

Grupo 44

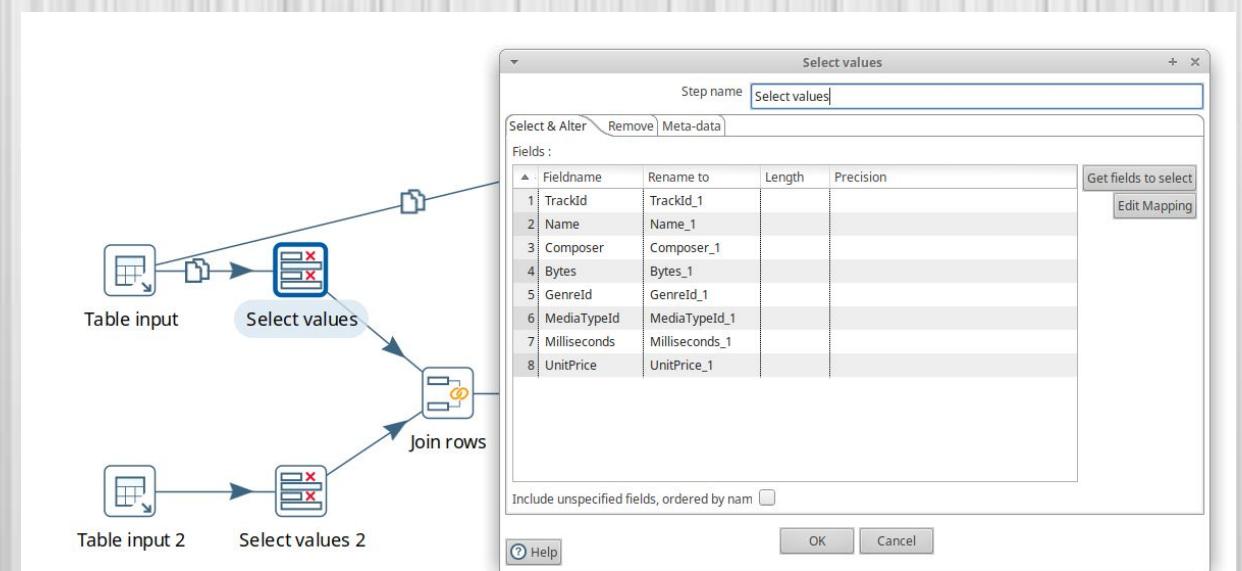
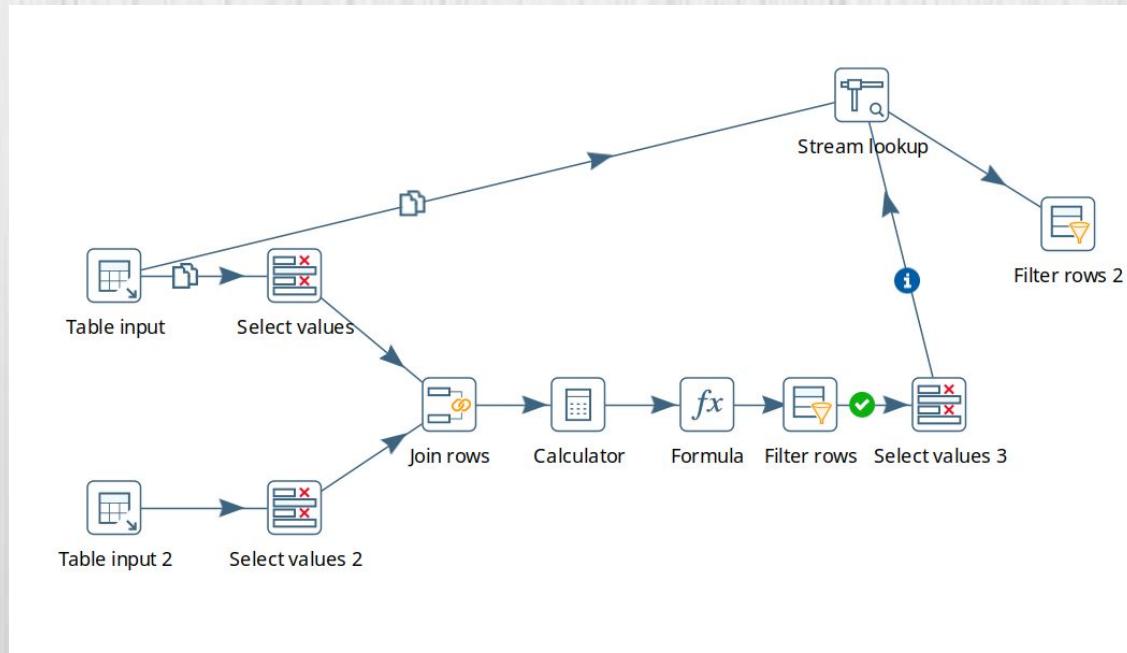
Inês Lille Nº 90610

Pedro Leitão Nº 90764

Challenge 1

```
CREATE VIEW Contact(FirstName, LastName, Address, City,  
State, Country, PostalCode, Phone, Fax, Email) AS  
(SELECT employeeId AS ContactId, FirstName, LastName,  
Address, City, State, Country, PostalCode, Phone, Fax, Email  
FROM Employee)  
UNION ALL (SELECT customerId*1000 AS ContactId,  
FirstName, LastName, Address, City, State, Country, PostalCode,  
Phone, Fax, Email FROM Customer);
```

Challenge 2



Challenge 2

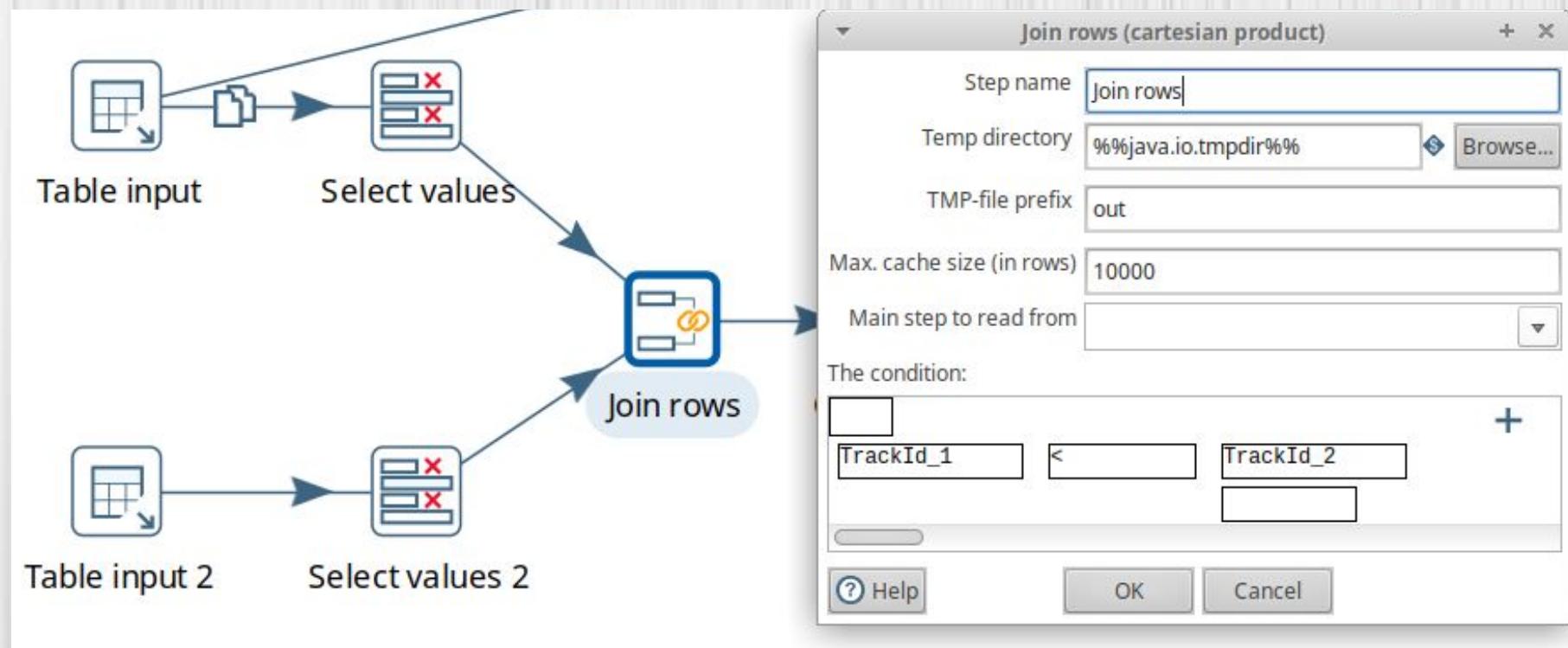
Examine preview data

Rows of step: Select values (1000 rows)

▲	TrackId_1	Name_1	Composer_1	Bytes_1	GenreId_1	MediaTypeId_1	Milliseconds_1	UnitPrice_1
1	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99
2	3	Fast As a Shark	F. Baltes, S. Kaufman, U. Dirksneider & W. Hoffman	3990994	1	2	230619	0.99
3	4	Restless and Wild	F. Baltes, R.A. Smith-Diesel, S. Kaufman, U. Dirksneider & W. Hoffman	4331779	1	2	252051	0.99
4	5	Princess of the Dawn	Deaffy & R.A. Smith-Diesel	6290521	1	2	375418	0.99
5	6	Put The Finger On You	Angus Young, Malcolm Young, Brian Johnson	6713451	1	1	205662	0.99
6	7	Let's Get It Up	Angus Young, Malcolm Young, Brian Johnson	7636561	1	1	233926	0.99
7	8	Inject The Venom	Angus Young, Malcolm Young, Brian Johnson	6852860	1	1	210834	0.99
8	9	Snowballed	Angus Young, Malcolm Young, Brian Johnson	6599424	1	1	203102	0.99
9	10	Evil Walks	Angus Young, Malcolm Young, Brian Johnson	8611245	1	1	263497	0.99
10	11	C.O.D.	Angus Young, Malcolm Young, Brian Johnson	6566314	1	1	199836	0.99
11	12	Breaking The Rules	Angus Young, Malcolm Young, Brian Johnson	8596840	1	1	263288	0.99
12	13	Night Of The Long Knives	Angus Young, Malcolm Young, Brian Johnson	6706347	1	1	205688	0.99
13	14	Spellbound	Angus Young, Malcolm Young, Brian Johnson	8817038	1	1	270863	0.99
14	15	Go Down	AC/DC	10847611	1	1	331180	0.99
15	16	Dog Eat Dog	AC/DC	7032162	1	1	215196	0.99
16	17	Let There Be Rock	AC/DC	12021261	1	1	366654	0.99
17	18	Bad Boy Boogie	AC/DC	8776140	1	1	267728	0.99
18	19	Problem Child	AC/DC	10617116	1	1	325041	0.99
19	20	Overdose	AC/DC	12066294	1	1	369319	0.99
20	21	Hell Ain't A Bad Place To Be	AC/DC	8331286	1	1	254380	0.99
21	22	Whole Lotta Rosie	AC/DC	10547154	1	1	323761	0.99
22	23	Walk On Water	Steven Tyler, Joe Perry, Jack Blades, Tommy Shaw	9719579	1	1	295680	0.99
23	24	Love In An Elevator	Steven Tyler, Joe Perry	10552051	1	1	321828	0.99
24	25	Rag Doll	Steven Tyler, Joe Perry, Jim Vallance, Holly Knight	8675345	1	1	264698	0.99
25	26	What It Takes	Steven Tyler, Joe Perry, Desmond Child	10144730	1	1	310622	0.99
26	27	Dude (Looks Like A Lady)	Steven Tyler, Joe Perry, Desmond Child	8679940	1	1	264855	0.99
27	28	Ianie's Got A Gun	Steven Tyler, Tom Hamilton	10869391	1	1	330736	0.99

[Close](#) [Stop](#) [Get more rows](#)

Challenge 2



Challenge 2

Examine preview data

Rows of step: Join rows (1000 rows)

