Bases de datos 2023-1 Tarea 4: Álgebra Relacional

7 de noviembre de $2022\,$

1. Cardinalidad de la consulta Considera las siguientes relaciones:

\mathbf{R}		\mathbf{S}		
A	В	В	С	D
1	X	X	0	3
2	у	у	2	1
2	Z	у	3	3
3	X	w	3	0
9	a	У	4	2

Para las siguientes expresiones de álgebra relacional completa la tabla con el número de tuplas.

Deberás indicar las tablas resultantes en cada caso.

Expresión	Cardinalidad del resultado
$R \times S$	25
$R\bowtie_{\theta D>A} S$	7
$R = \bowtie S$	7
$R\bowtie=S$	6
$R\bowtie_{\theta A=D} S$	5
$\rho_{C \leftarrow A}(R) \bowtie S$	4
$\Pi_B(R) - \Pi_B(\sigma_{C \ge 3}(S))$	3
$\Pi_A(R) \cap \rho_{A \leftarrow D}(\Pi_D(S))$	3
$\Pi_D(S)\bowtie R$	20
$\gamma_{A;count(B)\to t}(R=\bowtie=S)$	5

tablas:

 $\blacksquare R \times S$

	$\frac{R \times}{A}$	BR	BS	С	D
	1	X	X	0	3
	1	X	у	2	1
	1	X	у	3	3
	1	X	w	3	0
	1	X	у	4	2
	2	у	x	0	3
	2	у	у	2	1
	2	у	у	3	3
	2	у	w	3	0
	2	у	у	4	2
	2	Z	X	0	3
	2	Z	у	2	1
	2	\mathbf{z}	у	3	3
	2	Z	w	3	0
	2	Z	у	4	2
	3	X	x	0	3
	3	X	у	2	1
	3	X	у	3	3
	3	X	w	3	0
	3	X	у	4	2
	9	a	X	0	3
	9	a	у	2	1
	9	a	у	3	3
	9	a	w	3	0
	9	a	у	4	2
•	$R \bowtie$	$\theta D > A$	S		
	A .	חח	Da	α	

A	BR	BS	С	D
1	X	X	0	3
1	X	у	3	3
1	X	у	4	2
2	у	х	0	3
2	у	у	3	3
$\begin{bmatrix} 2 \\ 2 \end{bmatrix}$	Z	X	0	3
2	Z	у	3	3

 \blacksquare $R = \bowtie S$

A	BR	BS	С	D
1	X	X	0	3
2	у	у	2	1
2	у	у	3	3
2	у	у	4	2
2	Z	NULL	NULL	NULL
3	X	X	0	3
9	a	NULL	NULL	NULL

 \blacksquare $R\bowtie=S$

A		BR	BS	С	D
1		X	X	0	3
3		X	x	0	3
2		у	у	2	1
2		у	у	3	3
N	ULL	NULL	w	3	0
2		у	у	4	2

 $\blacksquare R \bowtie_{\theta A=D} S$

20 × 0A=D ≈					
	A	BR	BS	С	D
	1	X	у	2	1
	2	у	у	4	2
	2	z	у	4	2
	3	X	x	0	3
	3	x	у	3	3

 $\bullet \ \rho_{C \leftarrow A}(R) \bowtie S$

, ,					
С	RB	SB	D		
2	у	у	1		
2	Z	у	1		
3	X	у	3		
3	X	w	0		

 $\bullet \underline{\pi_B(R)} - \pi_B(\sigma_{C \ge 3}(S))$

	1
В	
X	
z	
a	

 $\blacksquare \ \Pi_A(R) \cap \rho_{A \leftarrow D}(\Pi_D(S))$

A
1
2
3

 $\blacksquare \Pi_D(S) \bowtie R$

$\Pi_D(S)\bowtie R$				
D	A	В		
3	1	X		
1	1	X		
0	1	X		
2	1	X		
3	2	у		
1	2	у		
0	2	у		
2	2	у		
3	2	Z		
1	2	z		
0	2	z		
2	2	z		
3	3	X		
1	3	X		
0	3	x		
2	3	X		
3	9	a		
1	9	a		
0	9	a		
2	9	a		

