Employee		Project			AssignedTo	
EmpNo	EmpName	ProjNo	ProjDesc	Supervisor	ProjNo	EmpNo
101	Jones	COMP231	Mobile App	107	COMP453	101
103	Smith	COMP278	Web Service	110	COMP354	103
104	Clark	COMP353	Database	104	COMP353	104
106	Byron	COMP354	OS	110	COMP453	104
107	Evans	COMP453	Database	101	COMP231	106
110	Drew				COMP278	106
112	Smith				COMP353	106
					COMP354	106
					COMP231	107
					COMP353	107
					COMP278	110
					COMP354	110
					COMP354	112
					COMP453	112

Employ	ee	Project			AssignedTo	
EmpN	No EmpName	ProjNo	ProjDesc	Supervisor	ProjNo	EmpNo
101	Jones	COMP231	Mobile App	107	COMP453	101
103	Smith	COMP278	Web Service	110	COMP354	103
104	Clark	COMP353	Database	104	COMP353	104
106	Byron	COMP354	OS	110	COMP453	104
107	Evans	COMP453	Database	101	COMP231	106
110	Drew				COMP278	106
112	Smith				COMP353	106
					COMP354	106
					COMP231	107
					COMP353	107
Relations Pr	esent				COMP278	110
- Condo	400				COMP354	110
Employ	/ee				COMP354	112
Er	npNo	CHAR(3)			COMP453	112
En	nnNama	\/ADCUAD/1	۱۵۱			
EI	npName	VARCHAR(1	L ∠)			

Project

ProjNo CHAR(7)

ProjDesc VARCHAR(20)

Supervisor CHAR(3)

Assigned To

ProjNo CHAR(7)

EmpNo CHAR(3)

Employee		Project			AssignedTo	
• •	F N	•	Dun't Dane	Company in a m	AssignedTo	F N
EmpNo	EmpName	ProjNo	ProjDesc	Supervisor	ProjNo	EmpNo
101	Jones	COMP231	Mobile App	107	COMP453	101
103	Smith	COMP278	Web Service	110	COMP354	103
104	Clark	COMP353	Database	104	COMP353	104
106	Byron	COMP354	OS	110	COMP453	104
107	Evans	COMP453	Database	101	COMP231	106
110	Drew				COMP278	106
112	Smith				COMP353	106
					COMP354	106
					COMP231	107
					COMP353	107
Relations Pres	sent				COMP278	110
Francisco					COMP354	110
Employee					COMP354	112
EmpNo		CHAR(3)			COMP453	112
•	Name	VARCHAR(1	2)			

Project

ProjNo CHAR(7)

ProjDesc VARCHAR(20)

Supervisor CHAR(3)

Assigned To

ProjNo CHAR(7)

EmpNo CHAR(3)

	Employee		Project			AssignedTo	
	EmpNo	EmpName	ProjNo	ProjDesc	Supervisor	ProjNo	EmpNo
	101	Jones	COMP231	Mobile App	107	COMP453	101
	103	Smith	COMP278	Web Service	110	COMP354	103
	104	Clark	COMP353	Database	104	COMP353	104
	106	Byron	COMP354	OS	110	COMP453	104
	107	Evans	COMP453	Database	101	COMP231	106
	110	Drew				COMP278	106
	112	Smith				COMP353	106
						COMP354	106
						COMP231	107
						COMP353	107
Relatio	ns Pres	ent				COMP278	110
E۳	anlovo	•				COMP354	110
Employee						COMP354	112
	EmpNo		CHAR(3)	Primar	ry key	COMP453	112
	Fmn	Name	VARCHAR(12)				
	Σρ	, ranne	· · · · · · · · · · · · · · · · · · ·	,			
Pr	oject						
	•	NIO	CLIAD/7\				
	Proj	INO	CHAR(7)				
	Proj	Desc	VARCHAR(2	20)			
	Sune	ervisor	CHAR(3)	•			
	Supt	21 11301	CHAR(S)				
Δο	signed ⁻	To					
7.3	•		01145/5				
	Proj	No	CHAR(7)				

CHAR(3)

Employee		Project			AssignedTo	
EmpNo	EmpName	ProjNo	ProjDesc	Supervisor	ProjNo	EmpNo
101	Jones	COMP231	Mobile App	107	COMP453	101
103	Smith	COMP278	Web Service	110	COMP354	103
104	Clark	COMP353	Database	104	COMP353	104
106	Byron	COMP354	OS	110	COMP453	104
107	Evans	COMP453	Database	101	COMP231	106
110	Drew				COMP278	106
112	Smith				COMP353	106
					COMP354	106
					COMP231	107
					COMP353	107
Relations Pre	sent				COMP278	110
Employe					COMP354	110
Employee					COMP354	112
EmpNo C		CHAR(3)	Prima	ry key	COMP453	112
Em	pName	VARCHAR(12	2)			

