



querying the database

SQL = **Structured Query Language**

1. a programming language specifically designed for working with databases

+

2. allows you to write queries that the computer can execute and then provide database insights in return

- intuitive
- easy-to-learn
- for business problems involving the processing of large amounts of data
- powerful

types of programming:

procedural (imperative)

object-oriented

declarative

functional

Customers					
customer_id	first_name	last_name	email_address	number_of_complaints	
1	John	McKinley	john.mackinley@365careers.com	0	
2	Elizabeth	McFarlane	e.mcfarlane@365careers.com	2	
3	Kevin	Lawrence	kevin.lawrence@365careers.com	1	
4	Catherine	Winnfield	c.winnfield@365careers.com	0	

SALES			
purchase_number	date_of_purchase	customer_id	item_code
1	03/09/2016	1	A_1
2	02/12/2016	2	C_1
3	15/04/2017	3	D_1
4	24/05/2017	1	B_2
5	25/05/2017	4	B_2
6	06/06/2017	2	B_1
7	10/06/2017	4	A_2
8	13/06/2017	3	C_1
9	20/07/2017	1	A_1
10	11/08/2017	2	B_1

Items					
item_code	item	unit_price_usd	company_id	company	headquarters_phone_number
A_1	Lamp	20	1	Company A	+1 (202) 555-0196
A_2	Desk	250	1	Company A	+1 (202) 555-0196
B_1	Lamp	30	2	Company B	+1 (202) 555-0152
B_2	Desk	350	2	Company B	+1 (202) 555-0152
C_1	Chair	150	3	Company C	+1 (229) 853-9913
D_1	Loudspeakers	400	4	Company D	+1 (618) 369-7392

relational algebra allows us to retrieve data efficiently

procedural (imperative)

how

declarative (nonprocedural)

WHAT

1. Please, open the door.
2. Go outside.
3. Take the bucket I forgot there.
4. Bring it back to me

1. Fetch the bucket, please.

main components of SQL's syntax:

- Data Definition Language (DDL)
- Data Manipulation Language (DML)
- Data Control Language (DCL)
- Transaction Control Language (TCL)