A	Т
1	1
2	4
3	1
9	1
NULL	1

2. Tienda de productos en línea.

Operaciones de mantenimiento de datos

a. Borrar toda la información del cliente Paul Stevenson Consulta: $Customer1 = Customer - \sigma_{CustomerName='PaulStevenson'}(Customer)$

customer.customerid	customer.customername	customer.segment	customer.country	customer.city	customer.state	customer.postalcode	9 (
CG-12520	Claire Gute	Consumer	United States	Henderson	Kentucky	42420	9
DV-13045	Darrin Van Huff	Corporate	United States	Los Angeles	California	90036	١
SO-20335	Sean ODonnell	Consumer	United States	Fort Lauderdale	Florida	33311	
BH-11710	Brosina Hoffman	Consumer	United States	Los Angeles	California	90032	١
AA-10480	Andrew Allen	Consumer	United States	Concord	North Carolina	28027	9
IM-15070	Irene Maddox	Consumer	United States	Seattle	Washington	98103	١
HP-14815	Harold Pawlan	Home Office	United States	Fort Worth	Texas	76106	(
PK-19075	Pete Kriz	Consumer	United States	Madison	Wisconsin	53711	(
AG-10270	Alejandro Grove	Consumer	United States	West Jordan	Utah	84084	١
ZD-21925	Zuschuss Donatelli	Consumer	United States	San Francisco	California	94109	١
KB-16585	Ken Black	Corporate	United States	Fremont	Nebraska	68025	(
SF-20065	Sandra Flanagan	Consumer	United States	Philadelphia	Pennsylvania	19140	
EB-13870	Emily Burns	Consumer	United States	Orem	Utah	84057	١
EH-13945	Eric Hoffmann	Consumer	United States	Los Angeles	California	90049	١
TB-21520	Tracy Blumstein	Consumer	United States	Philadelphia	Pennsylvania	19140	
MA-17560	Matt Abelman	Home Office	United States	Houston	Texas	77095	(
GH-14485	Gene Hale	Corporate	United States	Richardson	Texas	75080	(
SN-20710	Steve Nguyen	Home Office	United States	Houston	Texas	77041	(
LC-16930	Linda Cazamias	Corporate	United States	Naperville	Illinois	60540	(
RA-19885	Ruben Ausman	Corporate	United States	Los Angeles	California	90049	١
ES-14080	Erin Smith	Corporate	United States	Melbourne	Florida	32935	9
ON-18715	Odella Nelson	Corporate	United States	Eagan	Minnesota	55122	(
PO-18865	Patrick ODonnell	Consumer	United States	Westland	Michigan	48185	(
LH-16900	Lena Hernandez	Consumer	United States	Dover	Delaware	19901	
DP-13000	Darren Powers	Consumer	United States	New Albany	Indiana	47150	(
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b. Borrar todas las ordenes de la ciudad de Utah que tengan artículos de la subcategoría Tables. Consulta:

$$A = \pi_{CustomerID}(\sigma_{State='Utah'}Customer)$$

$$B = \pi_{ProductID}(\sigma_{Subcategory='Tables'}Products)$$

$$Orders1 = Orders - (Orders \bowtie A \bowtie B)$$

	orders.orderid	orders.orderdate	orders.shipdate	orders.shipmode	orders.customerid	orders.productid	orders.quantity
-2016-138688 2016-06-12 2016-06-16 Second Class DV-13045 OFF-LA-10000240 2 -2015-108966 2015-10-11 2015-10-18 Standard Class SD-20335 FURT-K-10000577 5 -2015-108966 2015-10-11 2015-10-18 Standard Class SD-20335 OFF-ST-10000760 2 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR-FU-10001487 7 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 TEC-PH-10002275 6 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 OFF-AR-10002833 4 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 OFF-AR-10002275 6 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 OFF-AR-10002275 6 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 OFF-AR-10002289 5 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 TEC-PH-10002233 4 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR-TA-10001539 9 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 TEC-PH-10002333 4 -2017-114812 2017-04-15 2017-04-20 Standard Class BH-1170 FUR-TA-10001539 9 -2016-115812 2017-04-15 2016-12-10 Standard Class BH-1170 FUR-TA-10002331 4 -2016-1161389 2016-12-05 2016-12-10 Standard Class BH-1815 OFF-AR-10002311 5 -2015-118983 2015-11-22 2015-11-26 Standard Class BH-14815 OFF-AR-10002311 5 -2016-1167164 2014-05-13 2014-05-15 Second Class BH-1815 OFF-AR-10000756 3 -2016-1143336 2014-08-27 2014-09-01 Second Class BD-1925 FUR-DH-1000217 2 -2014-143336 2014-08-27 2014-09-01 Second Class BD-1925 FUR-DH-10002194 3 -2016-137330 2016-12-09 2016-12-13 Standard Class BH-16585 OFF-AR-10000246 7 -2016-137330 2016-12-09 2016-12-13 Standard Class BH-16585 OFF-AR-10000246 7 -2016-137330 2016-12-09 2016-12-13 Standard Class BH-16585 OFF-AR-10000246 7 -2016-137330 2016-12-09 2016-12-13 Standard Class BH-16585 OFF-AR-10000249 7 -2017-15699 2017-07-16 2017-07-18 Second Class BH-16585 OFF-BR-10001634 2	CA-2016-152156	2016-11-08	2016-11-11	Second Class	CG-12520	FUR-BO-10001798	2
1-2015-108966 2015-10-11 2015-10-18 Standard Class SO-20335 FUR.TA-10000577 5 -2015-108966 2015-10-11 2015-10-18 Standard Class SO-20335 FUR.TA-10000577 5 -2016-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR.FU-10001487 7 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR.FU-10001287 6 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 TEC.PH-10002297 6 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR.FU-10002297 6 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR.FU-10002297 6 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR.FU-10003910 3 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR.FU-10003929 6 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR.FU-10001539 9 -2014-115812 2017-04-15 2017-04-20 Standard Class BH-11710 FUR.FU-1000233 4 -2017-114812 2017-04-15 2016-12-10 Standard Class BH-11815 FUR.FU-10002365 3 -2015-118983 2015-11-22 2015-11-26 Standard Class HP-14815 FUR.FU-10002511 5 -2016-115893 2014-11-11 2014-11-18 Standard Class HP-14815 FUR.FU-10000756 3 -2014-115893 2014-11-11 2014-11-18 Standard Class HP-14815 FUR.FU-10000756 3 -2014-116393 2014-08-27 2014-09-01 Second Class ZD-21925 FUR.FU-10001949 3 -2014-143336 2014-08-27 2014-09-01 Second Class ZD-21925 FUR.FU-10001949 3 -2016-12139 2014-11-12 Standard Class KB-16585 FUR.FU-10001949 7 -2016-137330 2016-12-09 2016-12-13 Standard Class SF-20065 FUR.FU-10001949 7 -2017-156909 2017-07-16 2016-01-20 Second Class SF-20065 FUR.FU-10001649 7	CA-2016-152156	2016-11-08	2016-11-11	Second Class	CG-12520	FUR-CH-10000454	3
-2015-108966 2015-10-11 2015-10-18 Standard Class SO-20335 OFF-ST-10000760 2 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR-FU-10001487 7 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 OFF-RR-10002873 4 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 TEC-PH-10002275 6 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 OFF-RR-100028910 3 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 OFF-RR-10002892 5 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR-TA-10001539 9 -2016-115812 2014-06-09 2017-04-15 Standard Class BH-1170 FUR-TA-1000233 4 -2016-161389 2016-12-05 2016-12-10 Standard Class BH-1170 FUR-TA-1000233 5 -2016-118893 2015-11-22 2015-11-26 Standard Class BH-1907 OFF-BH-10002356 3 -2015-118983 2015-11-22 2015-11-26 Standard Class BH-1815 OFF-RP-1000215 5 -2014-167383 2014-08-27 2014-09-01 Second Class BH-1815 OFF-RP-10000756 3 -2014-167383 2014-08-27 2014-09-01 Second Class DR-1925 OFF-RP-10000168 6 -2014-143336 2014-08-27 2014-09-01 Second Class DR-1925 OFF-RP-1000215 7 -2016-137330 2016-12-09 2016-12-13 Standard Class BH-1688 OFF-RP-10000275 7 -2016-137330 2016-12-09 2016-12-13 Standard Class BH-1688 OFF-RP-10000276 7 -2016-137330 2016-12-09 2016-12-13 Standard Class BH-1688 OFF-RP-10000276 7 -2016-137330 2016-12-09 2016-12-13 Standard Class BH-1688 OFF-RP-10000769 7 -2016-137330 2016-12-09 2016-12-13 Standard Class BH-1688 OFF-RP-10000169 7 -2016-137330 2016-12-09 2016-12-13 Standard Class BH-1688 OFF-RP-10000769 7 -2016-137330 2016-12-09 2016-12-13 Standard Class BH-1688 OFF-RP-10000169 7 -2016-137330 2016-12-09 2016-12-13 Standard Class BH-1688 OFF-RP-10000769 7 -2016-137330 2016-12-09 2016-12-13 Standard Class BH-1688 OFF-RP-10000169 7	CA-2016-138688	2016-06-12	2016-06-16	Second Class	DV-13045	OFF-LA-10000240	2
-2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR-FU-10001487 7 2-2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 OFF-AR-10002833 4 2-2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 OFF-AR-10002275 6 2-2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 OFF-AR-10002289 5 2-2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 OFF-AR-10002289 5 2-2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR-TA-10001539 9 2-2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR-TA-10001539 9 2-2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR-TA-10001539 9 2-2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR-TA-1000233 4 2-2017-114412 2017-04-15 2017-04-20 Standard Class BH-1170 FUR-TA-10002365 3 2-2017-118893 2016-12-05 2016-12-10 Standard Class BH-1815 OFF-BH-10003656 3 2-2015-118893 2015-11-22 2015-11-26 Standard Class BH-1815 OFF-BH-10003656 3 2-2015-11893 2015-11-22 2015-11-26 Standard Class BH-1815 OFF-BH-10000756 3 2-2015-11893 2014-11-11 2014-11-18 Standard Class BH-1815 OFF-BH-10000756 3 2-2014-105893 2014-11-11 2014-11-18 Standard Class BH-1815 OFF-BH-10000756 3 2-2014-13336 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-AR-10000217 2 2-2014-13336 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-BH-10000266 2 2-2014-13336 2014-08-27 2014-09-01 Second Class BH-16585 OFF-BH-10000216 7 2-2016-137330 2016-12-09 2016-12-13 Standard Class BH-16585 OFF-BH-10000266 7 2-2017-137330 2016-12-09 2016-12-13 Standard Class BH-16585 OFF-BH-10000266 7 2-2017-15699 2017-07-16 2017-07-18 Second Class SD-21925 FUR-CH-10001634 2	US-2015-108966	2015-10-11	2015-10-18	Standard Class	SO-20335	FUR-TA-10000577	5
2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 TEC.PH-10002283 4 2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 TEC.PH-10002275 6 2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 OFF-BH-10002892 5 2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 OFF-BH-10002892 5 2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 TEC.PH-10002393 9 2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 TEC.PH-10002333 4 2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 TEC.PH-10002333 4 2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 TEC.PH-10002335 3 2014-115812 2014-06-19 2014-06-14 Standard Class BH-11710 TEC.PH-10002365 3 2016-112-05 2016-12-10 Standard Class BH-1815 OFF-BH-10002365 3 2015-11-26 Standard Class HP-14815 OFF-BH-10002365 3 2015-11-28 2015-11-26 Standard Class HP-14815 OFF-BH-10000756 3 2014-05-13 2014-05-13 2014-05-13 2014-05-13 2014-05-13 2014-05-13 2014-05-13 2014-05-13 2014-05-13 2014-05-14 2014-05-13 2014-	US-2015-108966	2015-10-11	2015-10-18	Standard Class	SO-20335	OFF-ST-10000760	2