Project

ProjNo CHAR(7)

ProjDesc VARCHAR(20)

Supervisor CHAR(3)

Assigned To

ProjNo CHAR(7)

EmpNo CHAR(3)

	Employee		Project			AssignedTo	
	EmpNo	EmpName	ProjNo	ProjDesc	Supervisor	ProjNo	EmpNo
	101	Jones	COMP231	Mobile App	107	COMP453	101
	103	Smith	COMP278	Web Service	110	COMP354	103
	104	Clark	COMP353	Database	104	COMP353	104
	106	Byron	COMP354	OS	110	COMP453	104
	107	Evans	COMP453	Database	101	COMP231	106
	110	Drew				COMP278	106
	112	Smith				COMP353	106
						COMP354	106
						COMP231	107
						COMP353	107
Relatio	ns Pres	ent				COMP278	110
					COMP354	110	
Employee					COMP354	112	
	Emp	No	CHAR(3)	Primar	y key	COMP453	112
	Fmn	Name	VARCHAR(1	2)			
	Σρ	rtarric	V/ ((C) // (())	· - /			
D.:	•						
Pr	oject						
	Projl	No	CHAR(7)	Primar	y key		
	•	Desc	VARCHAR(2		, ,		
	•		•	.0)			
	Supe	ervisor	CHAR(3)				
As	signed ⁻	То					
	•		CUAD(7)				
	Projl	NO	CHAR(7)				

CHAR(3)

	Employee		Project			AssignedTo	
	EmpNo	EmpName	ProjNo	ProjDesc	Supervisor	ProjNo	EmpNo
	101	Jones	COMP231	Mobile App	107	COMP453	101
	103	Smith	COMP278	Web Service	110	COMP354	103
	104	Clark	COMP353	Database	104	COMP353	104
	106	Byron	COMP354	OS	110	COMP453	104
	107	Evans	COMP453	Database	101	COMP231	106
	110	Drew				COMP278	106
	112	Smith				COMP353	106
						COMP354	106
						COMP231	107
						COMP353	107
Relatio	ns Pres	ent				COMP278	110
					COMP354	110	
Employee					_	COMP354	112
	EmpNo		CHAR(3)	CHAR(3) Primary key			112
	Fmn	Name	VARCHAR(1	2)			
	p		***************************************	_,			
Pr	oject						
	Projl	Nο	CHAR(7)	Primar	v kev		
	•		` '		y KC y		
	Proji	Desc	VARCHAR(2	U)			
	Supe	ervisor	CHAR(3)				
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A	ssigned	10					
	Projl	No	CHAR(7)				
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CHAR(3)

	Employee		Project			AssignedTo	
	EmpNo	EmpName	ProjNo	ProjDesc	Supervisor	ProjNo	EmpNo
	101	Jones	COMP231	Mobile App	107	COMP453	101
	103	Smith	COMP278	Web Service	110	COMP354	103
	104	Clark	COMP353	Database	104	COMP353	104
	106	Byron	COMP354	OS	110	COMP453	104
	107	Evans	COMP453	Database	101	COMP231	106
	110	Drew				COMP278	106
	112	Smith				COMP353	106
						COMP354	106
						COMP231	107
						COMP353	107
Relatio	ns Pres	ent				COMP278	110
Employoo						COMP354	110
Employee					COMP354	112	
EmpNo		CHAR(3)	Primar	y key	COMP453	112	
	EmpName VARCHAR(12)			2)			
.							
Pr	oject						
	Projl	No	CHAR(7)	Primar	v kev		
	•	Desc	VARCHAR(2		, ,		
	_			O)			
	Supe	ervisor	CHAR(3)				
Λ.	cian od	To					
AS	signed				_		
	Projl	No	CHAR(7)	Primar	y key?		
	Emp	No	CHAR(3)				
	LIIIP	140					

