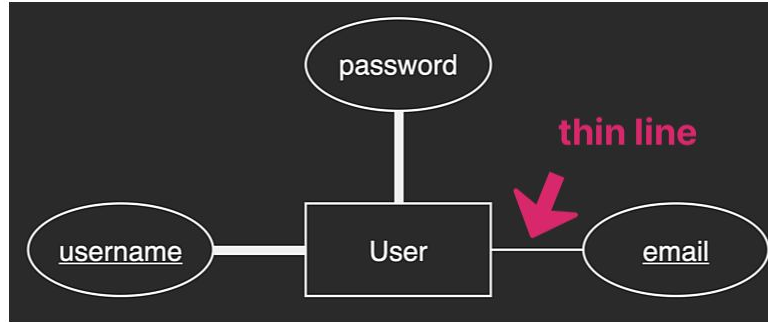# Database Tables

Database tables

Composed of rows and columns

Attributes are generally analogous to columns

Relationships often involve references between tables

Table rows are also known as "Database Records"
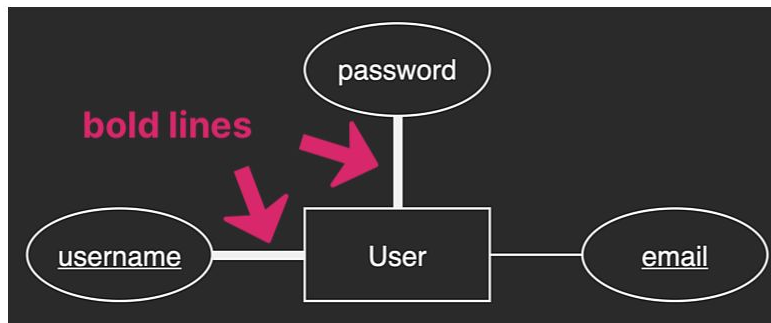
Database table example

SQL with Python

nucamp

password

thin line

username — User — email

Users table

username	password	email
alice12	1234	
bob45	p455w0rd	
carol995	1234	carol@example.com
dave	mysteryw0rd	dave@example.com
edgar	data4life	

Nulls allowed

Database table example
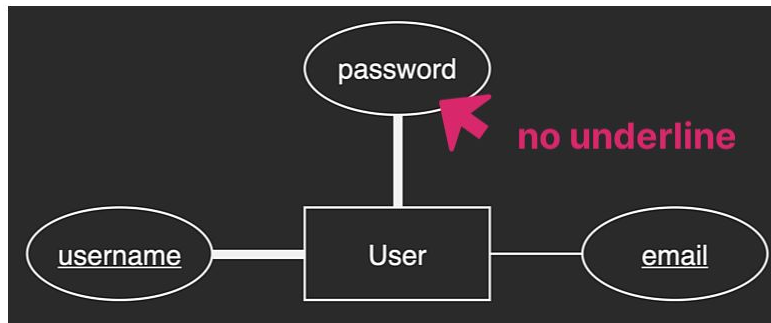
bold lines

password

username   User   email

Users table

Nulls not allowed

username	password	email
alice12	1234	
bob45	p455w0rd	
carol995	1234	carol@example.com
dave	mysteryw0rd	dave@example.com
edgar	data4life	

Database table example

no underline

Users table

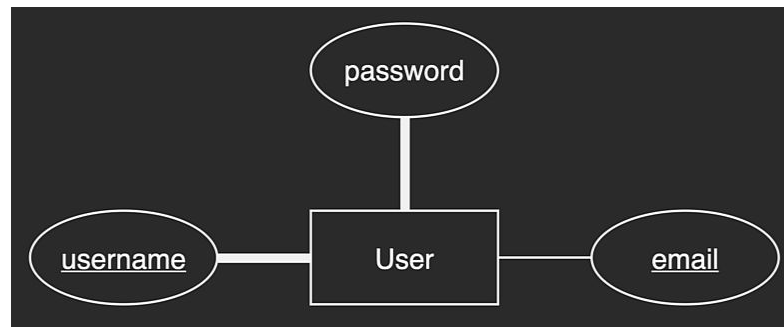| username	password	email
alice12	1234	
bob45	p455w0rd	
carol995	1234	carol@example.com
dave	mysteryw0rd	dave@example.com
edgar	data4life	

Primary keys

One or more columns/attributes with a unique value for each row

A key composed of a tuple of multiple attributes is called a **composite primary key**, and the tuple must be unique for each row

Non-nullable

Primary Keys: Question

Given this ER diagram and corresponding table, which one of the columns in the table satisfies the definition of a primary key?