	TrackId_1	Name_1	Composer_1	Bytes_1	GenreId_1	MediaTypeId_1	Milliseconds_1	UnitPrice_1	TrackId_2	Name_2	Composer_2
1	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	3	Fast As A Shark	F. Baltes, S. Kaufman, U. Dirks
2	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	4	Restless and Wild	F. Baltes, R.A. Smith-Diesel, S.I
3	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	5	Princess of the Dawn	Deaffy & R.A. Smith-Diesel
4	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	6	Put The Finger On You	Angus Young, Malcolm Young,
5	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	7	Let's Get It Up	Angus Young, Malcolm Young,
6	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	8	Inject The Venom	Angus Young, Malcolm Young,
7	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	9	Snowballed	Angus Young, Malcolm Young,
8	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	10	Evil Walks	Angus Young, Malcolm Young,
9	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	11	C.O.D.	Angus Young, Malcolm Young,
10	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	12	Breaking The Rules	Angus Young, Malcolm Young,
11	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	13	Night Of The Long Knives	Angus Young, Malcolm Young,
12	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	14	Spellbound	Angus Young, Malcolm Young,
13	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	15	Go Down	AC/DC
14	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	16	Dog Eat Dog	AC/DC
15	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	17	Let There Be Rock	AC/DC
16	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	18	Bad Boy Boogie	AC/DC
17	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	19	Problem Child	AC/DC
18	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	20	Overdose	AC/DC
19	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	21	Hell Ain't A Bad Place To Be	AC/DC
20	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	22	Whole Lotta Rosie	AC/DC
21	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	23	Walk On Water	Steven Tyler, Joe Perry, Jack Bl
22	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	24	Love In An Elevator	Steven Tyler, Joe Perry
23	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	25	Rag Doll	Steven Tyler, Joe Perry, Jim Val
24	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	26	What It Takes	Steven Tyler, Joe Perry, Desmc
25	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	27	Dude (Looks Like A Lady)	Steven Tyler, Joe Perry, Desmc
26	1	For Those About To Rock (We Salute You)	Angus Young, Malcolm Young, Brian Johnson	11170334	1	1	343719	0.99	28	Janie's Got A Gun	Steven Tyler, Tom Hamilton

Challenge 2

Calculator

Step name: Calculator

Throw an error on non existing files

Fields:

	New field	Calculation	Field A	Field B	Field C	Value type	Length	Precision	Remove	Conversion mask	Decimal symbol	G
1	sim1	Jaro similitude between String A and String B	Name_1	Name_2		Number			N			
2	sim2	Jaro similitude between String A and String B	Composer_1	Composer_2		Number			N			

Rows of step: Calculator (1000 rows)

i_1	UnitPrice_1	TrackId_2	Name_2	Composer_2	Bytes_2	GenreId_2	MediaTypeId_2	Milliseconds_2	UnitPrice_2	sim1	sim2
19	0.99	3	Fast As a Shark	F. Baltes, S. Kaufman, U. Dirksneider & W. Hoffman	3990994	1	2	230619	0.99	0.5636752137	0.5143358156
19	0.99	4	Restless and Wild	F. Baltes, R.A. Smith-Diesel, S. Kaufman, U. Dirksneider & W. Hoffman	4331779	1	2	252051	0.99	0.4827982475	0.5222996516
19	0.99	5	Princess of the Dawn	Deaffy & R.A. Smith-Diesel	6290521	1	2	375418	0.99	0.5247863248	0.4095059412
19	0.99	6	Put The Finger On You	Angus Young, Malcolm Young, Brian Johnson	6713451	1	1	205662	0.99	0.5663003663	1.0
19	0.99	7	Let's Get It Up	Angus Young, Malcolm Young, Brian Johnson	7636561	1	1	233926	0.99	0.4068376068	1.0
19	0.99	8	Inject The Venom	Angus Young, Malcolm Young, Brian Johnson	6852860	1	1	210834	0.99	0.4496082621	1.0
19	0.99	9	Snowballed	Angus Young, Malcolm Young, Brian Johnson	6599424	1	1	203102	0.99	0.3478632479	1.0
19	0.99	10	Evil Walks	Angus Young, Malcolm Young, Brian Johnson	8611245	1	1	263497	0.99	0.3478632479	1.0
19	0.99	11	C.O.D.	Angus Young, Malcolm Young, Brian Johnson	6566314	1	1	199836	0.99	0.0	1.0
19	0.99	12	Breaking The Rules	Angus Young, Malcolm Young, Brian Johnson	8596840	1	1	263288	0.99	0.556980057	1.0
19	0.99	13	Night Of The Long Knives	Angus Young, Malcolm Young, Brian Johnson	6706347	1	1	205688	0.99	0.4589160839	1.0
19	0.99	14	Spellbound	Angus Young, Malcolm Young, Brian Johnson	8817038	1	1	270863	0.99	0.4175213675	1.0
19	0.99	15	Go Down	AC/DC	10847611	1	1	331180	0.99	0.5018315018	0.4081300813
19	0.99	16	Dog Eat Dog	AC/DC	7032162	1	1	215196	0.99	0.4609168609	0.4081300813
19	0.99	17	Let There Be Rock	AC/DC	12021261	1	1	366654	0.99	0.5967823027	0.4081300813
19	0.99	18	Bad Boy Boogie	AC/DC	8776140	1	1	267728	0.99	0.3608058608	0.4081300813
19	0.99	19	Problem Child	AC/DC	10617116	1	1	325041	0.99	0.3717948718	0.4081300813
19	0.99	20	Overdose	AC/DC	12066294	1	1	369319	0.99	0.4508547009	0.4081300813
19	0.99	21	Hell Ain't A Bad Place To Be	AC/DC	8331286	1	1	254380	0.99	0.5147283272	0.4081300813
19	0.99	22	Whole Lotta Rosie	AC/DC	10547154	1	1	323761	0.99	0.5218245806	0.4081300813
19	0.99	23	Walk On Water	Steven Tyler, Joe Perry, Jack Blades, Tommy Shaw	9719579	1	1	295680	0.99	0.4273504274	0.522914247
19	0.99	24	Love In An Elevator	Steven Tyler, Joe Perry	10552051	1	1	321828	0.99	0.5353126406	0.3893160127
19	0.99	25	Rag Doll	Steven Tyler, Joe Perry, Jim Vallance, Holly Knight	8675345	1	1	264698	0.99	0.2670940171	0.5257244644
19	0.99	26	What It Takes	Steven Tyler, Joe Perry, Desmond Child	10144730	1	1	310622	0.99	0.4401709402	0.507939904
19	0.99	27	Dude (Looks Like A Lady)	Steven Tyler, Joe Perry, Desmond Child	8679940	1	1	264855	0.99	0.5283882784	0.507939904
19	0.99	28	Janie's Got A Gun	Steven Tyler, Tom Hamilton	10869391	1	1	330736	0.99	0.4385788503	0.507594032

Challenge 2

Formula

Step name: Formula

Fields:

New field	Formula	Value type	Length	Precision	Replace
1 sim_total	0.5*[sim1]+0.5*[sim2]	Number			

Examine preview data

Rows of step: Formula (1000 rows)

TrackId_2	Name_2	Composer_2	Bytes_2	GenreId_2	MediaTypeId_2	Milliseconds_2	UnitPrice_2	sim1	sim2	sim_total
3	Fast As a Shark	F. Baltes, S. Kaufman, U. Dirksneider & W. Hoffman	3990994	1	2	230619	0.99	0.5143358156	0.5390055147	0.5390055147
4	Restless and Wild	F. Baltes, R.A. Smith-Diesel, S. Kaufman, U. Dirksneider & W. Hoffman	4331779	1	2	252051	0.99	0.4827982475	0.5222996516	0.5025489495
5	Princess of the Dawn	Deaffy & R.A. Smith-Diesel	6290521	1	2	375418	0.99	0.5247863248	0.4095059412	0.467146133
6	Put The Finger On You	Angus Young, Malcolm Young, Brian Johnson	6713451	1	1	205662	0.99	0.5663003663	1.0	0.7831501832
7	Let's Get It Up	Angus Young, Malcolm Young, Brian Johnson	7636561	1	1	233926	0.99	0.4068376068	1.0	0.7034188034
8	Inject The Venom	Angus Young, Malcolm Young, Brian Johnson	6852860	1	1	210834	0.99	0.4496082621	1.0	0.7248041311
9	Snowballed	Angus Young, Malcolm Young, Brian Johnson	6599424	1	1	203102	0.99	0.3478632479	1.0	0.6739316239
10	Evil Walks	Angus Young, Malcolm Young, Brian Johnson	8611245	1	1	263497	0.99	0.3478632479	1.0	0.6739316239
11	C.O.D.	Angus Young, Malcolm Young, Brian Johnson	6566314	1	1	199836	0.99	0.0	1.0	0.5
12	Breaking The Rules	Angus Young, Malcolm Young, Brian Johnson	8596840	1	1	263288	0.99	0.556980057	1.0	0.7784900285
13	Night Of The Long Knives	Angus Young, Malcolm Young, Brian Johnson	6706347	1	1	205688	0.99	0.4589160839	1.0	0.729458042
14	Spellbound	Angus Young, Malcolm Young, Brian Johnson	8817038	1	1	270863	0.99	0.4175213675	1.0	0.7087606838
15	Go Down	AC/DC	10847611	1	1	331180	0.99	0.5018315018	0.4081300813	0.4549807916
16	Dog Eat Dog	AC/DC	7032162	1	1	215196	0.99	0.4609168609	0.4081300813	0.4345234711
17	Let There Be Rock	AC/DC	12021261	1	1	366654	0.99	0.5967823027	0.4081300813	0.502456192
18	Bad Boy Boogie	AC/DC	8776140	1	1	267728	0.99	0.3608058608	0.4081300813	0.3844679711
19	Problem Child	AC/DC	10617116	1	1	325041	0.99	0.3717948718	0.4081300813	0.3899624765
20	Overdose	AC/DC	12066294	1	1	369319	0.99	0.4508547009	0.4081300813	0.4294923911
21	Hell Ain't A Bad Place To Be	AC/DC	8331286	1	1	254380	0.99	0.5147283272	0.4081300813	0.4614292043
22	Whole Lotta Rosie	AC/DC	10547154	1	1	323761	0.99	0.5218245806	0.4081300813	0.464977331
23	Walk On Water	Steven Tyler, Joe Perry, Jack Blades, Tommy Shaw	9719579	1	1	295680	0.99	0.4273504274	0.522914247	0.4751323372
24	Love In An Elevator	Steven Tyler, Joe Perry	10552051	1	1	321828	0.99	0.5353126406	0.3893160127	0.4623143267
25	Rag Doll	Steven Tyler, Joe Perry, Jim Vallance, Holly Knight	8675345	1	1	264698	0.99	0.2670940171	0.5257244644	0.3964092407
26	What It Takes	Steven Tyler, Joe Perry, Desmond Child	10144730	1	1	310622	0.99	0.4401709402	0.507939904	0.4740554221
27	Dude (Looks Like A Lady)	Steven Tyler, Joe Perry, Desmond Child	8679940	1	1	264855	0.99	0.5283882784	0.507939904	0.5181640912
28	Janie's Got A Gun	Steven Tyler, Tom Hamilton	10869391	1	1	330736	0.99	0.4385788503	0.507594032	0.4730864412

Challenge 2

Filter rows

Step name: Filter rows

Send 'true' data to step: Select values 3

Send 'false' data to step:

The condition:

sim_total >= 0.88 (Number)

