

Step 1: Initial Table

happy_supplies_parts_warehouse

customerName	customerNumber	customerType	date	time	employee	partNumber	name	type	cageCode	quantityOrdered	unitPrice
Jeff Peterson	HG54587	Consumer	7/1/2024	10:30am	D. Harrison	10654	Float Control	Plumbing	G413	4	12
Jeff Peterson	HG54587	Consumer	7/1/2024	10:30am	D. Harrison	10456	Modulator	Electrical	H433	3	7
Jeff Peterson	HG54587	Consumer	7/1/2024	10:30am	D. Harrison	10776	Hose Assembly	Plumbing	G413	7	9
Jeff Peterson	HG54587	Consumer	7/1/2024	10:30am	D. Harrison	10657	Float Assembly	Plumbing	G413	5	10

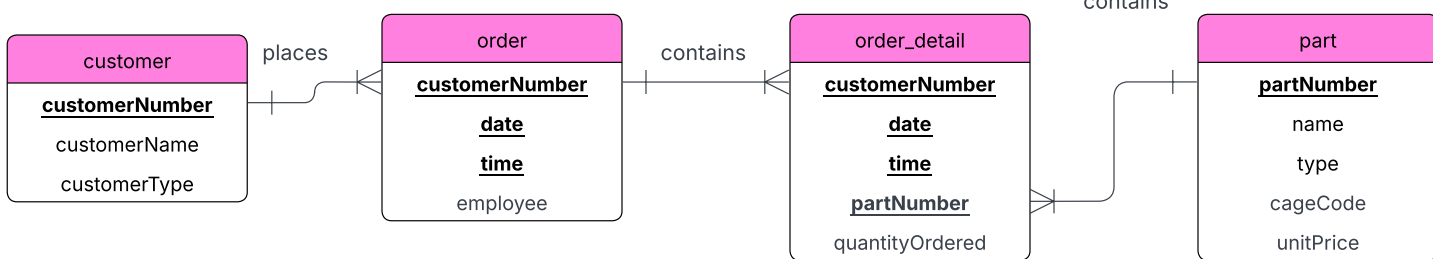
Step 2: 1NF

since can't add new fields or keys, make customerNumber, date, time, and partNumber PKs

customerName	customerNumber	customerType	date	time	employee	partNumber	name	type	cageCode	quantityOrdered	unitPrice
Jeff Peterson	HG54587	Consumer	7/1/2024	10:30am	D. Harrison	10654	Float Control	Plumbing	G413	4	12
Jeff Peterson	HG54587	Consumer	7/1/2024	10:30am	D. Harrison	10456	Modulator	Electrical	H433	3	7
Jeff Peterson	HG54587	Consumer	7/1/2024	10:30am	D. Harrison	10776	Hose Assembly	Plumbing	G413	7	9
Jeff Peterson	HG54587	Consumer	7/1/2024	10:30am	D. Harrison	10657	Float Assembly	Plumbing	G413	5	10

Step 3: 2NF

order details depend only on customerNumber, date, time but not part number
customer info depends only on customerNumber
part info depends only on part number



customer

customerNumber	customerName	customerType
HG54587	Jeff Peterson	Consumer

order

customerNumber	date	time	employee
HG54587	7/1/2024	10:30am	D. Harrison

order_detail

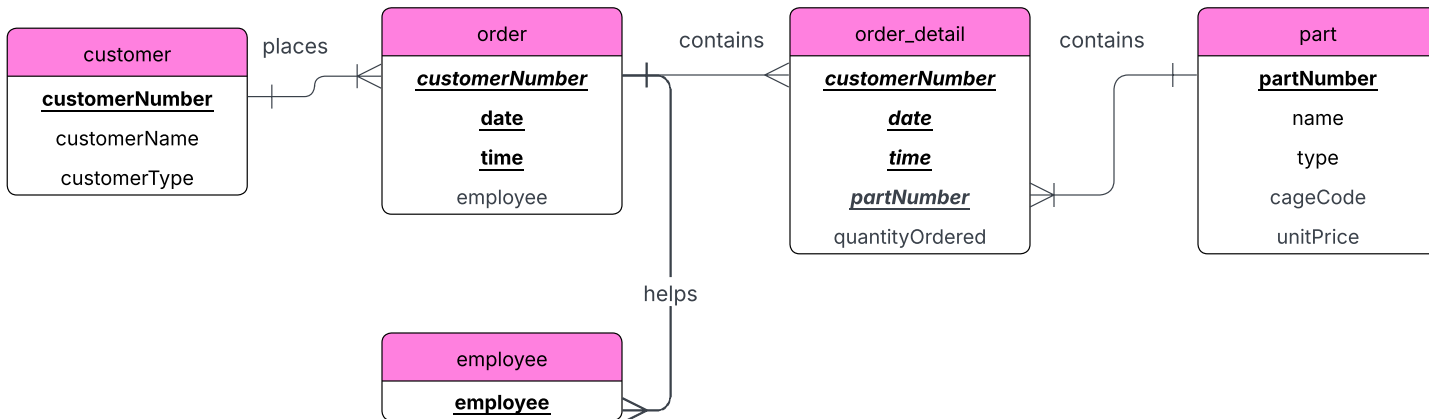
customerNumber	date	time	partNumber	quantityOrdered
HG54587	7/1/2024	10:30am	10654	4
HG54587	7/1/2024	10:30am	10456	3
HG54587	7/1/2024	10:30am	10776	7
HG54587	7/1/2024	10:30am	10657	5

