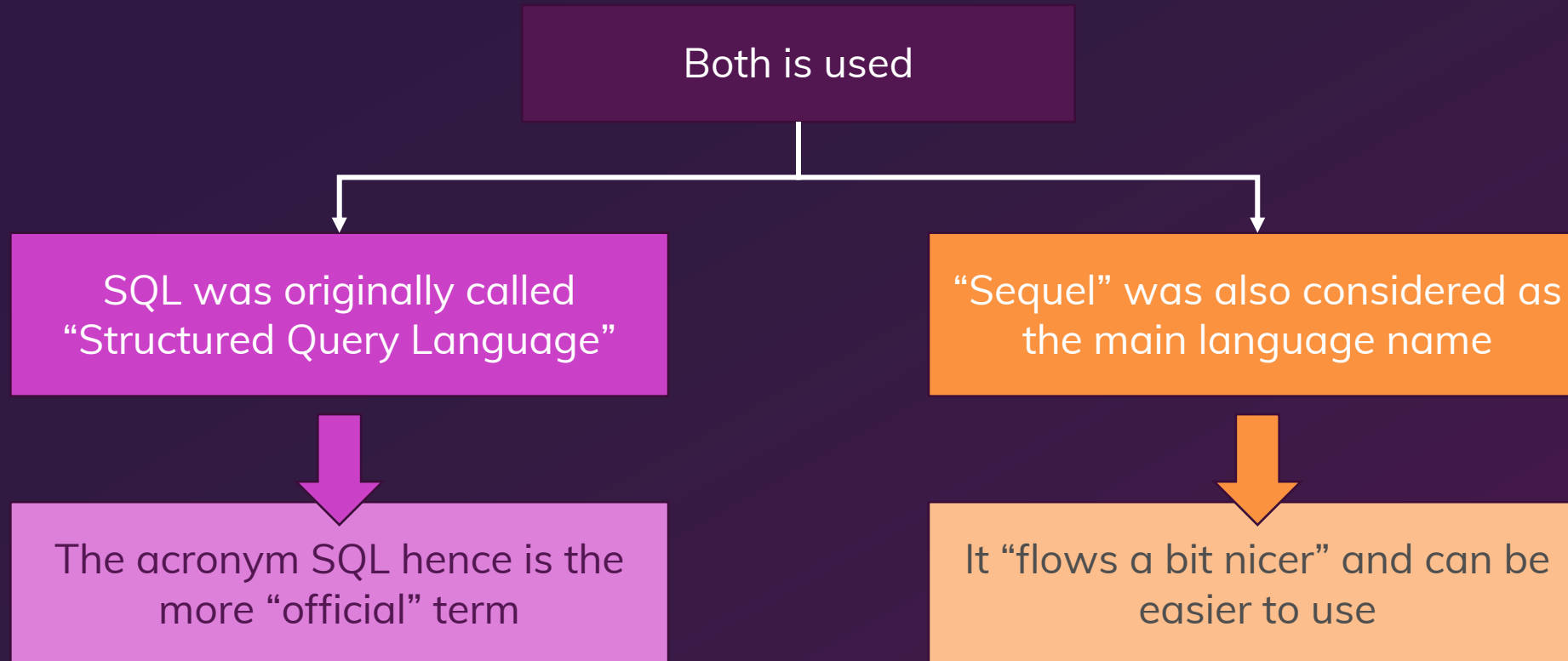


Software that handles the actual data
management and storage



Use SQL as a language for you to interact with the database (e.g. for creating tables) and the data stored in those tables (e.g. select & filter data, insert data ...)

S.Q.L. or Sequel?



Why Would You Use A Database (System)?



Transactional Data / Application Data

You / your application needs to store (user-)generated data

e.g. products, orders, user accounts, blog posts, comments, likes, ...



Almost all websites & mobile apps need some kind of database



Data Analytics / Report Data

You need to store (and analyze) analytics data

e.g. website log data, sales data, weather data, energy data, ...

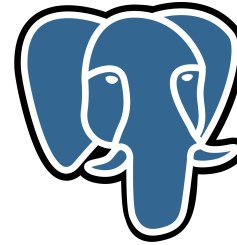


Most businesses gather + analyze data

Popular RDBMS



MySQL



Postgresql

Oracle Database

Microsoft SQL Server

Microsoft Access

SQLite

and many others...

SQL is **standardized** – but
different database systems
provide **slightly different SQL
features & commands**

SQL Is Not Limited To RDBMS!

