Relational Schemas: Primary Key

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Sales			
purchase_number	date_of_purchase	customer_id	item_code
1	9/3/2016	1	A_1
2	12/2/2016	2	C_1
3	4/15/2017	3	D_1
4	5/24/2017	1	B_2
5	5/25/2017	4	B_2
6	6/6/2017	2	B_1
7	6/10/2017	4	A_2
8	6/13/2017	3	C_1
9	7/20/2017	1	A_1
10	8/11/2017	2	B_1

Relational Schemas: Primary Key

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

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purchase_number	date_of_purchase	customer_id	item_code
1	9/3/2016	1	A_1
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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

Sales

purchase_number	date_of_purchase	customer_id	item_code
1	9/3/2016	1	A_1
2	12/2/2016	2	C_1
3	4/15/2017	3	D_1
4	5/24/2017	1	B_2
5	5/25/2017	4	B_2
6	6/6/2017	2	B_1
7	6/10/2017	4	A_2
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B_2	Desk	350	2	Company B	+1 (202) 555-0152
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Companies

company	Headquarters_Phone_number	company_id
Company A	+1 (202) 555-0196	1
Company B	+1 (202) 555-0152	2
Company C	+1 (229) 853-9913	3
Company D	+1 (618) 369-7392	4

Relational Schemas: Primary Key

- these tables have a tabular shape

Relational Schemas: Primary Key

- these tables have a tabular form

- a relational schema can be applied to represent them

Relational Schemas: Primary Key

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sales per customer of our company

Sales

purchase_number	date_of_purchase	customer_id	item_code
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2	12/2/2016	2	C_1
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6	6/6/2017	2	B_1
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7	6/10/2017	4	A_2
8	6/10/2017	3	C_1
9	7/20/2017	1	A_1
10	8/11/2017	2	B_1

the dates of a few purchases may coincide

Relational Schemas: Primary Key

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purchase_number	date_of_purchase	customer_id	item_code
1	9/3/2016	1	A_1
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3	4/15/2017	3	D_1
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5	5/25/2017	4	B_2
6	6/6/2017	2	B_1
7	6/10/2017	4	A_2
8	6/10/2017	3	C_1
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the ID of a customer may appear a few times

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6	6/6/2017	2	B_1
7	6/10/2017	4	A_2
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there is a possibility to see the same item code a few times

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1	9/3/2016	1	A_1
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8	6/10/2017	3	C_1
9	7/20/2017	1	A_1
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all the numbers in this column will be different

primary key

a column (or a set of columns) whose value exists and is unique for every record in a table is called a **primary key**

Relational Schemas: Primary Key

- Primary Key

Relational Schemas: Primary Key

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Relational Schemas: Primary Key

- <u>Primary Key</u>

  may be composed of a set of columns

Relational Schemas: Primary Key

Primary Key

may be composed of a set of columns

e.g. "purchase_number" + "date_of_purchase"

Sales			
purchase_number	date_of_purchase	customer_id	item_code
1	9/3/2016	1	A_1
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Relational Schemas: Primary Key

- ## Primary Key

  may be composed of a set of columns
  e.g. "purchase_number" + "date_of_purchase"

Sales			
purchase_number	date_of_purchase	customer_id	item_code
1	9/3/2016	1	A_1
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4	5/24/2017	1	B_2
5	5/25/2017	4	B_2
6	6/6/2017	2	B_1
7	6/10/2017	4	A_2
8	6/10/2017	3	C_1
9	7/20/2017	1	A_1
10	8/11/2017	2	B_1