+

ackId_2	Name_2	Composer_2	Bytes_2	GenreId_2	MediaTypeId_2	Milliseconds_2	UnitPrice_2	sim1	sim2	sim_total
50	You Oughta Know (Alternate)	Alanis Morissette & Glenn Ballard	16008629	1	1	491885	0.99	0.8518518519	1.0	0.9259259259
2535	Let Me Love You Baby	Willie Dixon	5378455	6	1	164127	0.99	1.0	1.0	1.0
1110	Drão	Gilberto Gil	9931950	7	1	301453	0.99	1.0	1.0	1.0
266	Maracatu Atômico [Atomic Version]	Chico Science	9019677	7	1	273084	0.99	0.8282828283	1.0	0.9141414141
267	Maracatu Atômico [Ragga Mix]	Chico Science	6986421	7	1	210155	0.99	0.8571428571	1.0	0.9285714286
268	Maracatu Atômico [Trip Hop]	Chico Science	7380787	7	1	221492	0.99	0.8641975309	1.0	0.9320987654
2046	Manguetown	Chico Science/Dengue/Lúcio Maia	5382018	7	1	162925	0.99	1.0	0.8064516129	0.9032258065
267	Maracatu Atômico [Ragga Mix]	Chico Science	6986421	7	1	210155	0.99	0.7795815296	1.0	0.8897907648
268	Maracatu Atômico [Trip Hop]	Chico Science	7380787	7	1	221492	0.99	0.8351144293	1.0	0.9175572147
268	Maracatu Atômico [Trip Hop]	Chico Science	7380787	7	1	221492	0.99	0.8267195767	1.0	0.9133597884
301	A Sombra Da Maldade	Da Gama/Toni Garrido	9544383	8	1	285231	0.99	1.0	1.0	1.0
300	O Erê	Bernardo Vilhena/Bino/Da Gama/Lazao/Toni Garrido	6950332	8	1	206942	0.99	1.0	0.8811868687	0.9405934343
299	Onde Você Mora?	Marisa Monte/Nando Reis	10056970	8	1	298396	0.99	1.0	1.0	1.0
305	Pensamento	Bino/Da Gama/Ras Bernardo	6399761	8	1	192391	0.99	1.0	0.7659649123	0.8829824561
306	Realidade Virtual	Bino/Da Gamma/Lazao/Toni Garrido	8069934	8	1	240300	0.99	1.0	0.8099002547	0.9049501273
311	A Cor Do Sol	Bernardo Vilhena/Da Gama/Lazao	9142937	8	1	273031	0.99	1.0	0.9777777778	0.9888888889
349	You Shook Me(2)	J B Lenoir/Willie Dixon	20138673	1	1	619467	0.99	0.9333333333	1.0	0.9666666667
1620	You Shook Me	J. B. Lenoir/Willie Dixon	12643067	1	1	388179	0.99	1.0	0.9733333333	0.9866666667
348	I Can't Quit You Baby(2)	Willie Dixon	12377615	1	1	380551	0.99	0.9583333333	1.0	0.9791666667
1589	I Can't Quit You Baby	Willie Dixon	8437098	1	1	258168	0.99	1.0	1.0	1.0
1625	I Can't Quit You Baby	Willie Dixon	9252733	1	1	282671	0.99	1.0	1.0	1.0
343	Communication Breakdown(2)	Jimmy Page/John Bonham/John Paul Jones	5261022	1	1	161149	0.99	0.9615384615	1.0	0.9807692308
347	Communication Breakdown(3)	Jimmy Page/John Bonham/John Paul Jones	6041133	1	1	185260	0.99	0.9615384615	1.0	0.9807692308
1624	Communication Breakdown	Jimmy Page/John Bonham/John Paul Jones	4899554	1	1	150230	0.99	1.0	1.0	1.0
1581	Dazed And Confused	Jimmy Page/Led Zeppelin	36052247	1	1	1116734	0.99	0.962962963	0.8115942029	0.8872785829
1621	Dazed and Confused	Jimmy Page	12610326	1	1	386063	0.99	1.0	1.0	1.0

Challenge 2

Step name

Select & Alter Remove Meta-data

Fields :

	Fieldname	Rename to	Length	Precision	
1	TrackId_1				Get fields to select
2	TrackId_2				Edit Mapping

Rows of step: Select values 3 (153 rows)

	TrackId_1	TrackId_2
1	39	50
2	195	2535
3	212	1110
4	253	266
5	253	267
6	253	268
7	257	2046
8	266	267
9	266	268
10	267	268
11	283	301
12	288	300
13	293	299
14	294	305
15	296	306
16	298	311
17	337	349
18	337	1620
19	338	348
20	338	1589
21	338	1625
22	339	343
23	339	347
24	339	1624
25	340	1581
26	340	1621
27	340	1666

Challenge 2

Step name: Stream lookup

Lookup step: Select values 3

The key(s) to look up the value(s):

Field	LookupField
1 TrackId	TrackId_2

Specify the fields to retrieve :

Field	New name	Default	Type
1 TrackId_1	duplicate		Integer

Rows of step: Stream lookup (1000 rows)

▲	TrackId	Name	AlbumId	MediaTypeId	GenreId	Composer	Milliseconds	Bytes	UnitPrice	duplicate
370	1261	Wasting Love	99	1	1	Bruce Dickinson/Janick Gers	350981	14041216	0.99	1227
371	1262	The Fugitive	99	1	1	Steve Harris	294112	11765888	0.99	<null>
372	1263	Chains Of Misery	99	1	1	Bruce Dickinson/David Murray	217443	8700032	0.99	<null>
373	1264	The Apparition	99	1	1	Janick Gers/Steve Harris	234605	9386112	0.99	<null>
374	1265	Judas Be My Guide	99	1	1	Bruce Dickinson/David Murray	188786	7553152	0.99	<null>
375	1266	Weekend Warrior	99	1	1	Janick Gers/Steve Harris	339748	13594678	0.99	<null>
376	1267	Fear Of The Dark	99	1	1	Steve Harris	436976	17483789	0.99	1234
377	1268	01 - Prowler	100	1	6	Steve Harris	236173	5668992	0.99	1214
378	1269	02 - Sanctuary	100	1	6	David Murray/Paul Di'Anno/Steve Harris	196284	4712576	0.99	1218
379	1270	03 - Remember Tomorrow	100	1	6	Harris/Paul Di'Anno	328620	7889024	0.99	<null>
380	1271	04 - Running Free	100	1	6	Harris/Paul Di'Anno	197276	4739122	0.99	<null>
381	1272	05 - Phantom of the Opera	100	1	6	Steve Harris	428016	10276872	0.99	<null>
382	1273	06 - Transylvania	100	1	6	Steve Harris	259343	6226048	0.99	1215
383	1274	07 - Strange World	100	1	6	Steve Harris	332460	7981184	0.99	<null>
384	1275	08 - Charlotte the Harlot	100	1	6	Murray Dave	252708	6066304	0.99	<null>
385	1276	09 - Iron Maiden	100	1	6	Steve Harris	216058	5189891	0.99	1222
386	1277	The Ides Of March	101	1	13	Steve Harris	105926	2543744	0.99	<null>
387	1278	Wrathchild	101	1	13	Steve Harris	174471	4188288	0.99	<null>
388	1279	Murders In The Rue Morgue	101	1	13	Steve Harris	258377	6205786	0.99	<null>
389	1280	Another Life	101	1	13	Steve Harris	203049	4874368	0.99	<null>
390	1281	Genghis Khan	101	1	13	Steve Harris	187141	4493440	0.99	<null>
391	1282	Innocent Exile	101	1	13	Di'Anno/Harris	232515	5584861	0.99	<null>
392	1283	Killers	101	1	13	Steve Harris	300956	7227440	0.99	<null>
393	1284	Prodigal Son	101	1	13	Steve Harris	372349	8937600	0.99	<null>
394	1285	Purgatory	101	1	13	Steve Harris	200150	4804736	0.99	<null>
395	1286	Drifter	101	1	13	Steve Harris	288757	6934660	0.99	<null>
396	1289	2 Minutes To Midnight	102	1	3	Smith/Dickinson	366550	8799380	0.99	<null>

Challenge 2

Filter rows

Step name: Filter rows 2

Send 'true' data to step:

Send 'false' data to step:

The condition:

duplicate IS NOT NULL -

+ [Add condition]

TrackId	Name	AlbumId	MediaTypeId	GenreId	Composer	Milliseconds	Bytes	UnitPrice	duplicate
1	50 You Oughta Know (Alternate)	6	1	1	Alanis Morissette & Glenn Ballard	491885	16008629	0.99	39
2	266 Maracatu Atômico [Atomic Version]	24	1	7	Chico Science	273084	9019677	0.99	253
3	267 Maracatu Atômico [Ragga Mix]	24	1	7	Chico Science	210155	6986421	0.99	266
4	268 Maracatu Atômico [Trip Hop]	24	1	7	Chico Science	221492	7380787	0.99	267
5	299 Onde Você Mora?	27	1	8	Marisa Monte/Nando Reis	298396	10056970	0.99	293
6	300 O Erê	27	1	8	Bernardo Vilhena/Bino/Da Gama/Lazao/Toni Garrido	206942	6950332	0.99	288
7	301 A Sombra Da Maldade	27	1	8	Da Gama/Toni Garrido	285231	9544383	0.99	283
8	305 Pensamento	27	1	8	Bino/Da Gama/Ras Bernardo	192391	6399761	0.99	294
9	306 Realidade Virtual	27	1	8	Bino/Da Gamma/Lazao/Toni Garrido	240300	8069934	0.99	296
10	311 A Cor Do Sol	27	1	8	Bernardo Vilhena/Da Gama/Lazao	273031	9142937	0.99	298
11	343 Communication Breakdown(2)	30	1	1	Jimmy Page/John Bonham/John Paul Jones	161149	5261022	0.99	339
12	347 Communication Breakdown(3)	30	1	1	Jimmy Page/John Bonham/John Paul Jones	185260	6041133	0.99	343
13	348 I Can't Quit You Baby(2)	30	1	1	Willie Dixon	380551	12377615	0.99	338
14	349 You Shook Me(2)	30	1	1	J B Lenoir/Willie Dixon	619467	20138673	0.99	337
15	1110 Drão	73	1	7	Gilberto Gil	301453	9931950	0.99	212
16	1111 A Paz	73	1	7	Gilberto Gil	293093	9593064	0.99	377
17	1256 Be Quick Or Be Dead	99	1	1	Bruce Dickinson/Janick Gers	204512	8181888	0.99	1224
18	1257 From Here To Eternity	99	1	1	Steve Harris	218357	8739038	0.99	1225
19	1258 Afraid To Shoot Strangers	99	1	1	Steve Harris	416496	16664589	0.99	1230
20	1261 Wasting Love	99	1	1	Bruce Dickinson/Janick Gers	350981	14041216	0.99	1227
21	1267 Fear Of The Dark	99	1	1	Steve Harris	436976	17483789	0.99	1234
22	1268 01 - Prowler	100	1	6	Steve Harris	236173	5668992	0.99	1214
23	1269 02 - Sanctuary	100	1	6	David Murray/Paul Di'Anno/Steve Harris	196284	4712576	0.99	1218
24	1273 06 - Transylvania	100	1	6	Steve Harris	259343	6226048	0.99	1215
25	1276 09 - Iron Maiden	100	1	6	Steve Harris	216058	5189891	0.99	1222
26	1300 Wrathchild	102	1	13	Steve Harris	183666	4410181	0.99	1278
27	1304 Phantom Of The Opera	102	1	13	Steve Harris	441155	10589917	0.99	1272