	Employee		Project			AssignedTo	
	EmpNo	EmpName	ProjNo	ProjDesc	Supervisor	ProjNo	EmpNo
	101	Jones	COMP231	Mobile App	107	COMP453	101
	103	Smith	COMP278	Web Service	110	COMP354	103
	104	Clark	COMP353	Database	104	COMP353	104
	106	Byron	COMP354	OS	110	COMP453	104
	107	Evans	COMP453	Database	101	COMP231	106
	110	Drew				COMP278	106
	112	Smith				COMP353	106
						COMP354	106
						COMP231	107
						COMP353	107
Relatio	ns Prese	ent				COMP278	110
Employee					COMP354	110	
Employee				_	COMP354	112	
	EmpNo		CHAR(3)	Primar	y key	COMP453	112
	Fmn	Name	VARCHAR(1	2)			
				_,			
Pr	oject						
	Projl	No	CHAR(7)	Primar	v kev		
	•		` '		,,		
	Proj[Jesc	VARCHAR(2	U)			
	Supe	ervisor	CHAR(3)				
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۸۵	cianod	To					
AS	signed ⁻						
	Projl	No	CHAR(7)	Primar	y key?		
	Emp	Nο	CHAR(3)				
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	Employee		Project			AssignedTo
	EmpNo	EmpName	ProjNo	ProjDesc	Supervisor	ProjNo
	101	Jones	COMP231	Mobile App	107	COMP453 🔨
	103	Smith	COMP278	Web Service	110	COMP354
	104	Clark	COMP353	Database	104	COMP353
	106	Byron	COMP354	OS	110	COMP453 ←
	107	Evans	COMP453	Database	101	COMP231
	110	Drew				COMP278
	112	Smith				COMP353
						COMP354
						COMP231
						COMP353
Relation	ons Pres	ent				COMP278
F	mnloves	2				COMP354
Employee					COMP354	
	Emp	No	CHAR(3)	Primar	ry key	COMP453
	Emp	Name	VARCHAR(1	2)		
				_,		
Р	roject					
	Projl	\lo	CHAR(7)	Primar	w kov	
	•		` '		y Key	
	Projl	Desc	VARCHAR(2	0)		
	Supe	ervisor	CHAR(3)			
	•		. ,			
A	ssigned	То				
	Projl	Vο	CHAR(7)	Primar	y key?	
	_		` '		y icy.	
	Emp	NO	CHAR(3)			

ProjNo can't be primary key

	Employee		Project			AssignedTo	
	EmpNo	EmpName	ProjNo	ProjDesc	Supervisor	ProjNo	EmpNo
	101	Jones	COMP231	Mobile App	107	COMP453	101
	103	Smith	COMP278	Web Service	110	COMP354	103
	104	Clark	COMP353	Database	104	COMP353	104
	106	Byron	COMP354	OS	110	COMP453	104
	107	Evans	COMP453	Database	101	COMP231	106
	110	Drew				COMP278	106
	112	Smith				COMP353	106
						COMP354	106
						COMP231	107
						COMP353	107
Relatio	ns Pres	ent				COMP278	110
Employee					COMP354	110	
Employee				_	COMP354	112	
EmpNo		CHAR(3)	Primar	y key	COMP453	112	
	EmpName		VARCHAR(1	2)			
	 			_,			
_							
Pr	oject						
	Projl	Vo	CHAR(7)	Primar	v kev		
	_		VARCHAR(2		, ,		
	Projl		•	U)			
	Supe	ervisor	CHAR(3)				
Δ	ssigned ⁻	Το					
,	_		CLIAD/7\				
	Projl	NO	CHAR(7)				
	Emp	No	CHAR(3)	Primar	v key?		
	1-		` '		, ,		

	Employee		Project			AssignedTo	
	EmpNo	EmpName	ProjNo	ProjDesc	Supervisor	ProjNo	EmpNo
	101	Jones	COMP231	Mobile App	107	COMP453	101
	103	Smith	COMP278	Web Service	110	COMP354	103
	104	Clark	COMP353	Database	104	COMP353	104
	106	Byron	COMP354	OS	110	COMP453	104
	107	Evans	COMP453	Database	101	COMP231	106
	110	Drew				COMP278	106
	112	Smith				COMP353	106
						COMP354	106
						COMP231	107
						COMP353	107
Relatio	ns Pres	ent				COMP278	110
□,	mnlovoc	,				COMP354	110
Employee				_	COMP354	112	
EmpNo		CHAR(3)	Primar	y key	COMP453	112	
	Emp	Name	VARCHAR(1	2)			
Pı	roject						
	Projl	Vo	CHAR(7)	Primar	y key		
	Droil	Desc	VARCHAR(2	0)			
			•	O)			
	Supe	ervisor	CHAR(3)				
A	ooian o d'	To					
A	ssigned [*]	IU					
	Projl	Vo	CHAR(7)				
	Emp		CHAR(3)	Primar	ry key?		
	ьшр	110	CHAN(3)	FIIIIIai	y NCy:		