-2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 TEC-PH-10002275 6 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 OFF-BI-10003910 3 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 OFF-BI-10003910 3 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR-TA-10001539 9 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR-TA-10001539 9 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR-TA-10001539 9 -2014-115812 2014-06-09 2016-014 Standard Class BH-11710 FUR-TA-10001536 3 -2015-118812 2017-04-15 2016-012-10 Standard Class BH-1170 FUR-TA-10002365 3 -2015-118983 2015-11-22 2015-11-26 Standard Class BH-18000 FF-BH-10003656 3 -2015-118983 2015-11-22 2015-11-26 Standard Class BH-1815 OFF-BH-10000756 3 -2015-118983 2015-11-22 2015-11-26 Standard Class BH-1815 OFF-BH-10000756 3 -2014-105893 2014-11-11 2014-11-18 Standard Class BH-1815 OFF-BH-10000756 3 -2014-167363 2014-05-13 2014-05-15 Second Class PH-1815 OFF-BH-10000756 2 -2014-143336 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-BR-10000149 3 -2014-13336 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-BR-10002215 4 -2014-137330 2016-12-09 2016-12-13 Standard Class BH-16585 OFF-BR-10000246 7 -2016-137330 2016-12-09 2016-12-13 Standard Class BH-16585 OFF-BR-10000149 7 -2016-137330 2016-12-09 2016-12-13 Standard Class BH-16585 OFF-BR-10000164 2	CA-2014-115812	2014-06-09	2014-06-14	Standard Class	BH-11710	FUR-FU-10001487	7
.2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 OFF-BI-10003910 3 2-2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 OFF-AP-10002912 5 2014-015812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR-Th-10001539 9 2014-015812 2014-06-09 2014-06-14 Standard Class BH-11710 TEC-PH-10002033 4 2-2017-114812 2014-06-09 2014-06-14 Standard Class BH-11710 TEC-PH-10002035 3 2017-04-15 2016-12-10 Standard Class BH-11710 TEC-PH-10002035 3 2-2017-114812 2017-04-15 2016-12-10 Standard Class BH-11815 OFF-AP-10002311 5 2-2015-118983 2015-11-22 2015-11-26 Standard Class BH-14815 OFF-AP-10002311 5 2-2015-118983 2015-11-12 2015-11-126 Standard Class BH-14815 OFF-AP-10002311 5 2-2015-11893 2015-11-12 2014-11-18 Standard Class BH-14815 OFF-AP-10000211 5 2-2015-11893 2014-11-11 2014-11-18 Standard Class BH-14815 OFF-AP-10000276 3 2-2014-105893 2014-11-11 2014-11-18 Standard Class BH-14815 OFF-AP-10000276 6 2 2-2014-14336 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-AP-10001949 3 2-2014-14336 2014-08-27 2014-09-01 Second Class ZD-21925 TEC-PH-10001949 3 2-2014-143336 2014-08-27 2014-09-01 Second Class BH-16858 OFF-AP-10002275 4 2-2016-137330 2016-12-09 2016-12-13 Standard Class BH-16858 OFF-AP-10000276 7 2-2017-156909 2017-07-16 2017-07-18 Second Class SP-20065 FUR-CH-10002774 2 2-2017-156909 2017-07-16 2017-07-18 Second Class BH-16895 OFF-BH-100001632 2	CA-2014-115812	2014-06-09	2014-06-14	Standard Class	BH-11710	OFF-AR-10002833	4
-2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 OFF-AP-10002892 5 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR-TA-10001539 9 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 TEC-PH-10002033 4 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 TEC-PH-10002036 3 -2016-161389 2016-12-05 2016-12-10 Standard Class MH-10480 OFF-AP-10002316 3 -2016-161389 2016-11-22 2015-11-26 Standard Class MH-1815 OFF-AP-10002316 5 -2015-118983 2015-11-22 2015-11-26 Standard Class HP-14815 OFF-AP-10002316 5 -2016-105899 2014-11-11 2014-11-18 Standard Class PK-19075 OFF-ST-10004186 6 -2014-167649 2014-05-13 2014-05-15 Second Class PK-19075 OFF-ST-10004186 6 -2014-147336 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-AR-10003056 2 -2014-143336 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-AR-1000494 3 -2016-137330 2016-12-09 2016-12-13 Standard Class RB-16585 OFF-AR-10000246 7 -2016-137330 2016-12-09 2016-12-13 Standard Class SF-20065 FUR-CH-10001792 7 -2017-156909 2017-07-16 2017-07-18 Second Class SF-20065 FUR-CH-10001792 7 -2016-121755 2016-01-16 2016-01-20 Second Class SF-20065 FUR-CH-10002774 2 -2016-121755 2016-01-16 2016-01-20 Second Class SF-20065 FUR-CH-1000274 2	CA-2014-115812	2014-06-09	2014-06-14	Standard Class	BH-11710	TEC-PH-10002275	6
-2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 FUR-TA-10001539 9 -2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 TEC-PH-10002033 4 -2016-115812 2017-04-15 2017-04-20 Standard Class BH-11710 TEC-PH-10002033 4 -2016-161389 2016-12-05 2016-12-10 Standard Class M-10480 OFF-PH-10002365 3 -2016-161389 2016-11-22 2015-11-26 Standard Class M-1815070 OFF-BH-10003656 3 -2016-18983 2015-11-22 2015-11-26 Standard Class BH-1815 OFF-BH-10002716 5 -2016-1105893 2014-11-11 2014-11-18 Standard Class BH-1815 OFF-BH-10000756 3 -2016-1105893 2014-11-11 2014-11-18 Standard Class PK-19075 OFF-ST-10004186 6 -2014-167164 2014-05-13 2014-05-15 Second Class AG-10270 OFF-ST-10000176 2 -2014-143336 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-RR-10003056 2 -2014-143336 2014-08-27 2014-09-01 Second Class ZD-21925 TEC-PH-10001949 3 -2016-137330 2016-12-09 2016-12-13 Standard Class KB-16585 OFF-RR-100002216 7 -2016-137330 2016-12-09 2016-12-13 Standard Class KB-16585 OFF-RR-10000246 7 -2017-156909 2017-07-16 2017-07-18 Second Class SF-20065 FUR-CH-10001762 2	CA-2014-115812	2014-06-09	2014-06-14	Standard Class	BH-11710	OFF-BI-10003910	3