Relational Schemas: Primary Key

- **<u>Primary Key</u>**

  one-column primary key = all purchases will be recorded under a different number

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- cannot contain null values!
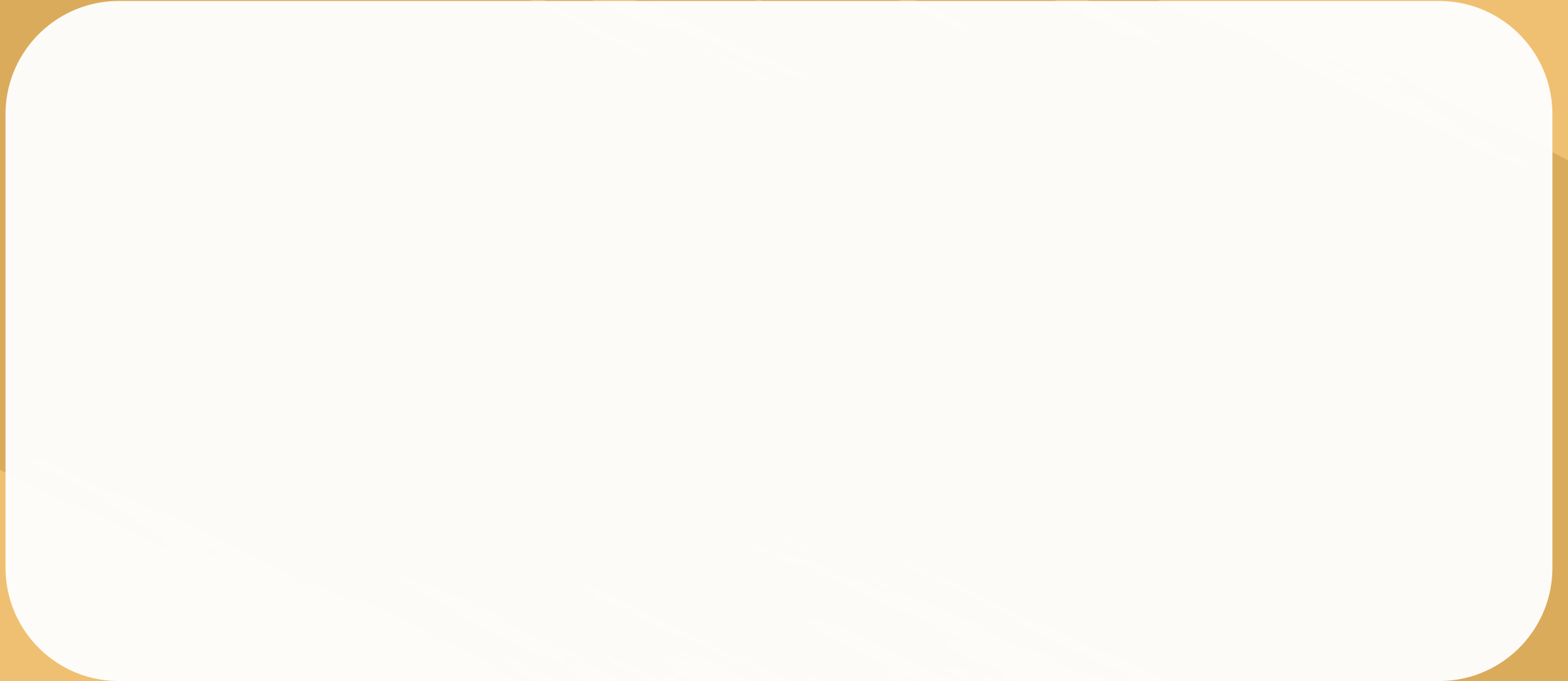
Relational Schemas: Primary Key

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8	6/10/2017	3	C_1
9	7/20/2017	1	A_1
10	8/11/2017	2	B_1

Relational Schemas: Primary Key

Relational Schemas: Primary Key

Sales

purpose_number
date_of_purchase
customer_id   (FK)
item_code   (FK)

Table name: Sales
Primary key: purchase_number
Other fields: date_of_purchase, customer_id, item_code

Relational Schemas: Primary Key

Sales

purchase_number

date_of_purchase

customer_id   (FK)

item_code   (FK)

=

Sales			
purchase_number	date_of_purchase	customer_id	item_code
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- not all tables you work with will have a primary key

relational schema

Sales

purchase_number
date_of_purchase
customer_id   (FK)
item_code   (FK)

Relational Schemas: Primary Key

database schema

Customers

customer_id
first_name
last_name
email_address
number_of_complaints

Sales

purchase number
date_of_purchase
customer_id   (FK)
item_code   (FK)