E	Employee		Project			AssignedTo		
	EmpNo	EmpName	ProjNo	ProjDesc	Supervisor	ProjNo	EmpNo	
	101	Jones	COMP231	Mobile App	107	COMP453	101	
	103	Smith	COMP278	Web Service	110	COMP354	103	
	104	Clark	COMP353	Database	104	COMP353	104	EmpNo can't be primary key
	106	Byron	COMP354	OS	110	COMP453	104	. , , ,
	107	Evans	COMP453	Database	101	COMP231	106	
	110	Drew				COMP278	106	
	112	Smith				COMP353	106	
						COMP354	106	
						COMP231	107	
						COMP353	107	
Relation	s Prese	ent				COMP278	110	
Em	ployee					COMP354	110	
EIII	• •					COMP354	112	
	Empl	No	CHAR(3)	Primar	y key	COMP453	112	
	Empl	Name	VARCHAR(1	2)				
	p.	t arric	V/ ((\C) // ((\(\frac{1}{2}\))					
Pro	ject							
	, ProjN	ام	CHAR(7)	Primar	v kov			
	•		` ,		y Key			
	ProjD	esc	VARCHAR(2	.0)				
	Supe	rvisor	CHAR(3)					
	Supe							

ProjNo CHAR(7)

EmpNo CHAR(3) Primary key?

	Employee		Project			AssignedTo	
	EmpNo	EmpName	ProjNo	ProjDesc	Supervisor	ProjNo	EmpNo
	101	Jones	COMP231	Mobile App	107	COMP453	101
	103	Smith	COMP278	Web Service	110	COMP354	103
	104	Clark	COMP353	Database	104	COMP353	104
	106	Byron	COMP354	OS	110	COMP453	104
	107	Evans	COMP453	Database	101	COMP231	106
	110	Drew				COMP278	106
	112	Smith				COMP353	106
						COMP354	106
						COMP231	107
						COMP353	107
Relation	ns Pres	ent				COMP278	110
En	nployee	,				COMP354	110
LII						COMP354	112
	Emp	No	CHAR(3)	Primary key		COMP453	112
	Fmn	Name	VARCHAR(1	2)			
	LIIIP	rtarric	V/ ((\C) // ((\(\frac{1}{2}\))	- /			
Pro	oject						
	Proji	No	CHAR(7)	Primar	ry koy		
	•		` '		y KC y		
	Projl	Desc	VARCHAR(2)	U)			
	Supe	ervisor	CHAR(3)				
	- C - C - C		· · · · · · · · · · · · · · · · · · ·				

ProjNo CHAR(7) Can both attributes together be a compound primary key? CHAR(3)

Employ	/ee	Project			AssignedTo	
Empl	No EmpName	ProjNo	ProjDesc	Supervisor	ProjNo	EmpNo
101	1 Jones	COMP231	Mobile App	107	COMP453	101
103	3 Smith	COMP278	Web Service	110	COMP354	103
104	4 Clark	COMP353	Database	104	COMP353	104
106	6 Byron	COMP354	OS	110	COMP453	104
107	7 Evans	COMP453	Database	101	COMP231	106
110) Drew				COMP278	106
112	2 Smith				COMP353	106
					COMP354	106
					COMP231	107
					COMP353	107
Relations Pr	resent				COMP278	110
Employ	VEE				COMP354	110
•	•	CL LA D (O)	5 :		COMP354	112
Er	mpNo	CHAR(3)	CHAR(3) Primary key		COMP453	112
Er	mpName	VARCHAR(12	2)			
5						
Project	Ţ					
Pr	rojNo	CHAR(7)	Primar	y key		
	•	` ,		, ,		
	•	•	וי			
Sı	upervisor	CHAR(3)				
Project Pr Pr	· t	•	, Primar	ry key		

ProjNo CHAR(7) EmpNo CHAR(3)

Can both attributes together be a compound primary key? Yes!

	Employee		Project			AssignedTo	
	EmpNo	EmpName	ProjNo	ProjDesc	Supervisor	ProjNo	EmpNo
	101	Jones	COMP231	Mobile App	107	COMP453	101
	103	Smith	COMP278	Web Service	110	COMP354	103
	104	Clark	COMP353	Database	104	COMP353	104
	106	Byron	COMP354	OS	110	COMP453	104
	107	Evans	COMP453	Database	101	COMP231	106
	110	Drew				COMP278	106
	112	Smith				COMP353	106
						COMP354	106
						COMP231	107
						COMP353	107
Relation	ns Prese	ent				COMP278	110
En	ployee					COMP354	110
LII	• •				_	COMP354	112
	Emp	No	CHAR(3)	Primary key		COMP453	112
	Fmn	Name	VARCHAR(12	2)			
	Ξρ	· · · · · · ·	v,(2)	-,			
Pro	oject						
	Projl Projl		CHAR(7) VARCHAR(20 CHAR(3)	Prima 0)	ry key		

ProjNo CHAR(7) Both attributes together are a compound primary key CHAR(3)