Challenge 3

51	Joakim	Johansson	<null>	Celsiusg. 9	Stockholm	<null>	Sweden	11230	+46 08-651 ...	<null>	joakim.joha... 5
20	Dan	Miller	<null>	541 Del Med...	Mountain Vi...	CA	USA	94040-111	+1 (650) 64...	<null>	dmiller@co... 4
52	Emma	Jones	<null>	202 Hoxton ...	London	<null>	United King...	N1 5LH	+44 020 77...	<null>	emma_jone... 3
53	Phil	Hughes	<null>	113 Luper St	London	<null>	United King...	SW1V 3EN	+44 020 79...	<null>	phil.hughes... 3
54	Steve	Murray	<null>	110 Raebur...	Edinburgh	<null>	United King...	EH4 1HH	+44 0131 3...	<null>	steve.murra... 5
18	Michelle	Brooks	<null>	627 Broadw...	New York	NY	USA	10012-2612	+1 (212) 22...	+1 (212) 22...	michelleb@... 3
59	Puja	Srivastava	<null>	3,Raj Bhava...	Bangalore	<null>	India	560001	+91 080 22...	<null>	puja_sriast... 3
13	Fernanda	Ramos	<null>	Qe 7 Bloco G	Brasília	DF	Brazil	71020-677	+55 (61) 33...	+55 (61) 33...	fernadaram... 4
8	Daan	Peeters	<null>	Grétrystraat ...	Brussels	<null>	Belgium	1000	+32 02 219 ...	<null>	daan_peeter... 4
9	Kara	Nielsen	<null>	Sønder Boul...	Copenhagen	<null>	Denmark	1720	+453 3331 ...	<null>	kara.nielsen... 4
7	Astrid	Gruber	<null>	Rotenturmst...	Vienne	<null>	Austria	1010	+43 01 513...	<null>	astrid.grube... 5
6	Helena	Holý	<null>	Rišká 3174/6	Prague	<null>	Czech Repu...	14300	+420 2 417...	<null>	hholý@gmai... 5
5	František	Wichterlová	JetBrains s.r.o.	Klanova 9/5...	Prague	<null>	Czech Repu...	14700	+420 2 417...	+420 2 417...	frantisekw@... 4
2	Leonie	Köhler	<null>	Theodor-Heu...	Stuttgart	<null>	Germany	70174	+49 0711 2...	<null>	leonekohler... 5
4	Bjørn	Hansen	<null>	Ullevålsveien...	Oslo	<null>	Norway	0171	+47 22 44 2...	<null>	bjorn.hanse... 4
3	François	Tremblay	<null>	1498 rue Bél...	Montréal	QC	Canada	H2G 1A7	+1 (514) 72...	<null>	ftremblay@... 3
58	Manoj	Pareek	<null>	12,Communi...	Delhi	<null>	India	110017	+91 0124 3...	<null>	manoj.pare... 3
57	Luis	Rojas	<null>	Calle Lira, 198	Santiago	<null>	Chile	<null>	+56 (0)2 63...	<null>	luisrojas@ya... 5
56	Diego	Gutiérrez	<null>	307 Macach...	Buenos Aires	<null>	Argentina	1106	+54 (0)11 4...	<null>	diego.gutier... 4
55	Mark	Taylor	<null>	421 Bourke ...	Sidney	NSW	Australia	2010	+61 (02) 93...	<null>	mark.taylor... 4
49	Stanisław	Wójcik	<null>	Ordynacka 10	Warsaw	<null>	Poland	00-358	+48 22 828 ...	<null>	stanislaw.w... 4
48	Johannes	Van der Berg	<null>	Lijnbaansgr...	Amsterdam	VV	Netherlands	1016	+31 020 62...	<null>	johavander... 5
45	Ladislav	Kovács	<null>	Erzsébet krt. ...	Budapest	<null>	Hungary	H-1073	<null>	<null>	ladislav_kov... 3
42	Wyatt	Girard	<null>	9, Place Loui...	Bordeaux	<null>	France	33000	+33 05 56 9...	<null>	wyatt.girard... 3
41	Marc	Dubois	<null>	11, Place Bel...	Lyon	<null>	France	69002	+33 04 78 3...	<null>	marc.dubois... 5
40	Dominique	Lefèvre	<null>	8, Rue Hano...	Paris	<null>	France	75002	+33 01 47 4...	<null>	dominiquele... 4
39	Camille	Bernard	<null>	4, Rue Milton	Paris	<null>	France	75009	+33 01 49 7...	<null>	camille.bern... 4
35	Madalena	Sampaio	<null>	Rua dos Ca...	Porto	<null>	Portugal	<null>	+351 (225) ...	<null>	masampaio... 4
34	João	Fernandes	<null>	Rua da Assu...	Lisbon	<null>	Portugal	<null>	+351 (213) ...	<null>	jfernandes@... 4
32	Aaron	Mitchell	<null>	696 Osborn...	Winnipeg	MB	Canada	R3L 2B9	+1 (204) 45...	<null>	aaronmitch... 4
31	Martha	Silk	<null>	194A Chain ...	Halifax	NS	Canada	B3S 1C5	+1 (902) 45...	<null>	marthasilk@... 5

Most records don't use the Fax field nor the Company field. So they may not be extremely relevant info to keep for the sake of 3 or 4 records that use it.

Many records don't use the State field, only being used in the USA. Human interaction can easily deduct in which state the city is in.

Some records don't have a Postal Code field, although it is relevant info for address completeness.

Challenge 3

Analysis results | Chinook
Referential integrity

Progress information Referential integrity
(CustomerId)

Completeness analyzer Save dataset

Referential integrity

String analyzer

Value distribution

Value distribution

Records with unresolved foreign key values (0)
No records to display.

There are no unresolved foreign key values(0) which means that every customer_id in Customer exists in Invoice as customer_id.

Challenge 3

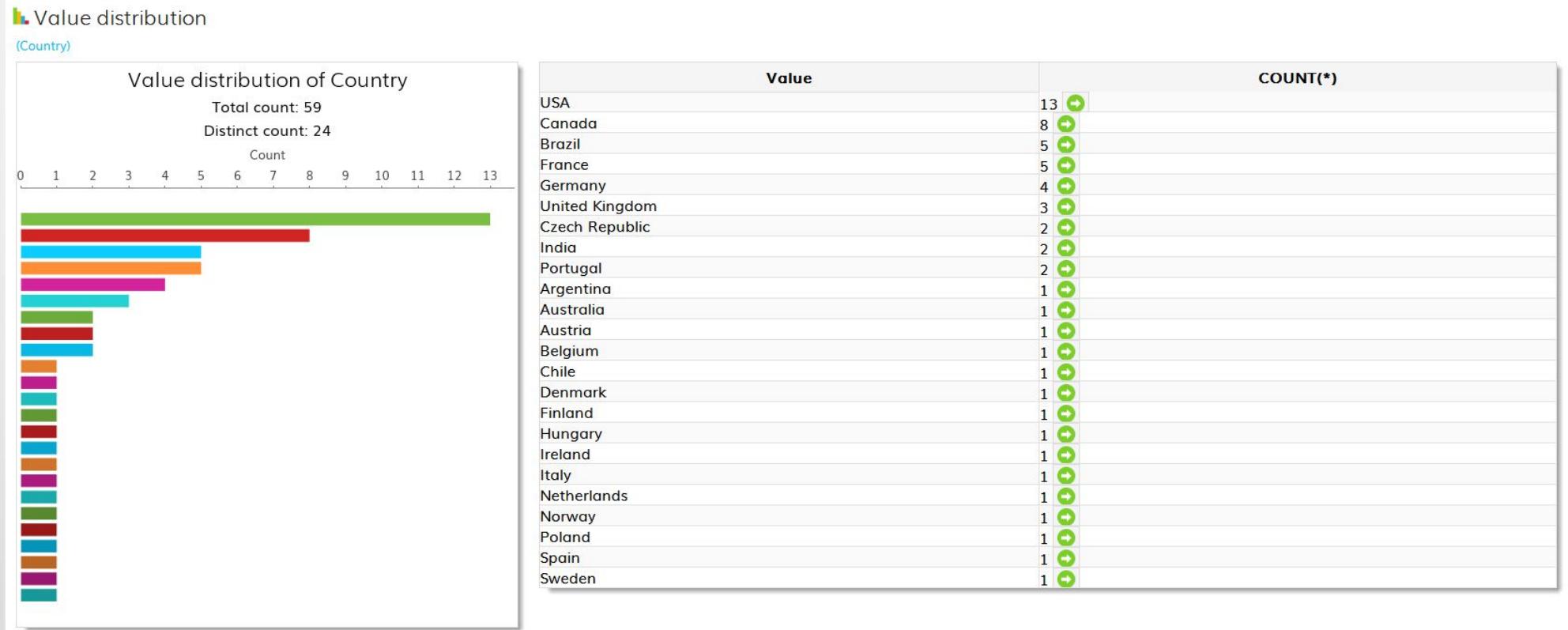
A? String analyzer
(11 columns)

	FirstName	LastName	Company	Address	City	State	Country	PostalCode	Phone	Fax	Email
Row count	59	59	59	59	59	59	59	59	59	59	59
Null count	0	0	49	0	0	29	0	4	1	47	0
Blank count	0	0	0	0	0	0	0	0	0	0	0
Entirely uppercase count	0	0	0	2	0	29	13	12	0	0	0
Entirely lowercase count	0	0	0	0	0	0	0	0	0	0	59
Total char count	340	409	166	1055	460	65	375	332	973	208	1240
Max chars	9	12	48	40	19	6	14	10	19	18	29
Min chars	3	4	5	11	4	2	3	4	14	16	15
Avg chars	5.763	6.932	16.6	17.881	7.797	2.167	6.356	6.036	16.776	17.333	21.017
Max white spaces	0	2	6	6	3	0	1	1	5	3	0
Min white spaces	0	0	0	1	0	0	0	0	2	2	0
Avg white spaces	0	0.034	1.5	2.254	0.254	0	0.085	0.2	2.552	2.083	0
Uppercase chars	59	61	24	130	71	60	90	37	0	0	0
Uppercase chars (excl. first letters)	0	2	12	68	12	30	31	25	0	0	0
Lowercase chars	281	345	117	602	374	5	280	0	676	138	1087
Digit chars	0	0	0	163	0	0	0	273	0	0	5
Diacritic chars	6	12	1	17	6	0	0	0	0	0	2
Non-letter chars	0	3	25	323	15	0	5	295	973	208	153
Word count	59	61	25	192	73	30	64	66	206	37	59
Max words	1	3	7	7	4	1	2	2	6	4	1
Min words	1	1	1	2	1	1	1	1	3	3	1

The address and email columns are by far the most verbose, needing quite a lot more space to store them. Phone records also have quite a lot of white spaces which could presumably be cut out in order to get a fully numbered phone number.

The company and fax members are, by far, the least used.

Challenge 3



Most users are from the USA, loosely followed by Canada and France. These should be the main markets, whilst most countries have only one record, if any at all.

Challenge 4

```
DROP DATABASE IF EXISTS chinook_dw;
CREATE DATABASE chinook_dw;
USE chinook_dw;

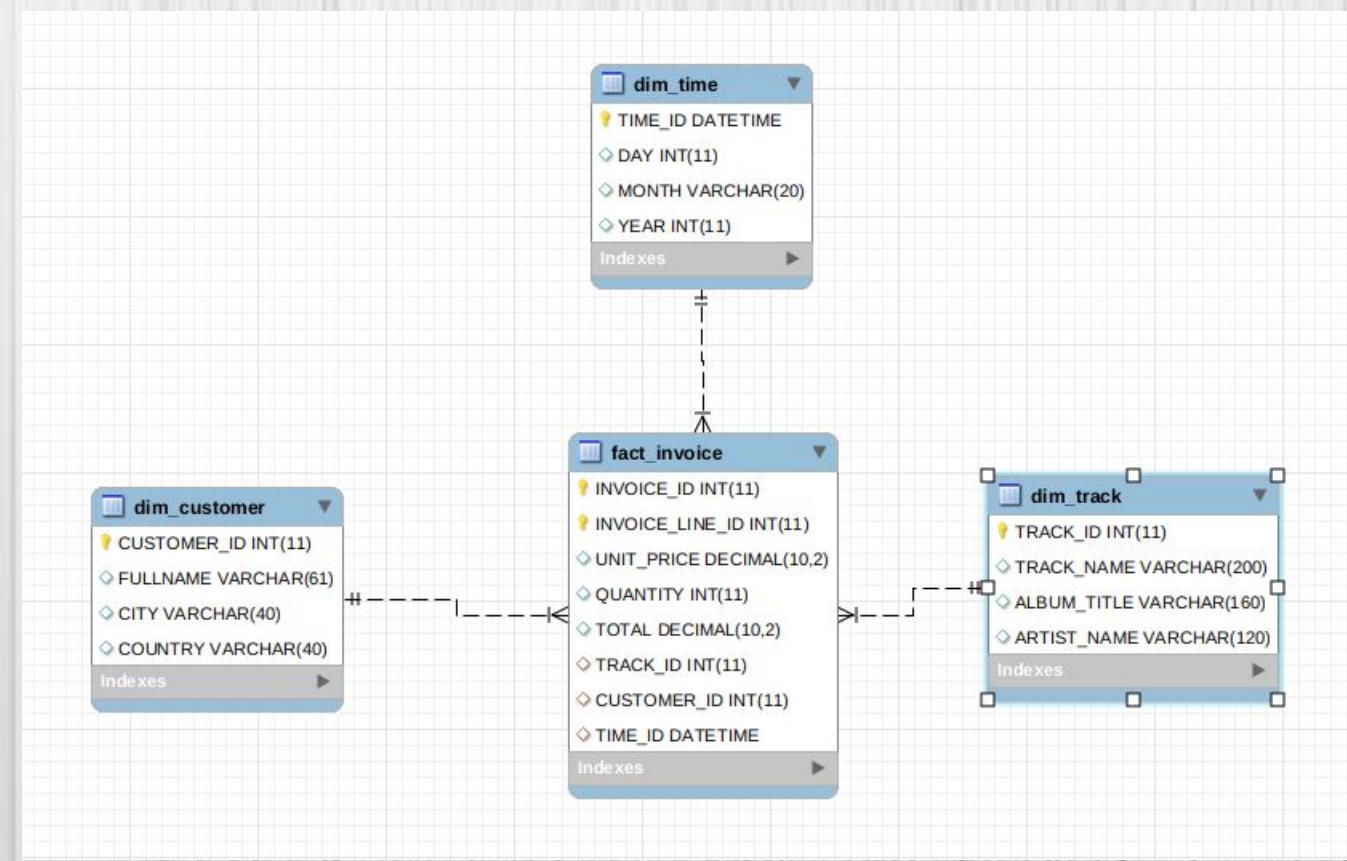
CREATE TABLE dim_track (
    TRACK_ID INT,
    TRACK_NAME VARCHAR(200),
    ALBUM_TITLE VARCHAR(160),
    ARTIST_NAME VARCHAR(120),
    PRIMARY KEY (TRACK_ID)
);

CREATE TABLE dim_customer (
    CUSTOMER_ID INT,
    FULLNAME VARCHAR(61),
    CITY VARCHAR(40),
    COUNTRY VARCHAR(40),
    PRIMARY KEY (CUSTOMER_ID)
);

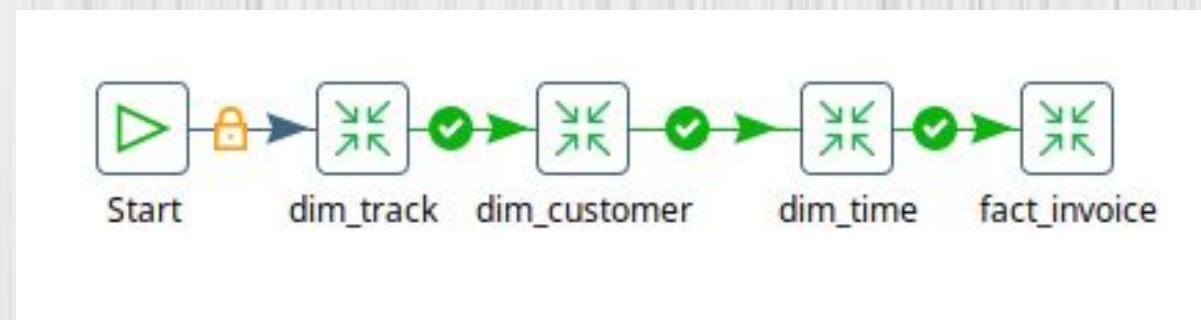
CREATE TABLE dim_time (
    TIME_ID DATETIME,
    DAY INT,
    MONTH VARCHAR(20),
    YEAR INT,
    PRIMARY KEY (TIME_ID)
);

CREATE TABLE fact_invoice (
    INVOICE_ID INT,
    INVOICE_LINE_ID INT,
    UNIT_PRICE NUMERIC(10,2),
    QUANTITY INT,
    TOTAL NUMERIC(10,2),
    TRACK_ID INT,
    CUSTOMER_ID INT,
    TIME_ID DATETIME,
    PRIMARY KEY
    (INVOICE_ID,INVOICE_LINE_ID),
    FOREIGN KEY (TRACK_ID) REFERENCES
    dim_track (TRACK_ID),
    FOREIGN KEY (CUSTOMER_ID)
    REFERENCES dim_customer (CUSTOMER_ID),
    FOREIGN KEY (TIME_ID) REFERENCES
    dim_time (TIME_ID)
);
```

