

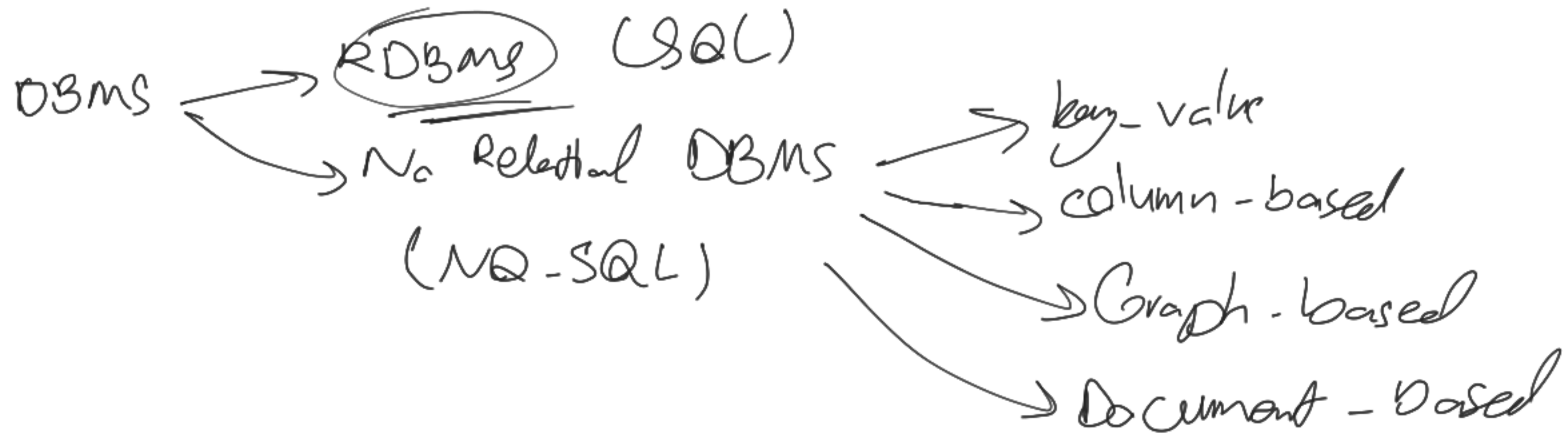
Database (Relational) + SQL

Text Docx PDF CSV xls

Set Theory
Maths

DBMS \longleftrightarrow Database Management System

DBMS $\begin{cases} \rightarrow \text{Relational} \\ \rightarrow \text{Non Relational} \end{cases}$