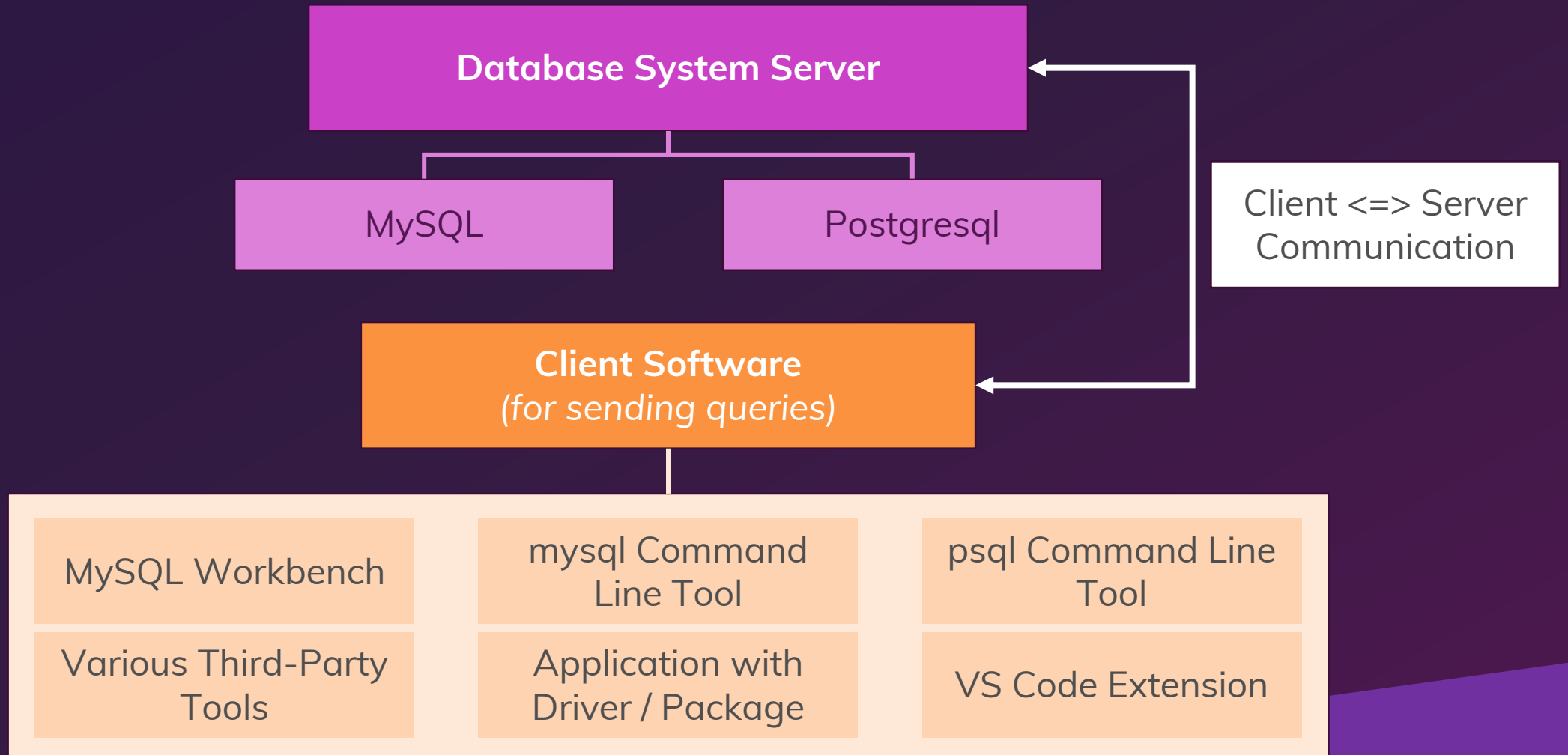
Working with RDBMS is the most common use-case

But

SQL is also very commonly used for data analytics on data stored in various formats (i.e. without a database)

**This course teaches SQL in
general – you will be able to
use it for RDBMS or data
science!**

Course Setup



Database Server vs Databases vs Tables vs Data

Database Server (Cluster)