part

partNumber	name	type	cageCode	unitPrice
10654	Float Control	Plumbing	G413	12
10456	Modulator	Electrical	H433	7
10776	Hose Assembly	Plumbing	G413	9
10657	Hose Assembly	Plumbing	G413	10

Step 4: 3NF

all tables the same except remove employee from order table and make new employee table and add foreign keys
employee depends on order but not the PK
partType/cageCode depend on partNumber but not on the all order details



customer

customerNumber	customerName	customerType
HG54587	Jeff Peterson	Consumer

order

customerNumber	date	time
HG54587	7/1/2024	10:30am

employee

employee
D. Harrison

order_detail

customerNumber	date	time	partNumber	quantityOrdered
HG54587	7/1/2024	10:30am	10654	4
HG54587	7/1/2024	10:30am	10456	3
HG54587	7/1/2024	10:30am	10776	7
HG54587	7/1/2024	10:30am	10657	5

part

partNumber	name	type	cageCode	unitPrice
10654	Float Control	Plumbing	G413	12
10456	Modulator	Electrical	H433	7
10776	Hose Assembly	Plumbing	G413	9
10657	Hose Assembly	Plumbing	G413	10

Assumptions:
employee names are unique
and one employee helps per order

Step 1: Initial Table

panacea_mental_health_corporation

staffNo	therapistName	patNo	patName	appointmentDate	appointmentTime	branchNo
S1011	Fred Smith	P100	Lily White	9/12/2022	10:00	M15
S1011	Fred Smith	P105	Jill Baker	9/12/2022	12:00	M15
S1024	Heidi Pierce	P108	Andy McKee	9/12/2022	10:00	Q10
S1024	Heidi Pierce	P108	Andy McKee	9/14/2022	14:00	Q10
S1032	Richard Levin	P105	Jill Baker	9/14/2022	16:30	M15
S1032	Richard Levin	P110	Jimmy Winter	9/15/2022	18:00	B13

Step 2: 1NF, same table just identified primary keys

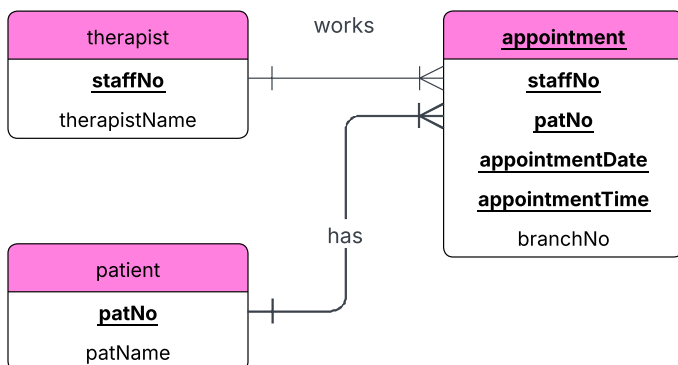
assuming a patient can have 1+ appointments per day

panacea_mental_health_corporation

staffNo	therapistName	patNo	patName	appointmentDate	appointmentTime	branchNo
S1011	Fred Smith	P100	Lily White	9/12/2022	10:00	M15
S1011	Fred Smith	P105	Jill Baker	9/12/2022	12:00	M15
S1024	Heidi Pierce	P108	Andy McKee	9/12/2022	10:00	Q10
S1024	Heidi Pierce	P108	Andy McKee	9/14/2022	14:00	Q10
S1032	Richard Levin	P105	Jill Baker	9/14/2022	16:30	M15
S1032	Richard Levin	P110	Jimmy Winter	9/15/2022	18:00	B13

Step 3: 2NF
separate patient and therapist details because partial dependencies

assuming: a patient cannot have simultaneous appointments at two branches



appointment

staffNo	patNo	appointmentDate	appointmentTime	branchNo
S1011	P100	9/12/2022	10:00	M15
S1011	P105	9/12/2022	12:00	M15
S1024	P108	9/12/2022	10:00	Q10
S1024	P108	9/14/2022	14:00	Q10
S1032	P105	9/14/2022	16:30	M15
S1032	P110	9/15/2022	18:00	B13