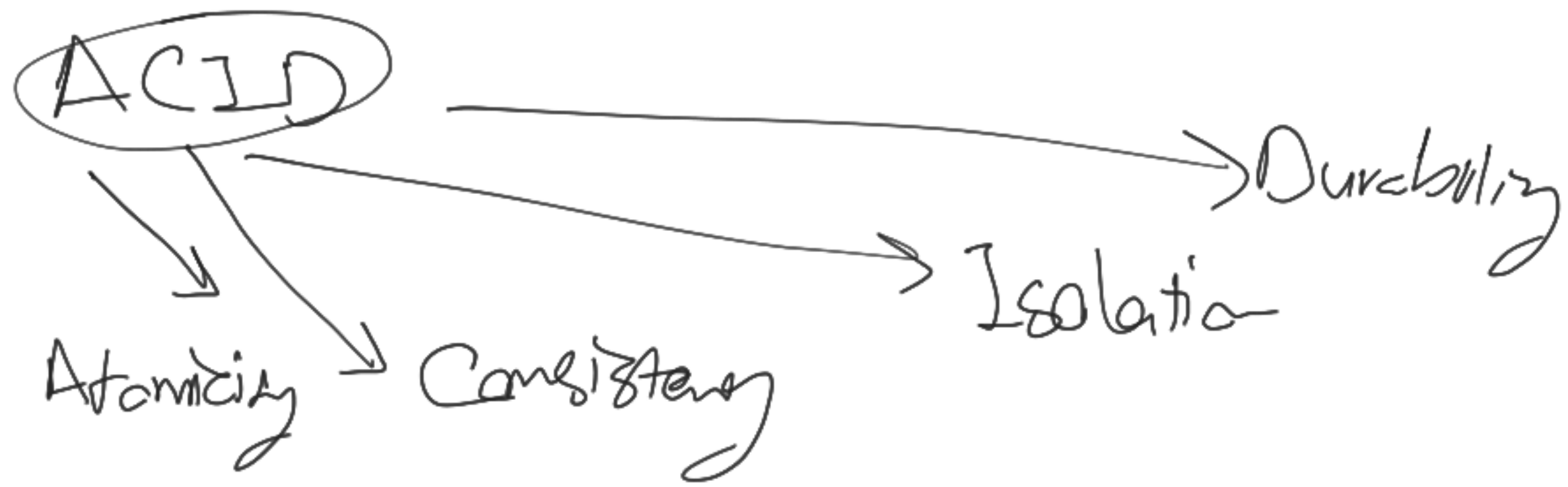
SQL

CRUD



MySQL, MariaDB, PostgreSQL, Microsoft SQL Server, Oracle





RDBMS

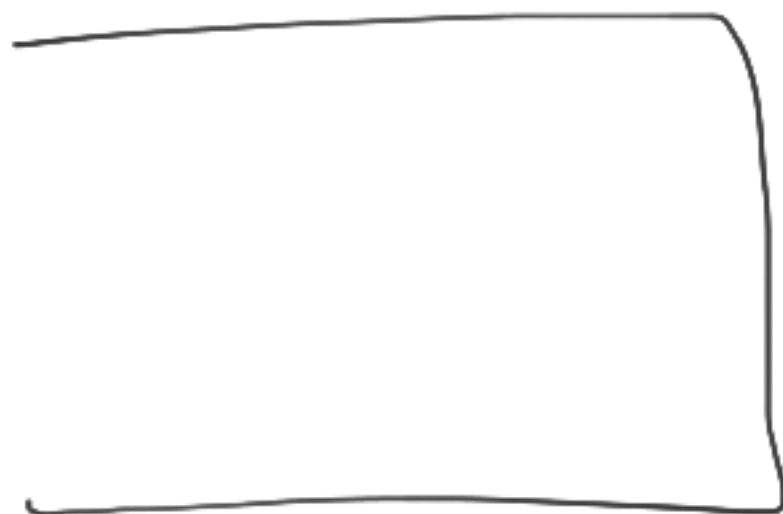
Table

Schema

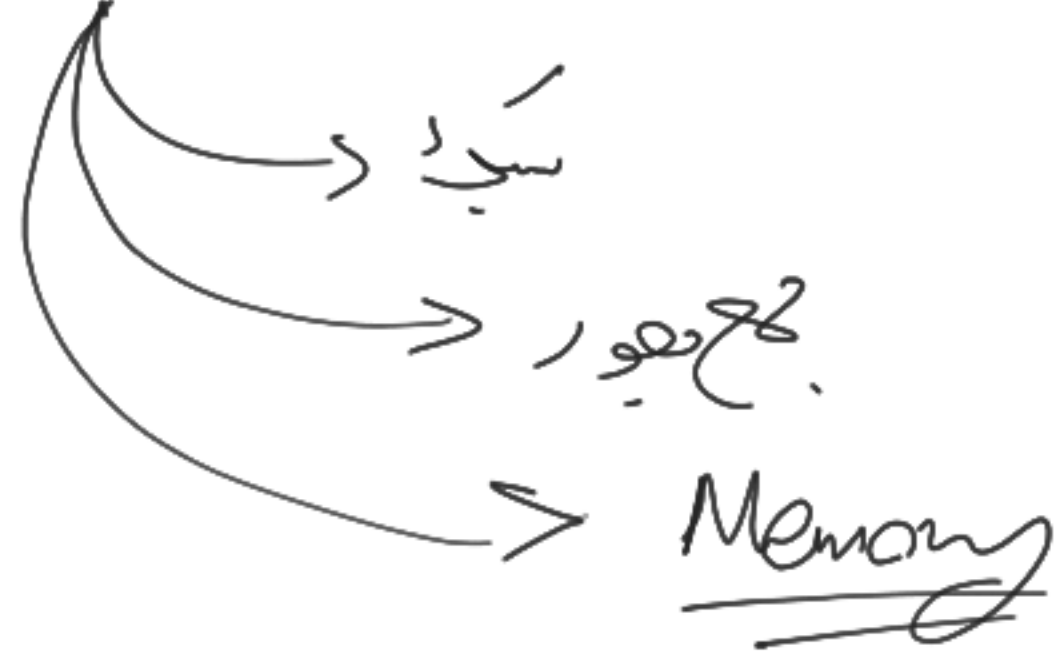
Row
Record

Field Field

	↓	↓	↓	↓	↓	↓



SQLite



MySQL

PostgreSQL

INTEGER

اعداد صحیح

REAL

اعداد اعشاری \rightarrow 8-byte 64 bit

TEXT

نص

BLOB

Binary Large Object

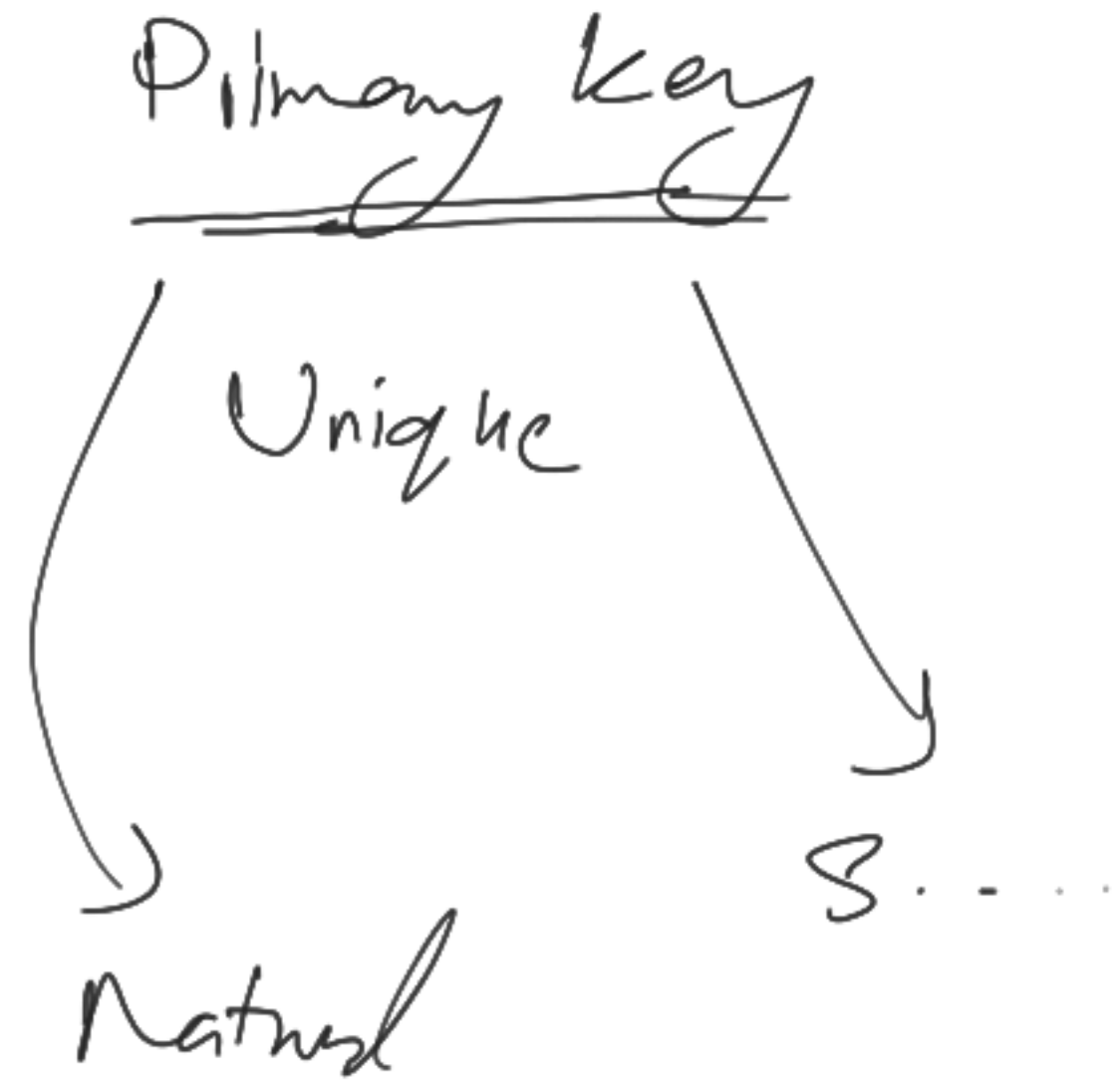
NULL

None in Python

Primary key

id

1	Jack	Biology
5	Jack	Biology




```
CREATE TABLE table_name (  
    column_name type constraint,  
    "  
    "  
    "  
    "  
);
```

Table ~~create~~

```
INSERT INTO table_name VALUES ( );
```

UPDATE table-name

SET column1 = value1, column2 = value2,

WHERE condition:

optional

DELETE FROM table-name

WHERE condition;

ALTER TABLE ADD COLUMN column-name data-type;

