

Primary key

Key - any set of attributes that uniquely identify entities

Candidate key - any key ~~not in the~~ other than PK

Prime Attribute - attribute in a key

Non-prime Attribute - attributes not in keys

Functional Dependency - $X \rightarrow Y$ X determines Y
Y f.d. on X

$Y = f(X)$ - knowing X tells us Y

Person

pk person-id

k (dl-state
dl-number

~~the~~ birth-date

cc-no

cc-type

Lots

parcel-id country lot-no tax-rate size tax



Fix:

LOTS

parcel-id

country

lot-no

size

~~tax~~

FK

tax-rates

country

tax-rate

Sales

sale-id

sale-state

~~sale-tax-rate~~

sale-amount

sale-tax

sale-total

FK →

sale-tax-rates

~~sale~~ state

tax-rate

inv-line
inv-id
line-no

SKU Fk

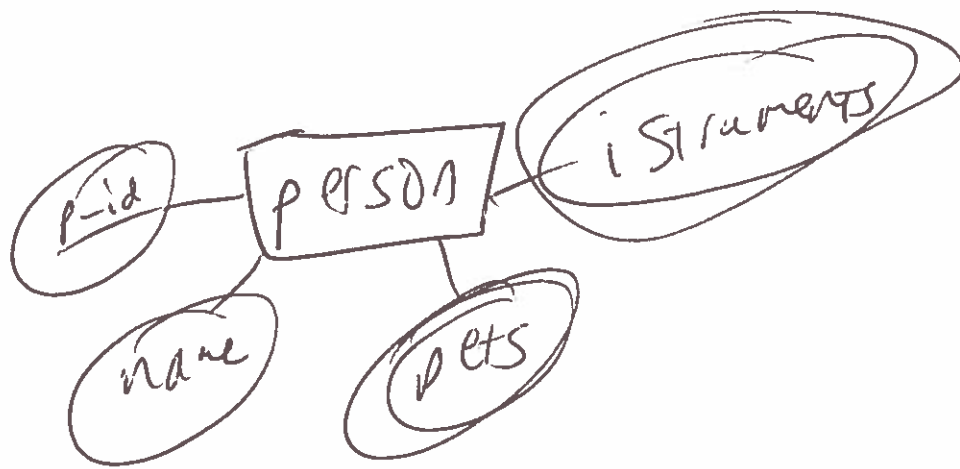
~~Description~~
quantity
price paid

Product

SKU

Description
price

price not f.d. on
SKU



person
pers-id
 name

pers-id	name
1	A
2	B

person - ~~PF~~ a PF

pers-id

1

1

1

1

pet

Sparty

jingles

Sparty

jingles

instrument

trumpet

keytar

keytar

trumpet

?

person - pet

1

Sparty

1

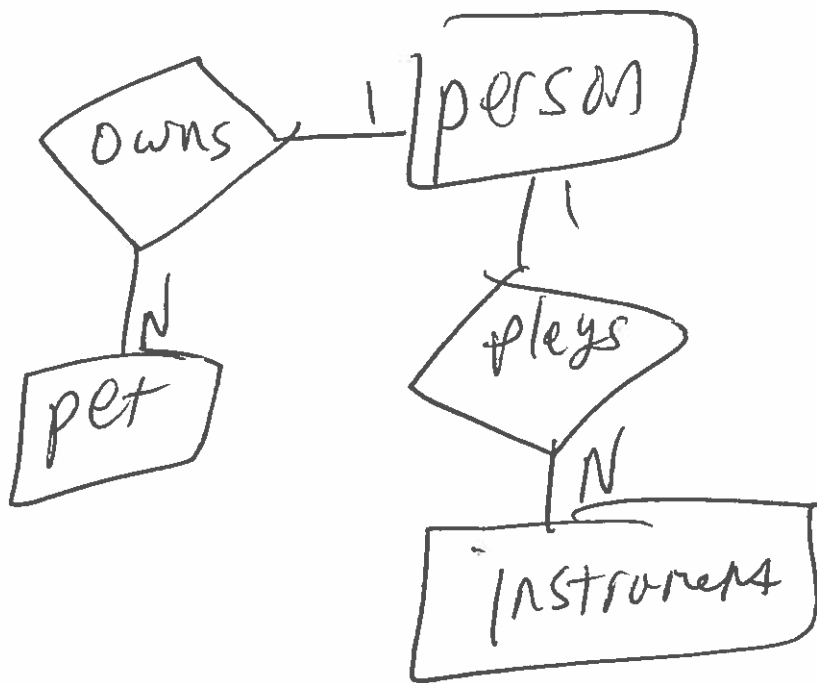
jingles

person - instrument

1 trumpet

1 keytar

A: Sparty, jingles
 trumpet, keytar



String is a ~~list~~^{sequence} of characters

a A → 64

ASCII: maps letters, numbers, symbols
to [0, 127]

Latin-1: western Europe; Latin-2: east Europe
KOI8-R: Russian

0-127: ASCII

128-255: more stuff á é • ü 9

Multi-byte (double-byte) encodings

Big 5 - Chinese

Unicode: separate character from encoding

text is a sequence of code points

a p p l e ☺

encoded as a sequence of bytes

UCS-4: store code points as 4-byte ints
in array; little or big endian when in
bytes

UTF-8 common

UTF-16: 2 bytes, sometimes 4