-2014-115812 2014-06-09 2014-06-14 Standard Class BH-11710 TEC-PH-10002033 4 2-2017-114412 2017-04-15 2017-04-20 Standard Class A-10480 OFF-Pk-10002265 3 2016-12-10 Standard Class BH-11710 OFF-Pk-10002265 3 2016-12-10 Standard Class BH-1815 OFF-Pk-10002365 3 2015-11-12 2015-11-26 Standard Class HP-14815 OFF-Pk-10002311 5 2015-11-122 2015-11-126 Standard Class HP-14815 OFF-Pk-10002311 5 2016-11-13 2014-11-18 Standard Class HP-14815 OFF-Pk-10000756 3 2014-11-11 2014-11-18 Standard Class HP-14815 OFF-Pk-10000756 3 2014-11-15 2014-105-15 Second Class A-10270 OFF-ST-100001107 2 2014-105993 2014-11-11 2014-11-18 Standard Class HP-14815 OFF-Pk-10000170 2 2014-143836 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-Pk-10000197 2 2014-143336 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-Pk-10001949 3 2014-11-13 2014-11-13 Standard Class KB-16585 OFF-Pk-10000215 4 2016-12-13 Standard Class KB-16585 OFF-Pk-10000149 7 2-2017-137330 2016-12-09 2016-12-13 Standard Class KB-16585 OFF-Pk-10001492 7 2-2017-137330 2016-12-09 2016-12-13 Standard Class KB-16585 OFF-Pk-10001492 7 2-2017-156909 2017-07-16 2017-07-18 Second Class EH-13945 OFF-Pk-10001634 2	CA-2014-115812	2014-06-09	2014-06-14	Standard Class	BH-11710	OFF-AP-10002892	5
-2017-114412 2017-04-15 2017-04-20 Standard Class AA-10480 OFF-PA-10002365 3 2-2016-161389 2016-12-05 2016-12-10 Standard Class MI-15070 OFF-BI-10003656 3 2-2015-1161389 2015-11-22 2015-11-26 Standard Class HP-14815 OFF-BI-10003656 3 2-2015-118983 2015-11-22 2015-11-26 Standard Class HP-14815 OFF-BI-10000756 3 2-2014-105899 2014-11-11 2014-11-18 Standard Class PK-19075 OFF-ST-10004186 6 2-2014-105899 2014-05-13 2014-05-13 Second Class PK-19075 OFF-ST-10000176 2 2-2014-143336 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-BI-100000756 2 2-2014-143336 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-BI-100001694 9 3 2-2014-13336 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-BI-10002154 4 2-2016-137330 2016-12-09 2016-12-13 Standard Class KB-16585 OFF-AR-10000246 7 2-2017-156909 2017-07-16 2017-07-18 Second Class SF-20065 FUR-CH-10002774 2 2-2017-156909 2017-07-16 2017-07-18 Second Class SF-20065 FUR-CH-10002774 2 2-2017-1575 2016-01-16 2016-01-20 Second Class SF-20065 FUR-CH-10001634 2	CA-2014-115812	2014-06-09	2014-06-14	Standard Class	BH-11710	FUR-TA-10001539	9
.2016-161389 2016-12-05 2016-12-10 Standard Class IH-15070 OFF-BI-10003656 3 2 2015-11-22 2015-11-26 Standard Class IH-14815 OFF-BI-10002715 5 2015-11-126 Standard Class IH-14815 OFF-BI-10000756 3 3 2015-11-22 2015-11-126 Standard Class IH-14815 OFF-BI-10000756 3 3 2016-11-11 2014-11-18 Standard Class IH-14815 OFF-BI-10000756 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	CA-2014-115812	2014-06-09	2014-06-14	Standard Class	BH-11710	TEC-PH-10002033	4
-2015-118983 2015-11-22 2015-11-26 Standard Class HP-14815 OFF-AP-10002311 5 - 2015-118983 2015-11-22 2015-11-26 Standard Class HP-14815 OFF-BI-10000756 3 - 2014-118983 2015-11-22 2015-11-26 Standard Class HP-14815 OFF-BI-10000756 3 - 2014-105-13 2014-01-15 Second Class HP-149075 OFF-ST-10004186 6 - 2014-167164 2014-05-13 2014-05-15 Second Class MC-10270 OFF-ST-10000107 2 - 2014-167164 2014-05-13 2014-09-01 Second Class MC-10270 OFF-ST-10000107 2 - 2014-143336 2014-08-27 2014-09-01 Second Class MC-10295 OFF-BR-100003056 2 - 2014-143336 2014-08-27 2014-09-01 Second Class MC-10295 OFF-BR-10000215 4 - 2016-137330 2016-12-09 2016-12-13 Standard Class MC-10585 OFF-AR-10000246 7 - 2016-137330 2016-12-09 2016-12-13 Standard Class MC-10585 OFF-AR-10001492 7 - 2017-15909 2017-07-16 2017-07-18 Second Class SF-20065 FMR-CH-10002774 2 - 2016-12755 2016-01-16 2016-01-20 Second Class EH-13945 OFF-BI-10001634 2	CA-2017-114412	2017-04-15	2017-04-20	Standard Class	AA-10480	OFF-PA-10002365	3