Pause the video until you find the answer

Users table

username	password	email
alice12	1234	
bob45	p455w0rd	
carol995	1234	carol@example.com
dave	mysteryw0rd	dave@example.com
edgar	data4life	

Primary Keys: Question

Given this ER diagram and corresponding table, which one of the columns in the table satisfies the definition of a primary key?
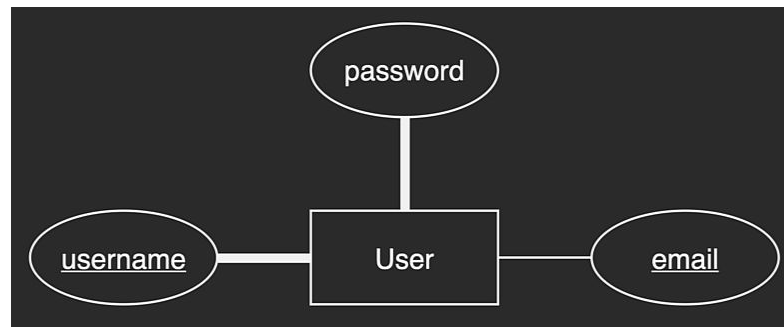

Answer: username because it is unique and non-nullable

Users table

username	password	email
alice12	1234	
bob45	p455w0rd	
carol995	1234	carol@example.com
dave	mysteryw0rd	dave@example.com
edgar	data4life	

Primary Keys: ID Columns

id	username	password	email
1	alice12	1234	
2	bob45	p455w0rd	
3	carol995	1234	carol@example.com
4	dave	mysteryw0rd	dave@example.com
5	edgar	data4life	

Typically a sequential integer (1, 2, 3...) or UUID (unique, randomly generated value)
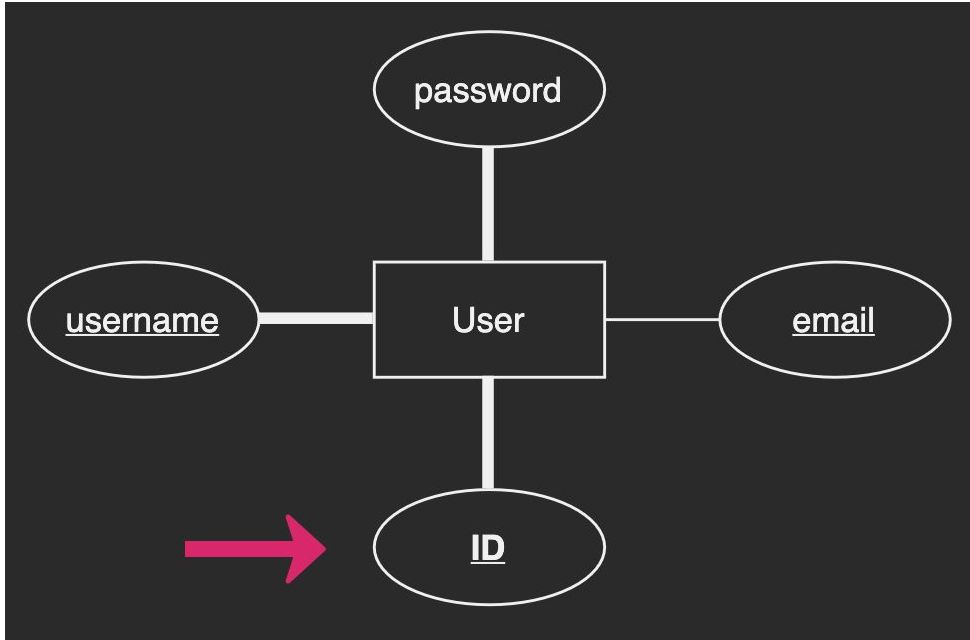
Values should be constant

Flexible and maintainable

Reliable way to look up records

Primary Keys: ER Diagram

Indicated with bold attribute name

id	username	password	email
1	alice12	1234	
2	bob45	p455w0rd	
3	carol995	1234	carol@example.com
4	dave	mysteryw0rd	dave@example.com
5	edgar	data4life	