Database

Table

id	first_name	last_name	dep_id
1	Max	Schwarz	2
2	Manuel	Lorenz	1
3	Julie	Jules	2

Table

id	dep_name	location
1	Analytics	Munich
2	Developers	Berlin

Database

Table

Table

Database

Table

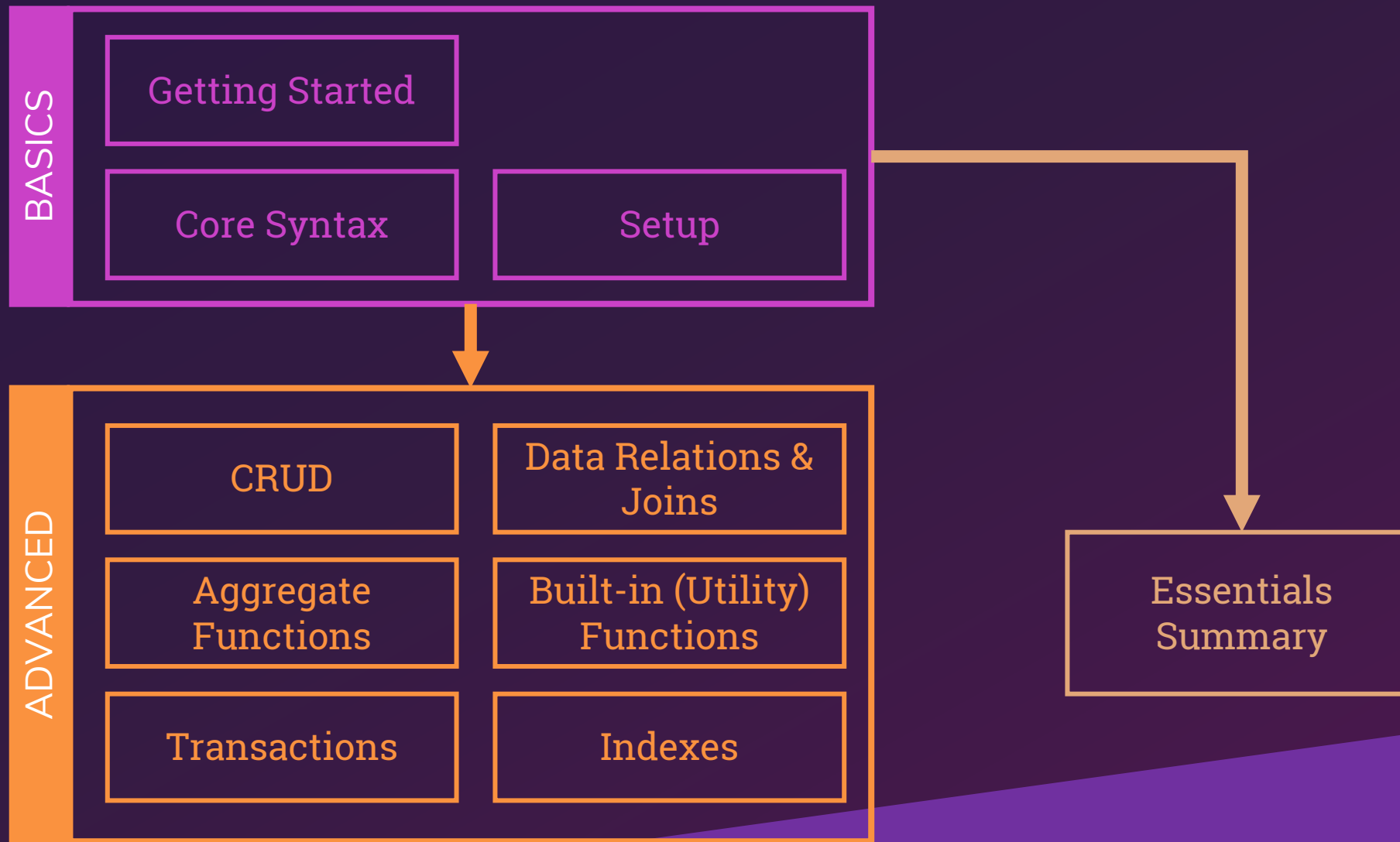
Table

Database

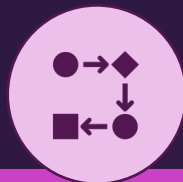
Table

Table

Course Outline



One Course – Two Options



Standard Approach (Recommended)

Start with lecture 1 in section 1 and go through the course step by step

Use the SQL summary module (“A Complete Example”) at the end of the course to summarize what you learned or to refresh knowledge in the future



Summary Approach (If you’re in a hurry)

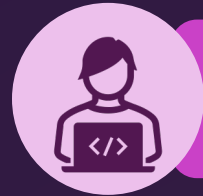
Skip forward to the SQL summary module at the end of the course after finishing the “Basics” modules

Go through the entire course after going through the summary module and / or if you got more time in the future

How To Get The Most Out Of The Course



Watch the Videos
(choose your pace)



Code Along & Practice
(also without me telling you)



Debug Errors & Explore Solutions
(also use code attachments)



Help Each Other & Learn Together
(Discord, Q&A Board)