-2015-118983 2015-11-22 2015-11-26 Standard Class HP-14815 OFF-BI-10000756 3 -2014-105899 2014-11-11 2014-11-18 Standard Class PK-19075 OFF-ST-10000148 6 -2014-105899 2014-05-13 2014-05-13 Second Class AG-10270 OFF-ST-10000170 2 -2014-143336 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-AR-10003056 2 -2014-143336 2014-08-27 2014-09-01 Second Class ZD-21925 TEC-PH-10001949 3 -2014-143336 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-BI-10002015 4 -2016-137330 2016-12-09 2016-12-13 Standard Class KB-16585 OFF-AR-10000246 7 -2016-137330 2016-12-09 2016-12-13 Standard Class KB-16585 OFF-AR-10001492 7 -2017-156909 2017-07-16 2017-07-18 Second Class SF-20065 FUR-CH-10002774 2 -2017-155909 2017-07-16 2016-01-20 Second Class EH-13945 OFF-BI-10001634 2	CA-2016-161389	2016-12-05	2016-12-10	Standard Class	IM-15070	OFF-BI-10003656	3
-2014-105893 2014-11-11 2014-11-18 Standard Class PK-19075 OFF-ST-10004186 6 2014-107164 2014-05-13 2014-05-15 Second Class AG-10270 OFF-ST-10000170 7 2 2-0214-18326 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-AR-10003056 2 2-0214-143336 2014-08-27 2014-09-01 Second Class ZD-21925 TEC-PH-10001949 3 2-0214-13336 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-AR-10002215 4 2-0216-137330 2016-12-09 2016-12-13 Standard Class KB-16585 OFF-AR-10000246 7 2-0216-137330 2016-12-09 2016-12-13 Standard Class KB-16585 OFF-AR-10001949 7 2-0217-156909 2017-07-16 2017-07-18 Second Class SF-20065 FUR-CH-10002774 2 2-0216-121755 2016-01-16 2016-01-20 Second Class EH-13945 OFF-BI-10001634 2	US-2015-118983	2015-11-22	2015-11-26	Standard Class	HP-14815	OFF-AP-10002311	5
2014-167164 2014-05-13 2014-05-15 Second Class AG-10270 OFF-ST-10000107 2	US-2015-118983	2015-11-22	2015-11-26	Standard Class	HP-14815	OFF-BI-10000756	3
-2014-143336 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-AR-10003056 2 -2014-143336 2014-08-27 2014-09-01 Second Class ZD-21925 TEC-PH-10001949 3 -2014-14336 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-BE-10002215 4 -2016-137330 2016-12-09 2016-12-13 Standard Class KB-16585 OFF-AR-10000246 7 -2016-137330 2016-12-09 2016-12-13 Standard Class KB-16585 OFF-AR-10001492 7 -2017-156909 2017-07-16 2017-07-18 Second Class SF-20065 FUR-CH-10002774 2 -2016-121755 2016-01-16 2016-01-20 Second Class EH-13945 OFF-BE-10001634 2	CA-2014-105893	2014-11-11	2014-11-18	Standard Class	PK-19075	OFF-ST-10004186	6
-2014-143336 2014-08-27 2014-09-01 Second Class ZD-21925 TEC-PH-10001949 3 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-BI-10002215 4 2016-137330 2016-12-09 2016-12-13 Standard Class KB-16585 OFF-AR-10000246 7 2017-137330 2016-12-09 2016-12-13 Standard Class KB-16585 OFF-AR-10001492 7 2017-156909 2017-07-16 2017-07-18 Second Class SF-20065 FUR-CH-10002774 2 2016-121755 2016-01-16 2016-01-20 Second Class EH-13945 OFF-BI-10001634 2	CA-2014-167164	2014-05-13	2014-05-15	Second Class	AG-10270	OFF-ST-10000107	2
v.2014-143336 2014-08-27 2014-09-01 Second Class ZD-21925 OFF-BI-10002215 4 v.2016-137330 2016-12-09 2016-12-13 Standard Class KB-16585 OFF-AR-10000246 7 v.2016-137330 2016-12-09 2016-12-13 Standard Class KB-16585 OFF-AR-100001492 7 v.2017-156909 2017-07-18 Second Class KB-16585 FUR-CH-10002774 2 v.2016-121755 2016-01-16 2016-01-20 Second Class SF-20065 FUR-CH-10002774 2 v.2016-121755 2016-01-16 2016-01-20 Second Class EH-13945 OFF-BI-10001634 2	CA-2014-143336	2014-08-27	2014-09-01	Second Class	ZD-21925	OFF-AR-10003056	2
-2016-137330 2016-12-09 2016-12-13 Standard Class KB-16585 OFF-AR-10000246 7 -2016-137330 2016-12-09 2016-12-13 Standard Class KB-16585 OFF-AP-10001492 7 -2017-156909 2017-07-16 2017-07-18 Second Class SF-20065 FUR-CH-10002774 2 -2016-121755 2016-01-16 2016-01-20 Second Class EH-13945 OFF-BH-10001634 2	CA-2014-143336	2014-08-27	2014-09-01	Second Class	ZD-21925	TEC-PH-10001949	3
-2016-137330 2016-12-09 2016-12-13 Standard Class KB-16585 OFF-AP-10001492 7 -2017-156909 2017-07-16 2017-07-18 Second Class SF-20065 FUR-CH-10002774 2 -2016-121755 2016-01-16 2016-01-20 Second Class EH-13945 OFF-BI-10001634 2	CA-2014-143336	2014-08-27	2014-09-01	Second Class	ZD-21925	OFF-BI-10002215	4
-2017-156909 2017-07-16 2017-07-18 Second Class SF-20065 FUR-CH-10002774 2 -2016-121755 2016-01-16 2016-01-20 Second Class EH-13945 OFF-BI-10001634 2	CA-2016-137330	2016-12-09	2016-12-13	Standard Class	KB-16585	OFF-AR-10000246	7
-2016-121755 2016-01-16 2016-01-20 Second Class EH-13945 OFF-BI-10001634 2	CA-2016-137330	2016-12-09	2016-12-13	Standard Class	KB-16585	OFF-AP-10001492	7
	US-2017-156909	2017-07-16	2017-07-18	Second Class	SF-20065	FUR-CH-10002774	2
.2016.121755 2016.01.16 2016.01.20 Second Class FH.13945 TFC.4C.10003027 3	CA-2016-121755	2016-01-16	2016-01-20	Second Class	EH-13945	OFF-BI-10001634	2
	CA-2016-121755	2016-01-16	2016-01-20	Second Class	FH_13945	TFC-AC-10003027	3