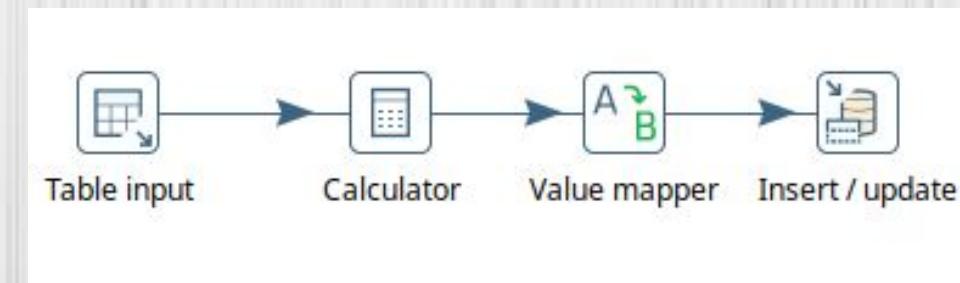
Challenge 4



Challenge 5



Challenge 5 - Time



Challenge 5 - Time

Step name

Throw an error on non existing files

Fields:

	New field	Calculation	Field A	Field B	Field C	Value type	Length	Precision	Remove
1	year_id	Year of date A	InvoiceDate			None			N
2	month_id	Month of date A	InvoiceDate			None			N
3	day_id	Day of month of date A	InvoiceDate			None			N

Rows of step: Calculator (412 rows)

	InvoiceDate	year_id	month_id	day_id
1	2009/01/01 00:00:00.000000000	2009	1	1
2	2009/01/02 00:00:00.000000000	2009	1	2
3	2009/01/03 00:00:00.000000000	2009	1	3
4	2009/01/06 00:00:00.000000000	2009	1	6
5	2009/01/11 00:00:00.000000000	2009	1	11
6	2009/01/19 00:00:00.000000000	2009	1	19
7	2009/02/01 00:00:00.000000000	2009	2	1
8	2009/02/01 00:00:00.000000000	2009	2	1
9	2009/02/02 00:00:00.000000000	2009	2	2
10	2009/02/03 00:00:00.000000000	2009	2	3
11	2009/02/06 00:00:00.000000000	2009	2	6
12	2009/02/11 00:00:00.000000000	2009	2	11
13	2009/02/19 00:00:00.000000000	2009	2	19
14	2009/03/04 00:00:00.000000000	2009	3	4
15	2009/03/04 00:00:00.000000000	2009	3	4
16	2009/03/05 00:00:00.000000000	2009	3	5
17	2009/03/06 00:00:00.000000000	2009	3	6
18	2009/03/09 00:00:00.000000000	2009	3	9
19	2009/03/14 00:00:00.000000000	2009	3	14
20	2009/03/22 00:00:00.000000000	2009	3	22
21	2009/04/04 00:00:00.000000000	2009	4	4
22	2009/04/04 00:00:00.000000000	2009	4	4
23	2009/04/05 00:00:00.000000000	2009	4	5
24	2009/04/06 00:00:00.000000000	2009	4	6
25	2009/04/09 00:00:00.000000000	2009	4	9
26	2009/04/14 00:00:00.000000000	2009	4	14
27	2009/04/22 00:00:00.000000000	2009	4	22

Challenge 5 - Time

Value mapper

Step name : Value mapper

Fieldname to use : month_id

Target field name (empty=overwrite) : month_name

Default upon non-matching :

Field values:

▲	Source value	Target value
1	1	January
2	2	February
3	3	March
4	4	April
5	5	May
6	6	June
7	7	July
8	8	August
9	9	September
10	10	October
11	11	November
12	12	December

Rows of step: Value mapper (412 rows)

▲	InvoiceDate	year_id	month_id	day_id	month_name
1	2009/01/01 00:00:00.000000000	2009	1	1	January
2	2009/01/02 00:00:00.000000000	2009	1	2	January
3	2009/01/03 00:00:00.000000000	2009	1	3	January
4	2009/01/06 00:00:00.000000000	2009	1	6	January
5	2009/01/11 00:00:00.000000000	2009	1	11	January
6	2009/01/19 00:00:00.000000000	2009	1	19	January
7	2009/02/01 00:00:00.000000000	2009	2	1	February
8	2009/02/01 00:00:00.000000000	2009	2	1	February
9	2009/02/02 00:00:00.000000000	2009	2	2	February
10	2009/02/03 00:00:00.000000000	2009	2	3	February
11	2009/02/06 00:00:00.000000000	2009	2	6	February
12	2009/02/11 00:00:00.000000000	2009	2	11	February
13	2009/02/19 00:00:00.000000000	2009	2	19	February
14	2009/03/04 00:00:00.000000000	2009	3	4	March
15	2009/03/04 00:00:00.000000000	2009	3	4	March
16	2009/03/05 00:00:00.000000000	2009	3	5	March
17	2009/03/06 00:00:00.000000000	2009	3	6	March
18	2009/03/09 00:00:00.000000000	2009	3	9	March
19	2009/03/14 00:00:00.000000000	2009	3	14	March
20	2009/03/22 00:00:00.000000000	2009	3	22	March
21	2009/04/04 00:00:00.000000000	2009	4	4	April
22	2009/04/04 00:00:00.000000000	2009	4	4	April
23	2009/04/05 00:00:00.000000000	2009	4	5	April
24	2009/04/06 00:00:00.000000000	2009	4	6	April
25	2009/04/09 00:00:00.000000000	2009	4	9	April
26	2009/04/14 00:00:00.000000000	2009	4	14	April
27	2009/04/22 00:00:00.000000000	2009	4	22	April

Challenge 5 - Time

Insert / update

Step name: Insert / update

Connection: chinook_dw

Target schema: chinook_dw

Target table: dim_time

Commit size: 100

Don't perform any updates:

The key(s) to look up the value(s):

Table field	Comparator	Stream field1	Stream field2	Get fields
1 TIME_ID	=	InvoiceDate		

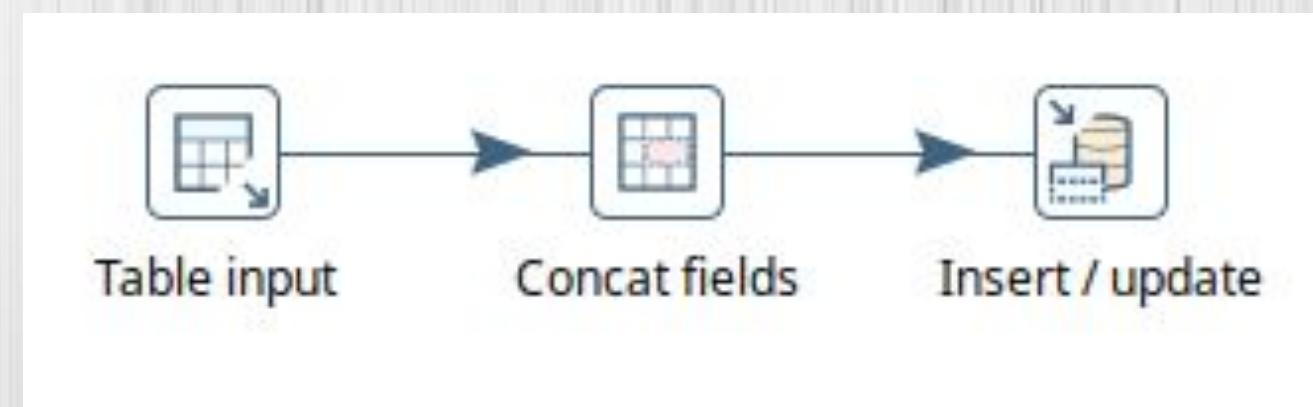
Update fields:

Table field	Stream field	Update	Get update fields
1 TIME_ID	InvoiceDate	Y	Edit mapping
2 DAY	day_id	Y	
3 MONTH	month_name	Y	
4 YEAR	year_id	Y	

Rows of step: Insert / update (412 rows)

	InvoiceDate	year_id	month_id	day_id	month_name
1	2009/01/01 00:00:00.0000000000	2009	1	1	January
2	2009/01/02 00:00:00.0000000000	2009	1	2	January
3	2009/01/03 00:00:00.0000000000	2009	1	3	January
4	2009/01/06 00:00:00.0000000000	2009	1	6	January
5	2009/01/11 00:00:00.0000000000	2009	1	11	January
6	2009/01/19 00:00:00.0000000000	2009	1	19	January
7	2009/02/01 00:00:00.0000000000	2009	2	1	February
8	2009/02/01 00:00:00.0000000000	2009	2	1	February
9	2009/02/02 00:00:00.0000000000	2009	2	2	February
10	2009/02/03 00:00:00.0000000000	2009	2	3	February
11	2009/02/06 00:00:00.0000000000	2009	2	6	February
12	2009/02/11 00:00:00.0000000000	2009	2	11	February
13	2009/02/19 00:00:00.0000000000	2009	2	19	February
14	2009/03/04 00:00:00.0000000000	2009	3	4	March
15	2009/03/04 00:00:00.0000000000	2009	3	4	March
16	2009/03/05 00:00:00.0000000000	2009	3	5	March
17	2009/03/06 00:00:00.0000000000	2009	3	6	March
18	2009/03/09 00:00:00.0000000000	2009	3	9	March
19	2009/03/14 00:00:00.0000000000	2009	3	14	March
20	2009/03/22 00:00:00.0000000000	2009	3	22	March
21	2009/04/04 00:00:00.0000000000	2009	4	4	April
22	2009/04/04 00:00:00.0000000000	2009	4	4	April
23	2009/04/05 00:00:00.0000000000	2009	4	5	April
24	2009/04/06 00:00:00.0000000000	2009	4	6	April
25	2009/04/09 00:00:00.0000000000	2009	4	9	April
26	2009/04/14 00:00:00.0000000000	2009	4	14	April
27	2009/04/22 00:00:00.0000000000	2009	4	22	April