// // DROP COLUMN column-name;

SELECT column 1, column 2, column 3, ... FROM table-name;

SELECT * FROM table-name;

→ WHERE condition

= >= <= < > <> AND OR

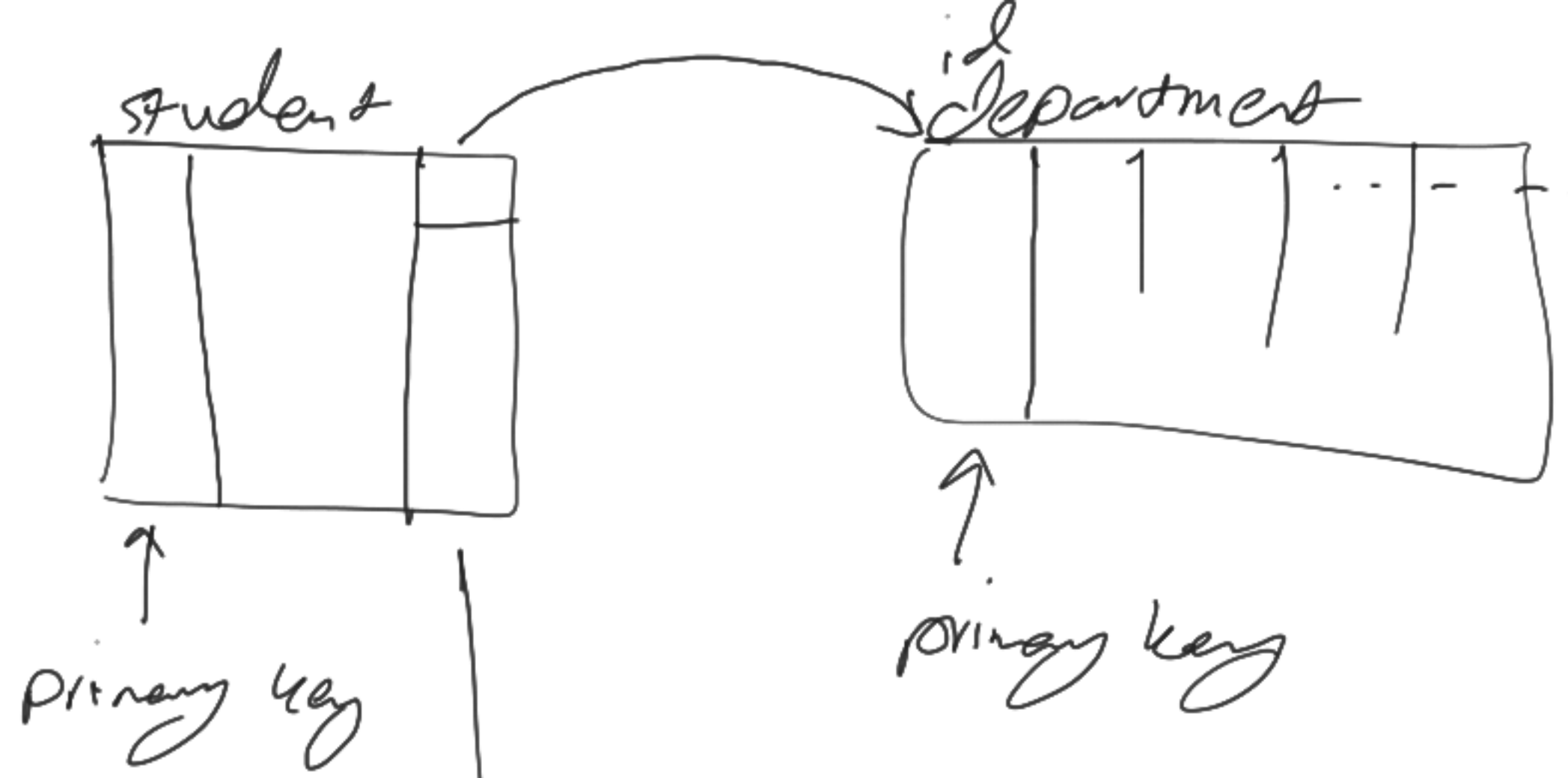
Student_id <= 4 AND ~~Name~~ = 'JAKE'

SELECT ... FROM ... ^{optional} WHERE condition
ORDER BY gpa ASC, name DESC, major ASC;

ORDER BY name ASC
DESC



name	id	major	math	english	Supervisor	du
						—
						—
						+
						+
						##
						##



Foreign key

	none
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