Е	mployee		Project			AssignedTo	
	EmpNo	EmpName	ProjNo	ProjDesc	Supervisor	ProjNo	EmpNo
	101	Jones	COMP231	Mobile App	107	COMP453	101
	103	Smith	COMP278	Web Service	110	COMP354	103
	104	Clark	COMP353	Database	104	COMP353	104
	106	Byron	COMP354	OS	110	COMP453	104
	107	Evans	COMP453	Database	101	COMP231	106
	110	Drew				COMP278	106
	112	Smith				COMP353	106
						COMP354	106
						COMP231	107
						COMP353	107
Relations	s Prese	ent				COMP278	110
Emi	ployee					COMP354	110
LIII	•				_	COMP354	112
	Empl	No	CHAR(3)	Primary key		COMP453	112
	Empl	Name	VARCHAR(12	2)			
	•		•	,			
Pro	iect						
110	•		CLIA D (7)	ъ.			
	ProjN	10	CHAR(7)	Primar	<i>°</i> у кеу		
	ProjD	Desc	VARCHAR(20	O)			
	-		•	,			
	Supe	rvisor	CHAR(3)				

ProjNo CHAR(7) One notation – <u>underline</u> the attributes that together are a compound primary key

Em	nployee		Project			AssignedTo	
I	EmpNo	EmpName	ProjNo	ProjDesc	Supervisor	ProjNo	EmpNo
	101	Jones	COMP231	Mobile App	107	COMP453	101
	103	Smith	COMP278	Web Service	110	COMP354	103
	104	Clark	COMP353	Database	104	COMP353	104
	106	Byron	COMP354	OS	110	COMP453	104
	107	Evans	COMP453	Database	101	COMP231	106
	110	Drew				COMP278	106
	112	Smith				COMP353	106
						COMP354	106
						COMP231	107
						COMP353	107
Relations	Prese	ent				COMP278	110
Fmr	oloyee					COMP354	110
LIIIP	•					COMP354	112
	Emp	No	CHAR(3)	Primar	y key	COMP453	112
	Emp	Name	VARCHAR(12	2)			
				-,			
Proj	ect						
	Projl	Nο	CHAR(7)	Primar	v kev		
	•		` '		, ne ,		
	Proj[Jesc	VARCHAR(20	J)			
	Supe	ervisor	CHAR(3)				
	•		, ,				
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ASSI	gned ⁻	10					

ProjNo CHAR(7) EmpNo CHAR(3)

E	Employee		Project			AssignedTo	
	EmpNo	EmpName	ProjNo	ProjDesc	Supervisor	ProjNo	EmpNo
	101	Jones	COMP231	Mobile App	107	COMP453	101
	103	Smith	COMP278	Web Service	110	COMP354	103
	104	Clark	COMP353	Database	104	COMP353	104
	106	Byron	COMP354	OS	110	COMP453	104
	107	Evans	COMP453	Database	101	COMP231	106
	110	Drew				COMP278	106
	112	Smith				COMP353	106
						COMP354	106
						COMP231	107
						COMP353	107
Relation	s Prese	ent				COMP278	110
Fm	ployee	•				COMP354	110
LIII	• •		0			COMP354	112
	Empl	No	CHAR(3)	Primary key		COMP453	112
	Empl	Name	VARCHAR(1	.2)			
	 -			,			
Pro	ject						
	ProjN	No.	CHAR(7)	Primai	rv kev		
	•		• •		i y iley		
	ProjE	Jesc	VARCHAR(2	(0)			
	Supe	rvisor	CHAR(3)				
	•		` ,				

ProjNo CHAR(7) Alternative notation - a separate entry indicating the primary key and the attribute(s) that comprise it primary key

Em	ployee		Project			AssignedTo	
E	EmpNo	EmpName	ProjNo	ProjDesc	Supervisor	ProjNo	EmpNo
	101	Jones	COMP231	Mobile App	107	COMP453	101
	103	Smith	COMP278	Web Service	110	COMP354	103
	104	Clark	COMP353	Database	104	COMP353	104
	106	Byron	COMP354	OS	110	COMP453	104
	107	Evans	COMP453	Database	101	COMP231	106
	110	Drew				COMP278	106
	112	Smith				COMP353	106
						COMP354	106
						COMP231	107
						COMP353	107
Relations	Prese	ent				COMP278	110
Emn	lovos					COMP354	110
EIIIÞ	loyee	;				COMP354	112
	Emp	No	CHAR(3)	Primai	ry key	COMP453	112
	Emp	Name	VARCHAR(1	2)			
	•		•	,			

Project

ProjNo CHAR(7) Primary key

ProjDesc VARCHAR(20)

Supervisor CHAR(3)

AssignedTo

ProjNo CHAR(7)

EmpNo CHAR(3)