Challenge 5 - Customer



Challenge 5 - Customer

Concat fields

Step name: Concat fields

Target Field Name: full_name

Length of Target Field: 61

Separator:

Enclosure: "

Fields Advanced

	Name	Type	Format	Length	Precision	Currency	Decimal	Group	Trim Type	Null
1	FirstName	String							none	
2	LastName	String							none	

Examine preview data

Rows of step: Concat fields (59 rows)

	CustomerID	FirstName	LastName	City	Country	full_name
1	1	Luís	Gonçalves	São José dos Campos	Brazil	Luís Gonçalves
2	2	Leonie	Köhler	Stuttgart	Germany	Leonie Köhler
3	3	François	Tremblay	Montréal	Canada	François Tremblay
4	4	Bjørn	Hansen	Oslo	Norway	Bjørn Hansen
5	5	František	Wichterlová	Prague	Czech Republic	František Wichterlová
6	6	Helena	Holý	Prague	Czech Republic	Helena Holý
7	7	Astrid	Gruber	Vienne	Austria	Astrid Gruber
8	8	Daan	Peeters	Brussels	Belgium	Daan Peeters
9	9	Kara	Nielsen	Copenhagen	Denmark	Kara Nielsen
10	10	Eduardo	Martins	São Paulo	Brazil	Eduardo Martins
11	11	Alexandre	Rocha	São Paulo	Brazil	Alexandre Rocha
12	12	Roberto	Almeida	Rio de Janeiro	Brazil	Roberto Almeida
13	13	Fernanda	Ramos	Brasília	Brazil	Fernanda Ramos
14	14	Mark	Philips	Edmonton	Canada	Mark Philips
15	15	Jennifer	Peterson	Vancouver	Canada	Jennifer Peterson
16	16	Frank	Harris	Mountain View	USA	Frank Harris
17	17	Jack	Smith	Redmond	USA	Jack Smith
18	18	Michelle	Brooks	New York	USA	Michelle Brooks
19	19	Tim	Goyer	Cupertino	USA	Tim Goyer
20	20	Dan	Miller	Mountain View	USA	Dan Miller
21	21	Kathy	Chase	Reno	USA	Kathy Chase
22	22	Heather	Leacock	Orlando	USA	Heather Leacock
23	23	John	Gordon	Boston	USA	John Gordon

Challenge 5 - Customer

Insert / update

Step name: Insert / update

Connection: chinook_dw

Target schema: chinook_dw

Target table: dim_customer

Commit size: 100

Don't perform any updates:

The key(s) to look up the value(s):

Table field	Comparator	Stream field1	Stream field2
1 CUSTOMER_ID	=	CustomerId	

Get fields

Update fields:

Table field	Stream field	Update
1 CUSTOMER_ID	CustomerId	Y
2 FULLNAME	full_name	Y
3 CITY	City	Y
4 COUNTRY	Country	Y

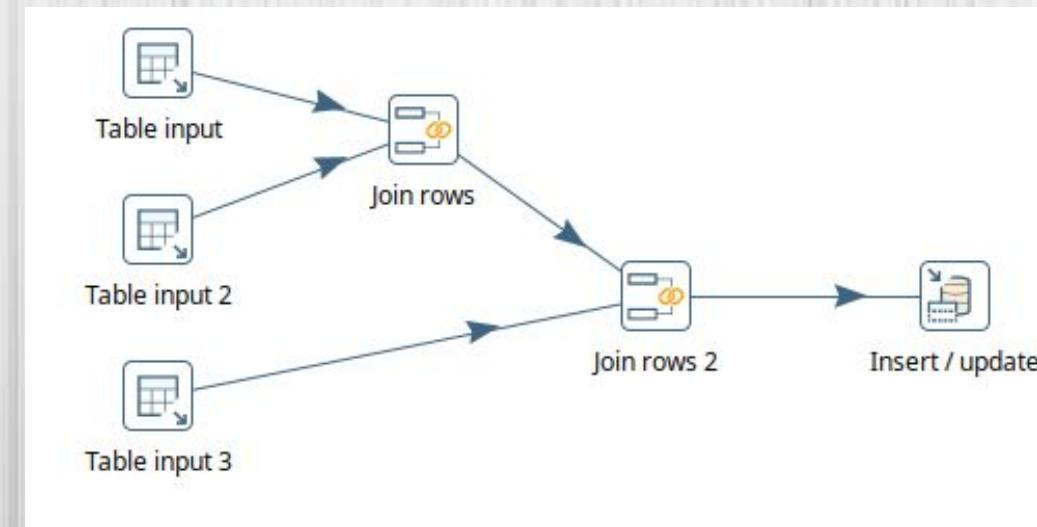
Get update fields

Edit mapping

Rows of step: Insert / update (59 rows)

	CustomerId	FirstName	LastName	City	Country	full_name
1	1	Luís	Gonçalves	São José dos Campos	Brazil	Luís Gonçalves
2	2	Leonie	Köhler	Stuttgart	Germany	Leonie Köhler
3	3	François	Tremblay	Montréal	Canada	François Tremblay
4	4	Bjørn	Hansen	Oslo	Norway	Bjørn Hansen
5	5	František	Wichterlová	Prague	Czech Republic	František Wichterlová
6	6	Helena	Holý	Prague	Czech Republic	Helena Holý
7	7	Astrid	Gruber	Vienne	Austria	Astrid Gruber
8	8	Daan	Peeters	Brussels	Belgium	Daan Peeters
9	9	Kara	Nielsen	Copenhagen	Denmark	Kara Nielsen
10	10	Eduardo	Martins	São Paulo	Brazil	Eduardo Martins
11	11	Alexandre	Rocha	São Paulo	Brazil	Alexandre Rocha
12	12	Roberto	Almeida	Rio de Janeiro	Brazil	Roberto Almeida
13	13	Fernanda	Ramos	Brasília	Brazil	Fernanda Ramos
14	14	Mark	Philips	Edmonton	Canada	Mark Philips
15	15	Jennifer	Peterson	Vancouver	Canada	Jennifer Peterson
16	16	Frank	Harris	Mountain View	USA	Frank Harris
17	17	Jack	Smith	Redmond	USA	Jack Smith
18	18	Michelle	Brooks	New York	USA	Michelle Brooks
19	19	Tim	Goyer	Cupertino	USA	Tim Goyer
20	20	Dan	Miller	Mountain View	USA	Dan Miller
21	21	Kathy	Chase	Reno	USA	Kathy Chase
22	22	Heather	Leacock	Orlando	USA	Heather Leacock
23	23	John	Gordon	Boston	USA	John Gordon

Challenge 5 - Track



Challenge 5 - Track

Join rows (cartesian product) + X

Step name: Join rows

Temp directory: %%java.io.tmpdir%% \$ Browse...

TMP-file prefix: out

Max. cache size (in rows): 500

Main step to read from: Table input

The condition:

track_album_id = album_album_id

Examine preview data

TrackId	track_name	track_album_id	UnitPrice	album_album_id	album_title	album_artist_id
1	For Those About To Rock (We Salute You)	1	0.99	1	For Those About To Rock We Salute You	1
2	Balls to the Wall	2	0.99	2	Balls to the Wall	2
3	Fast As a Shark	3	0.99	3	Restless and Wild	2
4	Restless and Wild	3	0.99	3	Restless and Wild	2
5	Princess of the Dawn	3	0.99	3	Restless and Wild	2
6	Put The Finger On You	1	0.99	1	For Those About To Rock We Salute You	1
7	Let's Get It Up	1	0.99	1	For Those About To Rock We Salute You	1
8	Inject The Venom	1	0.99	1	For Those About To Rock We Salute You	1
9	Snowballed	1	0.99	1	For Those About To Rock We Salute You	1
10	Evil Walks	1	0.99	1	For Those About To Rock We Salute You	1
11	C.O.D.	1	0.99	1	For Those About To Rock We Salute You	1
12	Breaking The Rules	1	0.99	1	For Those About To Rock We Salute You	1
13	Night Of The Long Knives	1	0.99	1	For Those About To Rock We Salute You	1
14	Spellbound	1	0.99	1	For Those About To Rock We Salute You	1
15	Go Down	4	0.99	4	Let There Be Rock	1
16	Dog Eat Dog	4	0.99	4	Let There Be Rock	1
17	Let There Be Rock	4	0.99	4	Let There Be Rock	1
18	Bad Boy Boogie	4	0.99	4	Let There Be Rock	1
19	Problem Child	4	0.99	4	Let There Be Rock	1
20	Overdose	4	0.99	4	Let There Be Rock	1
21	Hell Ain't A Bad Place To Be	4	0.99	4	Let There Be Rock	1
22	Whole Lotta Rosie	4	0.99	4	Let There Be Rock	1
23	Walk On Water	5	0.99	5	Big Ones	3
24	Leave This Town	5	0.99	5	Big Ones	3

Challenge 5 - Track

Join rows (cartesian product)

Step name: Join rows 2

Temp directory: %tempdir%

TMP-file prefix: out

Max. cache size (in rows): 500

Main step to read from: Join rows

The condition:

=

Rows of step: Join rows 2 (1000 rows)									
▲	TrackId	track_name	track_album_id	UnitPrice	album_album_id	album_title	album_artist_id	artist_artist_id	artist_name
1	1	For Those About To Rock (We Salute You)	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
2	2	Balls to the Wall	2	0.99	2	Balls to the Wall	2	2	Accept
3	3	Fast As a Shark	3	0.99	3	Restless and Wild	2	2	Accept
4	4	Restless and Wild	3	0.99	3	Restless and Wild	2	2	Accept
5	5	Princess of the Dawn	3	0.99	3	Restless and Wild	2	2	Accept
6	6	Put The Finger On You	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
7	7	Let's Get It Up	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
8	8	Inject The Venom	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
9	9	Snowballed	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
10	10	Evil Walks	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
11	11	C.O.D.	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
12	12	Breaking The Rules	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
13	13	Night Of The Long Knives	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
14	14	Spellbound	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
15	15	Go Down	4	0.99	4	Let There Be Rock	1	1	AC/DC
16	16	Dog Eat Dog	4	0.99	4	Let There Be Rock	1	1	AC/DC
17	17	Let There Be Rock	4	0.99	4	Let There Be Rock	1	1	AC/DC
18	18	Bad Boy Boogie	4	0.99	4	Let There Be Rock	1	1	AC/DC
19	19	Problem Child	4	0.99	4	Let There Be Rock	1	1	AC/DC
20	20	Overdose	4	0.99	4	Let There Be Rock	1	1	AC/DC
21	21	Hell Ain't A Bad Place To Be	4	0.99	4	Let There Be Rock	1	1	AC/DC
22	22	Whole Lotta Rosie	4	0.99	4	Let There Be Rock	1	1	AC/DC
23	23	Walk On Water	5	0.99	5	Big Ones	3	3	Aerosmith

Challenge 5 - Track

Step name **Insert / update**

Connection **chinook_dw**

Target schema **chinook_dw**

Target table **dim_track**

Commit size **100**

Don't perform any updates:

The key(s) to look up the value(s):

Table field	Comparator	Stream field1	Stream field2	Get fields
1 TRACK_ID	=	TrackId		