c. La clienta Lena Cacioppo compró un producto de cada subcategoría de Furniture. Deberás elegir los productos que desees e indicar como parte de esta consulta, la información que se agregará en cada caso.

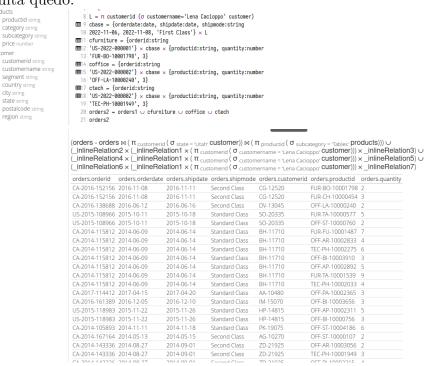
Elegimos un producto de cada categoría al azar y obtuvimos su id. Luego construimos una relación en línea (juntándola con la id de la clienta) y la unimos a Orders.

Información agregada: (Orders)

OrderID	OrderDate	ShipDate	ShipMode	CustomerID	ProductID	Quantity
'US-2022-000001'	2022-11-06	2022-11-08	First Class	LC-16870	FUR-BO-10001798	3
'US-2022-000002'	2022-11-06	2022-11-08	First Class	LC-16870	OFF-LA-10000240	3
'US-2022-000003'	2022-11-06	2022-11-08	First Class	LC-16870	TEC-PH-10001949	3

La consulta quedo:

postalcode string



d. Aumentar los precios de productos de la subcategoría Phones en un 8%. Consulta:

$$A = \sigma_{Subcategory='Phones'}(Products)$$

$$U = \pi_{ProductID,Category,Subcategory,price\leftarrow price*1,08}A$$

$$Products = (Products - A) \cup U$$

products.productid	products.category	products.subcategory	products.price
FUR-BO-10001798	Furniture	Bookcases	261.96
FUR-CH-10000454	Furniture	Chairs	731.94
OFF-LA-10000240	Office Supplies	Labels	14.62
FUR-TA-10000577	Furniture	Tables	957.58
OFF-ST-10000760	Office Supplies	Storage	22.37
FUR-FU-10001487	Furniture	Furnishings	48.86
OFF-AR-10002833	Office Supplies	Art	7.28
OFF-BI-10003910	Office Supplies	Binders	18.5
OFF-AP-10002892	Office Supplies	Appliances	114.9
FUR-TA-10001539	Furniture	Tables	1706.18
OFF-PA-10002365	Office Supplies	Paper	15.55
OFF-BI-10003656	Office Supplies	Binders	407.98
OFF-AP-10002311	Office Supplies	Appliances	68.81
OFF-BI-10000756	Office Supplies	Binders	2.54
OFF-ST-10004186	Office Supplies	Storage	665.88
OFF-ST-10000107	Office Supplies	Storage	55.5
OFF-AR-10003056	Office Supplies	Art	8.56
OFF-BI-10002215	Office Supplies	Binders	22.72
OFF-AR-10000246	Office Supplies	Art	19.46
OFF-AP-10001492	Office Supplies	Appliances	60.34
FUR-CH-10002774	Furniture	Chairs	71.37
OFF-BI-10001634	Office Supplies	Binders	1044.63
TEC-AC-10003027	Technology	Accessories	11.65

e. Disminuir 8% los precios de los productos de la categoría Furniture cuyo precio sea de \$600 a \$900. Aumentar en un 5% los precios de los productos de la categoría Technology y subcategoría Machines.