Primary key(ProjNo,EmpNo)

Employe	ee	Project			AssignedTo
EmpN		ProjNo	ProjDesc	Supervisor	ProjNo
101	Jones	COMP231	Mobile App	107	COMP453
103	Smith	COMP278	Web Service	110	COMP354
104	Clark	COMP353	Database	104	COMP353
106	Byron	COMP354	OS	110	COMP453
107	Evans	COMP453	Database	101	COMP231
110	Drew				COMP278
112	Smith				COMP353
					COMP354
					COMP231
					COMP353
Relations Pro	esent				COMP278
Employ	ree				COMP354
		CHAR(3)			COMP354
En	EmpNo				COMP453
En	npName	VARCHAR(:	12)		
Pri	imary key(E	EmpNo)			
Project	, ,				
-	ojNo	CHAR(7)			
	•	` '	201		
Pr	ojDesc	VARCHAR(20)		
Su	pervisor	CHAR(3)			
Pr	imary key(F	ProjNo)			
Assigne					
O					
Pr	<u>ojNo</u>	CHAR(7)			
En	npNo	CHAR(3)			
		ProjNo,Empl	Vo)		
ΓI	iiiiai y Key(r	rojivo, Lilipi	NO)		

Salesperson Name Abel Baker Jones	Age 63 38 22	Salary 120000 42000 36000		Customer Name Abernathy Broadway Office Pro	City Miami Charlotte Charleston
Murphy	42	50000		Amalgamated	Charlotte
Smith	59	118000			
Abernathy	22	36000			
Order Number	Salesperson	Customer	Amount		
100	Abernathy	Abernathy	560		
200	Jones	Abernathy	2500		
300	Abel	Broadway	480		
400	Abel	Office Pro	2500		
500	Murphy	Amalgamated	6000		
600	Jones	Abernathy	7000		
700	Jones	Abernathy	2500		

Relations Present Salesperson

Name VARCHAR20)

Age INT

Salary INT

Customer

Name VARCHAR(20)

City VARCHAR(15)

Order

Number INT

Salesperson VARCHAR(20)

Customer VARCHAR(20)

Salesperson				Customer	
Name	Age	Salary		Name	City
Abel	63	120000		Abernathy	Miami
Baker	38	42000		Broadway	Charlotte
Jones	22	36000		Office Pro	Charleston
Murphy	42	50000		Amalgamated	Charlotte
Smith	59	118000		•	
Abernathy	22	36000			
Order					
Number	Salesperson	Customer	Amount		
100	Abernathy	Abernathy	560		
200	Jones	Abernathy	2500		
300	Abel	Broadway	480		
400	Abel	Office Pro	2500		
500	Murphy	Amalgamated	6000		
600	Jones	Abernathy	7000		
700	Jones	Abernathy	2500		

Salesperson

Name VARCHAR20)

Age INT

Salary INT

Customer

Name VARCHAR(20)

City VARCHAR(15)

Order

Number INT

Salesperson VARCHAR(20)

Customer VARCHAR(20)

Salesperson				Customer	
Name	Age	Salary		Name	City
Abel	63	120000		Abernathy	Miami
Baker	38	42000		Broadway	Charlotte
Jones	22	36000		Office Pro	Charleston
Murphy	42	50000		Amalgamated	Charlotte
Smith	59	118000			
Abernathy	22	36000			
Order					
Number	Salesperson	Customer	Amount		
100	Abernathy	Abernathy	560		
200	Jones	Abernathy	2500		
300	Abel	Broadway	480		
400	Abel	Office Pro	2500		
500	Murphy	Amalgamated	6000		
600	Jones	Abernathy	7000		
700	Jones	Abernathy	2500		

Salesperson

Name VARCHAR20)

IMI

Age

Salary INT

Customer

Name VARCHAR(20)

City VARCHAR(15)

Order

Number INT

Salesperson VARCHAR(20)

Customer VARCHAR(20)

Amount INT

Salesperson				Customer	
Name	Age	Salary		Name	City
Abel	63	120000		Abernathy	Miami
Baker	38	42000		Broadway	Charlotte
Jones	22	36000		Office Pro	Charleston
Murphy	42	50000		Amalgamated	Charlotte
Smith	59	118000			
Abernathy	22	36000			
Order					
Number	Salesperson	Customer	Amount		
100	Abernathy	Abernathy	560		
200	Jones	Abernathy	2500		
300	Abel	Broadway	480		
400	Abel	Office Pro	2500		
500	Murphy	Amalgamated	6000		
600	Jones	Abernathy	7000		
700	Jones	Abernathy	2500		

Based on the data shown, this could be a primary key

Salesperson

Name VARCHAR20)