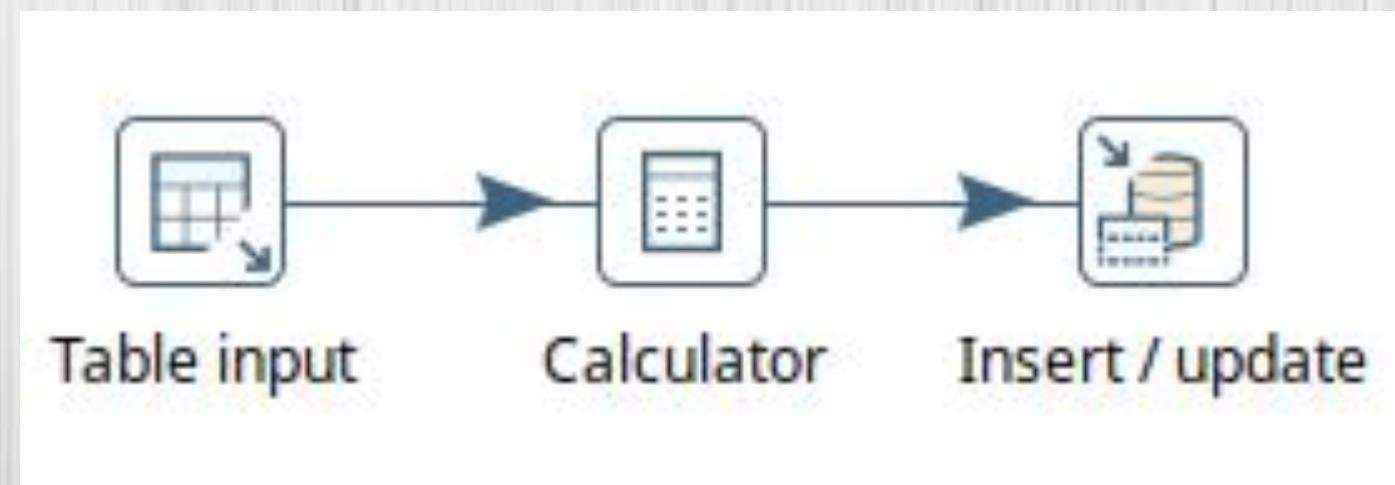
Rows of step: Insert / update (1000 rows)

▲	TrackId	track_name	track_album_id	UnitPrice	album_album_id	album_title	album_artist_id	artist_artist_id	artist_name
1	1	For Those About To Rock (We Salute You)	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
2	2	Balls to the Wall	2	0.99	2	Balls to the Wall	2	2	Accept
3	3	Fast As a Shark	3	0.99	3	Restless and Wild	2	2	Accept
4	4	Restless and Wild	3	0.99	3	Restless and Wild	2	2	Accept
5	5	Princess of the Dawn	3	0.99	3	Restless and Wild	2	2	Accept
6	6	Put The Finger On You	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
7	7	Let's Get It Up	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
8	8	Inject The Venom	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
9	9	Snowballed	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
10	10	Evil Walks	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
11	11	C.O.D.	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
12	12	Breaking The Rules	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
13	13	Night Of The Long Knives	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
14	14	Spellbound	1	0.99	1	For Those About To Rock We Salute You	1	1	AC/DC
15	15	Go Down	4	0.99	4	Let There Be Rock	1	1	AC/DC
16	16	Dog Eat Dog	4	0.99	4	Let There Be Rock	1	1	AC/DC
17	17	Let There Be Rock	4	0.99	4	Let There Be Rock	1	1	AC/DC
18	18	Bad Boy Boogie	4	0.99	4	Let There Be Rock	1	1	AC/DC
19	19	Problem Child	4	0.99	4	Let There Be Rock	1	1	AC/DC
20	20	Overdose	4	0.99	4	Let There Be Rock	1	1	AC/DC
21	21	Hell Ain't A Bad Place To Be	4	0.99	4	Let There Be Rock	1	1	AC/DC
22	22	Whole Lotta Rosie	4	0.99	4	Let There Be Rock	1	1	AC/DC
23	23	Walk On Water	5	0.99	5	Big Ones	3	3	Aerosmith

Update fields:

▲	Table field	Stream field	Update	Get update fields
1	TRACK_ID	TrackId	Y	
2	TRACK_NAME	track_name	Y	<input type="button" value="Edit mapping"/>
3	ALBUM_TITLE	album_title	Y	
4	ARTIST_NAME	artist_name	Y	

Challenge 5 - Customer



Challenge 5 - Customer

Step name

Throw an error on non existing files

Fields:

	New field	Calculation	Field A	Field B	Field C	Value type	Length	Precision	Remove
1	line_total	A * B	UnitPrice	Quantity		None			N

Rows of step: Calculator (1000 rows)

	InvoiceId	CustomerId	InvoiceDate	BillingAddress	BillingCity	BillingState	BillingCountry	BillingPostalCode	Total	InvoiceLineId	TrackId	UnitPrice	Quantity	line_total
1	1	2	2009/01/01 00:00:00.000000000	Theodor-Heuss-Straße 34	Stuttgart	<null>	Germany	70174	1.98	1	2	0.99	1	0.99
2	1	2	2009/01/01 00:00:00.000000000	Theodor-Heuss-Straße 34	Stuttgart	<null>	Germany	70174	1.98	2	4	0.99	1	0.99
3	2	4	2009/01/02 00:00:00.000000000	Ullevålsveien 14	Oslo	<null>	Norway	0171	3.96	3	6	0.99	1	0.99
4	2	4	2009/01/02 00:00:00.000000000	Ullevålsveien 14	Oslo	<null>	Norway	0171	3.96	4	8	0.99	1	0.99
5	2	4	2009/01/02 00:00:00.000000000	Ullevålsveien 14	Oslo	<null>	Norway	0171	3.96	5	10	0.99	1	0.99
6	2	4	2009/01/02 00:00:00.000000000	Ullevålsveien 14	Oslo	<null>	Norway	0171	3.96	6	12	0.99	1	0.99
7	3	8	2009/01/03 00:00:00.000000000	Grétrystraat 63	Brussels	<null>	Belgium	1000	5.94	7	16	0.99	1	0.99
8	3	8	2009/01/03 00:00:00.000000000	Grétrystraat 63	Brussels	<null>	Belgium	1000	5.94	8	20	0.99	1	0.99
9	3	8	2009/01/03 00:00:00.000000000	Grétrystraat 63	Brussels	<null>	Belgium	1000	5.94	9	24	0.99	1	0.99
10	3	8	2009/01/03 00:00:00.000000000	Grétrystraat 63	Brussels	<null>	Belgium	1000	5.94	10	28	0.99	1	0.99
11	3	8	2009/01/03 00:00:00.000000000	Grétrystraat 63	Brussels	<null>	Belgium	1000	5.94	11	32	0.99	1	0.99
12	3	8	2009/01/03 00:00:00.000000000	Grétrystraat 63	Brussels	<null>	Belgium	1000	5.94	12	36	0.99	1	0.99
13	4	14	2009/01/06 00:00:00.000000000	8210 111 ST NW	Edmonton	AB	Canada	T6G 2C7	8.91	13	42	0.99	1	0.99
14	4	14	2009/01/06 00:00:00.000000000	8210 111 ST NW	Edmonton	AB	Canada	T6G 2C7	8.91	14	48	0.99	1	0.99
15	4	14	2009/01/06 00:00:00.000000000	8210 111 ST NW	Edmonton	AB	Canada	T6G 2C7	8.91	15	54	0.99	1	0.99
16	4	14	2009/01/06 00:00:00.000000000	8210 111 ST NW	Edmonton	AB	Canada	T6G 2C7	8.91	16	60	0.99	1	0.99
17	4	14	2009/01/06 00:00:00.000000000	8210 111 ST NW	Edmonton	AB	Canada	T6G 2C7	8.91	17	66	0.99	1	0.99
18	4	14	2009/01/06 00:00:00.000000000	8210 111 ST NW	Edmonton	AB	Canada	T6G 2C7	8.91	18	72	0.99	1	0.99
19	4	14	2009/01/06 00:00:00.000000000	8210 111 ST NW	Edmonton	AB	Canada	T6G 2C7	8.91	19	78	0.99	1	0.99
20	4	14	2009/01/06 00:00:00.000000000	8210 111 ST NW	Edmonton	AB	Canada	T6G 2C7	8.91	20	84	0.99	1	0.99
21	4	14	2009/01/06 00:00:00.000000000	8210 111 ST NW	Edmonton	AB	Canada	T6G 2C7	8.91	21	90	0.99	1	0.99
22	5	23	2009/01/11 00:00:00.000000000	69 Salem Street	Boston	MA	USA	2113	13.86	22	99	0.99	1	0.99
23	5	23	2009/01/11 00:00:00.000000000	69 Salem Street	Boston	MA	USA	2113	13.86	23	108	0.99	1	0.99
24	5	23	2009/01/11 00:00:00.000000000	69 Salem Street	Boston	MA	USA	2113	13.86	24	117	0.99	1	0.99

Challenge 5 - Customer

Insert / update

Step name: Insert / update

Connection: chinook_dw

Target schema: chinook_dw

Target table: fact_invoice

Commit size: 100

Don't perform any updates:

The key(s) to look up the value(s):

Table field	Comparator	Stream field1	Stream field2	Get fields
1 INVOICE_ID	=	InvoiceId		
2 INVOICE_LINE_ID	=	InvoiceLineId		

Rows of step: Insert / update (1000 rows)

	InvoiceId	CustomerId	InvoiceDate	BillingAddress	BillingCity	BillingState	BillingCountry	BillingPostalCode	Total	InvoiceLineId	TrackId	UnitPrice	Quantity	line_total
1	1	2	2009/01/01 00:00:00.0000000000	Theodor-Heuss-Straße 34	Stuttgart	<null>	Germany	70174	1.98	1	2	0.99	1	0.99
2	1	2	2009/01/01 00:00:00.0000000000	Theodor-Heuss-Straße 34	Stuttgart	<null>	Germany	70174	1.98	2	4	0.99	1	0.99
3	2	4	2009/01/02 00:00:00.0000000000	Ullevålsveien 14	Oslo	<null>	Norway	0171	3.96	3	6	0.99	1	0.99
4	2	4	2009/01/02 00:00:00.0000000000	Ullevålsveien 14	Oslo	<null>	Norway	0171	3.96	4	8	0.99	1	0.99
5	2	4	2009/01/02 00:00:00.0000000000	Ullevålsveien 14	Oslo	<null>	Norway	0171	3.96	5	10	0.99	1	0.99
6	2	4	2009/01/02 00:00:00.0000000000	Ullevålsveien 14	Oslo	<null>	Norway	0171	3.96	6	12	0.99	1	0.99
7	3	8	2009/01/03 00:00:00.0000000000	Grétrystraat 63	Brussels	<null>	Belgium	1000	5.94	7	16	0.99	1	0.99
8	3	8	2009/01/03 00:00:00.0000000000	Grétrystraat 63	Brussels	<null>	Belgium	1000	5.94	8	20	0.99	1	0.99
9	3	8	2009/01/03 00:00:00.0000000000	Grétrystraat 63	Brussels	<null>	Belgium	1000	5.94	9	24	0.99	1	0.99
10	3	8	2009/01/03 00:00:00.0000000000	Grétrystraat 63	Brussels	<null>	Belgium	1000	5.94	10	28	0.99	1	0.99
11	3	8	2009/01/03 00:00:00.0000000000	Grétrystraat 63	Brussels	<null>	Belgium	1000	5.94	11	32	0.99	1	0.99
12	3	8	2009/01/03 00:00:00.0000000000	Grétrystraat 63	Brussels	<null>	Belgium	1000	5.94	12	36	0.99	1	0.99
13	4	14	2009/01/06 00:00:00.0000000000	8210 111 ST NW	Edmonton	AB	Canada	T6G 2C7	8.91	13	42	0.99	1	0.99
14	4	14	2009/01/06 00:00:00.0000000000	8210 111 ST NW	Edmonton	AB	Canada	T6G 2C7	8.91	14	48	0.99	1	0.99
15	4	14	2009/01/06 00:00:00.0000000000	8210 111 ST NW	Edmonton	AB	Canada	T6G 2C7	8.91	15	54	0.99	1	0.99
16	4	14	2009/01/06 00:00:00.0000000000	8210 111 ST NW	Edmonton	AB	Canada	T6G 2C7	8.91	16	60	0.99	1	0.99
17	4	14	2009/01/06 00:00:00.0000000000	8210 111 ST NW	Edmonton	AB	Canada	T6G 2C7	8.91	17	66	0.99	1	0.99
18	4	14	2009/01/06 00:00:00.0000000000	8210 111 ST NW	Edmonton	AB	Canada	T6G 2C7	8.91	18	72	0.99	1	0.99
19	4	14	2009/01/06 00:00:00.0000000000	8210 111 ST NW	Edmonton	AB	Canada	T6G 2C7	8.91	19	78	0.99	1	0.99
20	4	14	2009/01/06 00:00:00.0000000000	8210 111 ST NW	Edmonton	AB	Canada	T6G 2C7	8.91	20	84	0.99	1	0.99
21	4	14	2009/01/06 00:00:00.0000000000	8210 111 ST NW	Edmonton	AB	Canada	T6G 2C7	8.91	21	90	0.99	1	0.99
22	5	23	2009/01/11 00:00:00.0000000000	69 Salem Street	Boston	MA	USA	2113	13.86	22	99	0.99	1	0.99
23	5	23	2009/01/11 00:00:00.0000000000	69 Salem Street	Boston	MA	USA	2113	13.86	23	108	0.99	1	0.99
24	5	23	2009/01/11 00:00:00.0000000000	69 Salem Street	Boston	MA	USA	2113	13.86	24	117	0.99	1	0.99