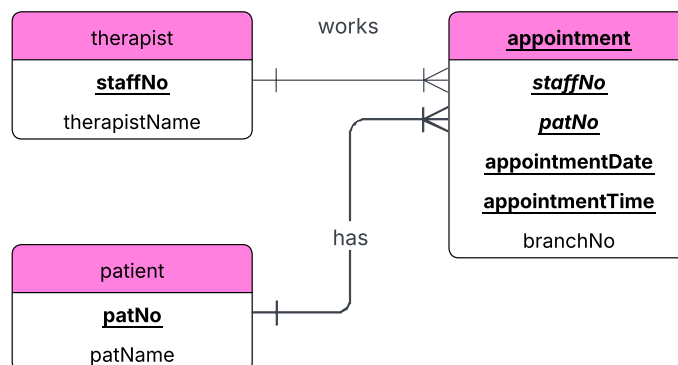
therapist

staffNo	therapistName
S1011	Fred Smith
S1024	Heidi Pierce
S1032	Richard Levin

patient

patNo	patName
P100	Lily White
P105	Jill Baker
P108	Andy McKee
P110	Jimmy Winter

Step 4: 3NF
no transitively dependent attributes so tables are the same, just have to identify FKs



appointment

staffNo	patNo	appointmentDate	appointmentTime	branchNo
S1011	P100	9/12/2022	10:00	M15
S1011	P105	9/12/2022	12:00	M15
S1024	P108	9/12/2022	10:00	Q10
S1024	P108	9/14/2022	14:00	Q10
S1032	P105	9/14/2022	16:30	M15
S1032	P110	9/15/2022	18:00	B13

therapist

staffNo	therapistName
S1011	Fred Smith
S1024	Heidi Pierce
S1032	Richard Levin

patient

patNo	patName
P100	Lily White
P105	Jill Baker
P108	Andy McKee
P110	Jimmy Winter

Step 1: Initial Table

maid_better_temp_agency

eNo	contractNo	hours	eName	eventNo	eventLoc
1135	C1024	16	Smith J	H25	Queens
1057	C1024	24	Hocine D	H25	Queens
1068	C1025	28	White T	H4	Yonkers
1135	C1025	15	Smith J	H4	Yonkers
1135	C1026	10	Smith J	H25	Queens

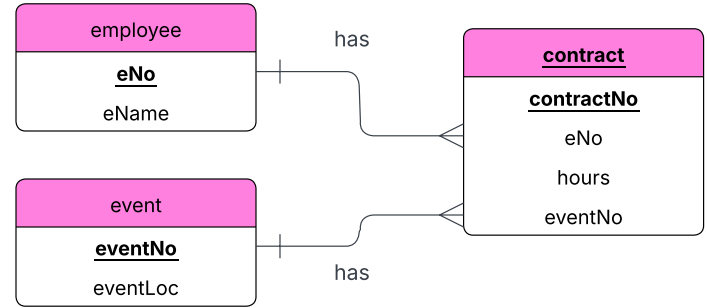
Step 2: 1NF, same table just identify PKs

maid_better_temp_agency

eNo	contractNo	hours	eName	eventNo	eventLoc
1135	C1024	16	Smith J	H25	Queens
1057	C1024	24	Hocine D	H25	Queens
1068	C1025	28	White T	H4	Yonkers
1135	C1025	15	Smith J	H4	Yonkers
1135	C1026	10	Smith J	H25	Queens

Step 3: 2NF
eName partial dependency on eNo
eventNo/eventLoc partial dependency on eventNo

assumption: an event can have multiple contracts and employees can have multiple contracts



employee

eNo	eName
1135	Smith J
1057	Hocine D
1068	White T
1135	Smith J

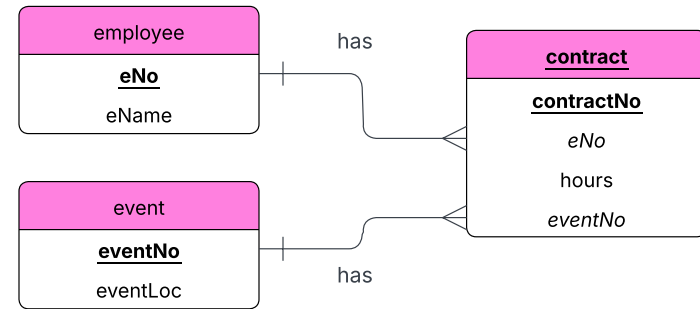
event

eventNo	eventLoc
H25	Queens
H4	Yonkers

contract

contractNo	eNo	hours	eventNo
C1024	1135	16	H25
C1024	1057	24	H25
C1025	1068	28	H4
C1025	1135	15	H4
C1026	1135	10	H25

Step 4: 3NF
no transitive dependencies, just label FKs



employee

eNo	eName
1135	Smith J
1057	Hocine D
1068	White T
1135	Smith J

event

eventNo	eventLoc
H25	Queens
H4	Yonkers

contract

contractNo	eNo	hours	eventNo
C1024	1135	16	H25
C1024	1057	24	H25
C1025	1068	28	H4
C1025	1135	15	H4
C1026	1135	10	H25