Items

item code
item
unit_price
company_id   (FK)

Companies

company id
company_name
headquarters_phone_number
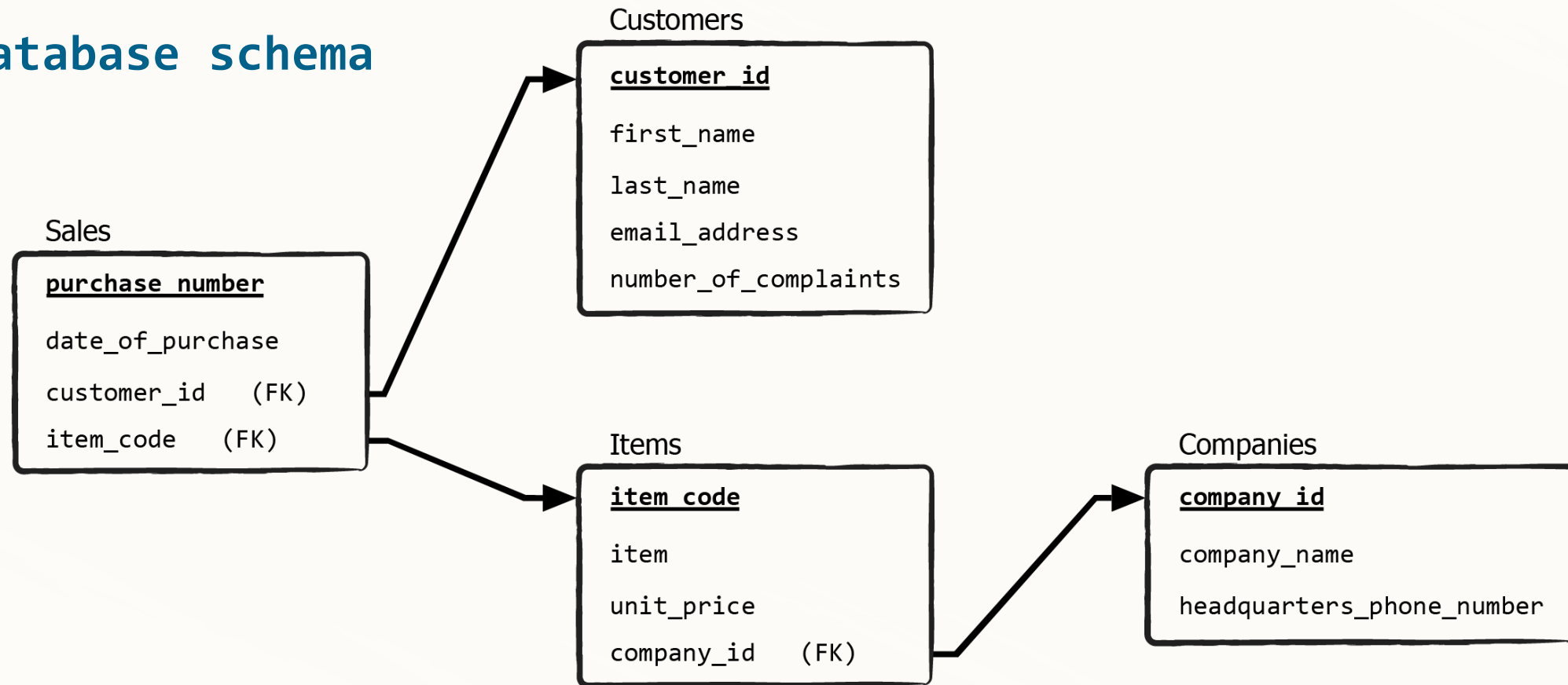
Relational Schemas: Primary Key

database schema

(relational schemas)

Sales

purchase number

date_of_purchase

customer_id   (FK)

item_code   (FK)

Customers

customer id

first_name

last_name

email_address

number_of_complaints

Items

item code

item

unit_price

company_id   (FK)

Companies

company id

company_name

headquarters_phone_number