Update fields:

Table field	Stream field	Update	Get update fields
1 INVOICE_ID	InvoiceId	Y	
2 INVOICE_LINE_ID	InvoiceLineId	Y	
3 UNIT_PRICE	UnitPrice	Y	
4 QUANTITY	Quantity	Y	
5 TOTAL	line_total	Y	
6 TRACK_ID	TrackId	Y	
7 CUSTOMER_ID	CustomerId	Y	
8 TIME_ID	InvoiceDate	Y	

Edit mapping

Challenge 6

Shows the amount of tracks sold in Portugal for each year



```
mysql> SELECT b.YEAR, c.COUNTRY, SUM(a.QUANTITY) AS quantity_sold
-> FROM fact_invoice AS a, dim_time AS b, dim_customer AS c
-> WHERE a.TIME_ID = b.TIME_ID AND a.CUSTOMER_ID = c.CUSTOMER_ID AND c.COUNTRY = 'Portugal'
-> GROUP BY b.YEAR;
+-----+-----+-----+
| YEAR | COUNTRY | quantity_sold |
+-----+-----+-----+
| 2009 | Portugal |          12 |
| 2010 | Portugal |           7 |
| 2011 | Portugal |           9 |
| 2012 | Portugal |          23 |
| 2013 | Portugal |          25 |
+-----+-----+-----+
5 rows in set (0.02 sec)
```

Challenge 6

Show the total sales revenue for every artist in 2010 in each country

```
mysql> SELECT b.COUNTRY, c.ARTIST_NAME, SUM(a.TOTAL) AS total_sales_revenue  
-> FROM fact_invoice AS a, dim_customer AS b, dim_track AS c, dim_time as d  
-> WHERE a.CUSTOMER_ID = b.CUSTOMER_ID AND a.TRACK_ID = c.TRACK_ID AND a.TIME_ID = d.TIME_ID  
-> AND d.YEAR = 2010  
-> GROUP BY b.COUNTRY, c.ARTIST_NAME;
```

COUNTRY	ARTIST_NAME	total_sales_revenue
Argentina	Green Day	1.98
Argentina	Guns N' Roses	1.98
Argentina	Kiss	1.98
Argentina	Metallica	5.94
Australia	Kiss	0.99
Austria	Guns N' Roses	1.98
Austria	Incognito	1.98
Austria	Iron Maiden	4.95
Austria	Lost	9.95
Austria	U2	8.91
Brazil	Battlestar Galactica (Classic)	3.98
Brazil	Chico Buarque	1.98
Brazil	David Coverdale	1.98
Brazil	Eric Clapton	0.99
Brazil	Gonzaguinha	2.97
Brazil	Green Day	0.99
Brazil	Guns N' Roses	5.94
Brazil	Kiss	3.96
Brazil	Led Zeppelin	3.96
Brazil	Milton Nascimento	1.98
Brazil	Mônica Marianno	1.98
Brazil	Motörhead	0.99
Brazil	Mötley Crüe	0.99
Brazil	Nirvana	3.96
Brazil	O Terço	0.99
Brazil	Oladum	1.98
Brazil	Os Mutantes	0.99
Brazil	Os Paralamas Do Sucesso	0.99
Canada	Antônio Carlos Jobim	0.99
Canada	Aquaman	1.99
Canada	Audioslave	2.97
Canada	BackBeat	1.98
Canada	Billy Cobham	0.99
Canada	Black Label Society	1.98
Canada	Black Sabbath	0.99
Canada	Body Count	1.98
Canada	Bruce Dickinson	1.98

Challenge 7

```
<Schema name="chinook_dw">
    <Cube name="Invoices" visible="true" cache="true" enabled="true">
        <Table name="fact_invoice"> </Table>
        <Dimension type="StandardDimension" visible="true" foreignKey="TRACK_ID" name="Track">
            <Hierarchy name="Track Hierarchy" visible="true" hasAll="true" allMemberName="All Tracks" primaryKey="TRACK_ID">
                <Table name="dim_track"> </Table>
                <Level name="Artist_Name" visible="true" column="ARTIST_NAME" type="String" uniqueMembers="false" levelType="Regular"> </Level>
                <Level name="Album_Title" visible="true" column="ALBUM_TITLE" type="String" uniqueMembers="false" levelType="Regular"> </Level>
                <Level name="Track_Name" visible="true" column="TRACK_NAME" type="String" uniqueMembers="false" levelType="Regular"> </Level>
            </Hierarchy>
        </Dimension>
        <Dimension type="StandardDimension" visible="true" foreignKey="CUSTOMER_ID" name="Customer">
            <Hierarchy name="Customer Hierarchy" visible="true" hasAll="true" allMemberName="All Customers" primaryKey="CUSTOMER_ID">
                <Table name="dim_customer"> </Table>
                <Level name="Country" visible="true" column="COUNTRY" type="String" uniqueMembers="false" levelType="Regular"> </Level>
                <Level name="City" visible="true" column="CITY" type="String" uniqueMembers="false" levelType="Regular"> </Level>
                <Level name="Fullname" visible="true" column="FULLNAME" type="String" uniqueMembers="false" levelType="Regular"> </Level>
            </Hierarchy>
        </Dimension>
        <Dimension type="TimeDimension" visible="true" foreignKey="TIME_ID" name="Time">
            <Hierarchy name="Time Hierarchy" visible="true" hasAll="true" allMemberName="All Years" primaryKey="TIME_ID">
                <Table name="dim_time"> </Table>
                <Level name="Year" visible="true" column="YEAR" type="Integer" uniqueMembers="false" levelType="TimeYears"> </Level>
                <Level name="Month" visible="true" column="MONTH" type="String" uniqueMembers="false" levelType="TimeMonths"> </Level>
                <Level name="Day" visible="true" column="DAY" type="Integer" uniqueMembers="false" levelType="TimeDays"> </Level>
            </Hierarchy>
        </Dimension>
        <Measure name="Unit_Price" column="UNIT_PRICE" datatype="Numeric" formatString="$ #,###.00" aggregator="sum" visible="true"> </Measure>
        <Measure name="Quantity" column="QUANTITY" datatype="Integer" formatString="#,###" aggregator="sum" visible="true"> </Measure>
        <Measure name="Line_Total" column="TOTAL" datatype="Numeric" formatString="$ #,###.00" aggregator="sum" visible="true"> </Measure>
    </Cube>
</Schema>
```

Challenge 8

Measures

Quantity
Unit_Price

Columns

Artist_Name
Album_Title

Rows

Artist_Name
Album_Title

Customer Hierarchy

Country

Filter

--

Artist_Name	Album_Title	Country	Quantity	Unit_Price
AC/DC	For Those About To Rock We Salute You	Brazil	1	\$.99
	Let There Be Rock	Canada	2	\$ 1.98
Academy of St. Martin in the Fields & Sir Neville Marriner	The World of Classical Favourites	Italy	3	\$ 2.97
	Fauré: Requiem, Ravel: Pavane & Others	Norway	4	\$ 3.96
Academy of St. Martin in the Fields, John Birch, Sir Neville Marriner & Sylvia McNair	Bach: Orchestral Suites Nos. 1 - 4	Belgium	2	\$ 1.98
		Brazil	2	\$ 1.98
Academy of St. Martin in the Fields, Sir Neville Marriner & Thurston Dart		Canada	1	\$.99
		United Kingdom	1	\$.99
Accept	Balls to the Wall	Brazil	1	\$.99
	Restless and Wild	Canada	1	\$.99
Adrian Leaper & Doreen de Feis		Germany	1	\$.99
	Górecki: Symphony No. 3	Brazil	1	\$.99
Aerosmith	Big Ones	Germany	1	\$.99
		Italy	1	\$.99
Alanis Morissette		USA	1	\$.99
	Jagged Little Pill	Belgium	4	\$ 3.96
Alice In Chains		Canada	2	\$ 1.98
	Facelift	United Kingdom	3	\$ 2.97
Amy Winehouse		USA	1	\$.99
	Back to Black	Canada	2	\$ 1.98
		France	2	\$ 1.98
		United Kingdom	2	\$ 1.98
		USA	1	\$.99
		Austria	3	\$ 2.97

Challenge 8

Measures

Quantity

Unit_Price

Columns

Rows

Time Hierarchy

Year

Month

Track Hierarchy

Artist_Name

Filter

Year	Month	Artist_Name	Quantity	Unit_Price
2009	April	Creedence Clearwater Revival	9	\$ 8.91
		Cássia Eller	7	\$ 6.93
		Deep Purple	11	\$ 10.89
		Def Leppard	2	\$ 1.98
		Dennis Chambers	1	\$.99
		Djavan	3	\$ 2.97
		Elis Regina	1	\$.99
		Eric Clapton	3	\$ 2.97
		Faith No More	1	\$.99
		Led Zeppelin	15	\$ 14.85
2009	August	Legião Urbana	5	\$ 4.95
		Lenny Kravitz	3	\$ 2.97
		Lulu Santos	3	\$ 2.97
		Marillion	1	\$.99
		Marisa Monte	2	\$ 1.98
		Marvin Gaye	2	\$ 1.98
		Men At Work	1	\$.99
		Metallica	6	\$ 5.94
		Stone Temple Pilots	2	\$ 1.98
		System Of A Down	6	\$ 5.94
2009	December	Terry Bozzio, Tony Levin & Steve Stevens	1	\$.99
		The Black Crowes	5	\$ 4.95
		The Clash	3	\$ 2.97
		The Cult	5	\$ 4.95
		The Doors	1	\$.99
		The Police	2	\$ 1.98
		The Rolling Stones	4	\$ 3.96
		The Tea Party	3	\$ 2.97
		The Who	3	\$ 2.97
		Tim Maia	2	\$ 1.98

Challenge 9

```
WITH
SET [~ROWS_Track_Track Hierarchy] AS
    Hierarchize({{[Track].[Track Hierarchy].[Artist_Name].Members}, {[Track].[Track Hierarchy].[Album_Title].Members}})
SET [~ROWS_Customer_Customer Hierarchy] AS
    {[Customer].[Customer Hierarchy].[Country].Members}
SELECT
NON EMPTY {[Measures].[Quantity], [Measures].[Unit_Price]} ON COLUMNS,
NON EMPTY NonEmptyCrossJoin([~ROWS_Track_Track Hierarchy], [~ROWS_Customer_Customer Hierarchy]) ON ROWS
FROM [Invoices]
```



```
SELECT {Measures.Quantity, Measures.Unit_price} ON COLUMNS,
NONEMPTYCROSSJOIN
    (DRILLDOWNLEVEL (Track.Artist_Name.Members), Customer.Country.Members)
ON ROWS
FROM Invoices
```

Challenge 9

```
WITH
SET [~ROWS_Time_Time Hierarchy] AS
    Hierarchize({{[Time].[Time Hierarchy].[Year].Members}, {[Time].[Time Hierarchy].[Month].Members}})
SET [~ROWS_Track_Track Hierarchy] AS
    {[Track].[Track Hierarchy].[Artist_Name].Members}
SELECT
NON EMPTY {[Measures].[Quantity], [Measures].[Unit_Price]} ON COLUMNS,
NON EMPTY NonEmptyCrossJoin([~ROWS_Time_Time Hierarchy], [~ROWS_Track_Track Hierarchy]) ON ROWS
FROM [Invoices]
```



```
SELECT {Measures.Quantity, Measures.Unit_Price} ON COLUMNS,
NONEMPTYCROSSJOIN
(DESCENDANTS (Time.Year.Members, 1, SELF_AND_BEFORE), Track.Artist_Name.Members ) ON ROWS
FROM Invoices
```