Age INT

Salary INT

Customer

Name VARCHAR(20) City VARCHAR(15)

Order

Number INT

Salesperson VARCHAR(20)

Customer VARCHAR(20)

Amount INT

Salesperson				Customer	
Name	Age	Salary		Name	City
Abel	63	120000		Abernathy	Miami
Baker	38	42000		Broadway	Charlotte
Jones	22	36000		Office Pro	Charleston
Murphy	42	50000		Amalgamated	Charlotte
Smith	59	118000			
Abernathy	22	36000			
Order					
Number	Salesperson	Customer	Amount		
100	Abernathy	Abernathy	560		
200	Jones	Abernathy	2500		
300	Abel	Broadway	480		
400	Abel	Office Pro	2500		
500	Murphy	Amalgamated	6000		
600	Jones	Abernathy	7000		
700	Jones	Abernathy	2500		

Based on the data shown, this could be a primary key Is this a good idea?

Salesperson

Name VARCHAR20)

Age INT

Salary INT

Customer

Name VARCHAR(20)

City VARCHAR(15)

Order

Number INT

Salesperson VARCHAR(20)

Customer VARCHAR(20)

Amount INT

NameAgeSalaryNameCityAbel63120000AbernathyMiamiBaker3842000BroadwayCharlotteJones2236000Office ProCharlestonMurphy4250000AmalgamatedCharlotte	Salesperson				Customer	
Baker3842000BroadwayCharlotteJones2236000Office ProCharleston	Name	Age	Salary		Name	City
Jones 22 36000 Office Pro Charleston	Abel	63	120000		Abernathy	Miami
	Baker	38	42000		Broadway	Charlotte
Murphy 42 50000 Amalgamated Charlotte	Jones	22	36000		Office Pro	Charleston
	Murphy	42	50000		Amalgamated	Charlotte
Smith 59 118000	Smith	59	118000			
Abernathy 22 36000	Abernathy	22	36000			
Order	Order					
Number Salesperson Customer Amount	Number	Salesperson	Customer	Amount		
100 Abernathy Abernathy 560	100	Abernathy	Abernathy	560		
200 Jones Abernathy 2500	200	Jones	Abernathy	2500		
300 Abel Broadway 480	300	Abel	Broadway	480		
400 Abel Office Pro 2500	400	Abel	Office Pro	2500		
500 Murphy Amalgamated 6000	500	Murphy	Amalgamated	6000		
600 Jones Abernathy 7000	600	Jones	Abernathy	7000		
700 Jones Abernathy 2500	700	Jones	Abernathy	2500		

Based on the data shown, this could be a primary key Is this a good idea?

If chosen as the primary key, what does this mean?

Salesperson			Customer	
Name	Age	Salary	Name	City
Abel	63	120000	Abernathy	Miami
Baker	38	42000	Broadway	Charlotte
Jones	22	36000	Office Pro	Charleston
Murphy	42	50000	Amalgamated	Charlotte
Smith	59	118000		
Abernathy	22	36000		

Order			
Number	Salesperson	Customer	Amount
100	Abernathy	Abernathy	560
200	Jones	Abernathy	2500
300	Abel	Broadway	480
400	Abel	Office Pro	2500
500	Murphy	Amalgamated	6000
600	Jones	Abernathy	7000
700	Jones	Abernathy	2500

Salesperson

Name VARCHAR20) Primary

Age INT

Salary INT

Customer

Name VARCHAR(20) City VARCHAR(15)

Order

Number INT

Salesperson VARCHAR(20)

Customer VARCHAR(20)

Amount INT

We'll do it anyway

Salesperson			Customer	
Name	Age	Salary	Name	City
Abel	63	120000	Abernathy	Miami
Baker	38	42000	Broadway	Charlotte
Jones	22	36000	Office Pro	Charleston
Murphy	42	50000	Amalgamated	Charlotte
Smith	59	118000		

Amount 560

2500

480

2500

6000

7000 2500

36000

Customer

100 Abernathy Abernathy 200 Abernathy Jones 300 Abel Broadway **Relations Present** Abel Office Pro 400 500 Murphy Amalgamated Salesperson 600 Jones Abernathy 700 Abernathy Jones

Abernathy

Order Number 22

Salesperson

VARCHAR20) Primary Name

INT Age Salary INT

Customer

VARCHAR(20) Name VARCHAR(15) City

Order

Number INT

Salesperson VARCHAR(20)

VARCHAR(20) Customer

INT **Amount**

Name Abel Baker Jones Murphy Smith Abernathy Order	Age 63 38 22 42 59 22	Salary 120000 42000 36000 50000		Name Abernathy Broadway
Baker Jones Murphy Smith Abernathy	38 22 42 59	42000 36000		Broadway
Jones Murphy Smith Abernathy	22 42 59	36000		
Murphy Smith Abernathy Order	42 59			Office Pro
Smith Abernathy Order	59	30000		Amalgama
Abernathy Order		118000		Amaigami
	22	36000		
Numbor	Salesperson	Customer	Amount	
Number 100	Abernathy	Abernathy	560	
200	Jones	•	2500	
300		Abernathy		
	Abel	Broadway Office Pro	480	
400	Abel		2500	
500	Murphy	Amalgamated	6000	
600	Jones	Abernathy	7000	
700	Jones	Abernathy	2500	
Same is	ssue as with	Salesperso	า	

Salesperson

Name

Salary

Name

Number

Salesperson

Customer

Amount

City

Age

Customer

Order

VARCHAR20) Primary

INT

INT

INT

INT

VARCHAR(20)

VARCHAR(15)

VARCHAR(20)

VARCHAR(20)

City Miami

Charlotte

Charleston

Charlotte

Salesperson				Customer
Name	Age	Salary		Name
Abel	63	120000		Abernathy
Baker	38	42000		Broadway
Jones	22	36000		Office Pro
Murphy	42	50000		Amalgamated
Smith	59	118000		
Abernathy	22	36000		
Order				
Number	Salesperson	Customer	Amount	
100	Abernathy	Abernathy	560	
200	Jones	Abernathy	2500	
300	Abel	Broadway	480	
400	Abel	Office Pro	2500	
500	Murphy	Amalgamated	6000	
600	Jones	Abernathy	7000	
700	Jones	Abernathy	2500	
\\\o'll a	do it anyway			
weird	do it anyway			

City Miami Charlotte Charleston Charlotte

Customer

Relations Present

Salesperson

Name

Salary

Age

Name VARCHAR(20) Primary

INT

INT

VARCHAR20) Primary

City VARCHAR(15)

Order

Number INT

Salesperson VARCHAR(20)

Customer VARCHAR(20)

Salesperson			Customer	
Name	Age	Salary	Name	City
Abel	63	120000	Abernathy	Miami
Baker	38	42000	Broadway	Charlotte
Jones	22	36000	Office Pro	Charleston
Murphy	42	50000	Amalgamated	Charlotte
Smith	59	118000	_	

36000

Ord	der			
1	Number	Salesperson	Customer	Amount
	100	Abernathy	Abernathy	560
	200	Jones	Abernathy	2500
	300	Abel	Broadway	480
	400	Abel	Office Pro	2500
	500	Murphy	Amalgamated	6000
	600	Jones	Abernathy	7000
	700	Jones	Abernathy	2500

22

Abernathy

Relations Present

Salesperson

Name VARCHAR20) Primary

Age INT Salary INT

Customer

Name VARCHAR(20) Primary

City VARCHAR(15)

Order

Number INT

Salesperson VARCHAR(20)

Customer VARCHAR(20)

Salesperson			Customer		
Name	Age	Salary	Name	City	
Abel	63	120000	Abernathy	Miami	
Baker	38	42000	Broadway	Charlotte	
Jones	22	36000	Office Pro	Charleston	
Murphy	42	50000	Amalgamated	Charlotte	
Smith	59	118000	_		

36000

Order			
Number	Salesperson	Customer	Amount
100	Abernathy	Abernathy	560
200	Jones	Abernathy	2500
300	Abel	Broadway	480
400	Abel	Office Pro	2500
500	Murphy	Amalgamated	6000
600	Jones	Abernathy	7000
700	Jones	Abernathy	2500

22

Abernathy

Relations Present

Salesperson

Name VARCHAR20) Primary

Age INT Salary INT

Customer

Name VARCHAR(20) Primary

City VARCHAR(15)

Order

Number INT Can be a primary key

Salesperson VARCHAR(20) Customer VARCHAR(20)

	Salesperson Name Abel Baker Jones Murphy Smith Abernathy Order	Age 63 38 22 42 59	Salary 120000 42000 36000 50000 118000 36000		Customer Name Abernathy Broadway Office Pro Amalgamated
	Number 100 200 300 400 500 600	Salesperson Abernathy Jones Abel Abel Murphy Jones	Customer Abernathy Abernathy Broadway Office Pro Amalgamated Abernathy	Amount 560 2500 480 2500 6000 7000	
Primary	700	Jones	Abernathy	2500	
Primary					
Primary					

Salesperson

Name

Salary

Name

Number

Salesperson

Customer

Amount

City

Age

Customer

Order

VARCHAR20) Primary

VARCHAR(20) Primary

VARCHAR(15)

VARCHAR(20)

VARCHAR(20)

INT

INT

INT

INT

City Miami Charlotte Charleston Charlotte