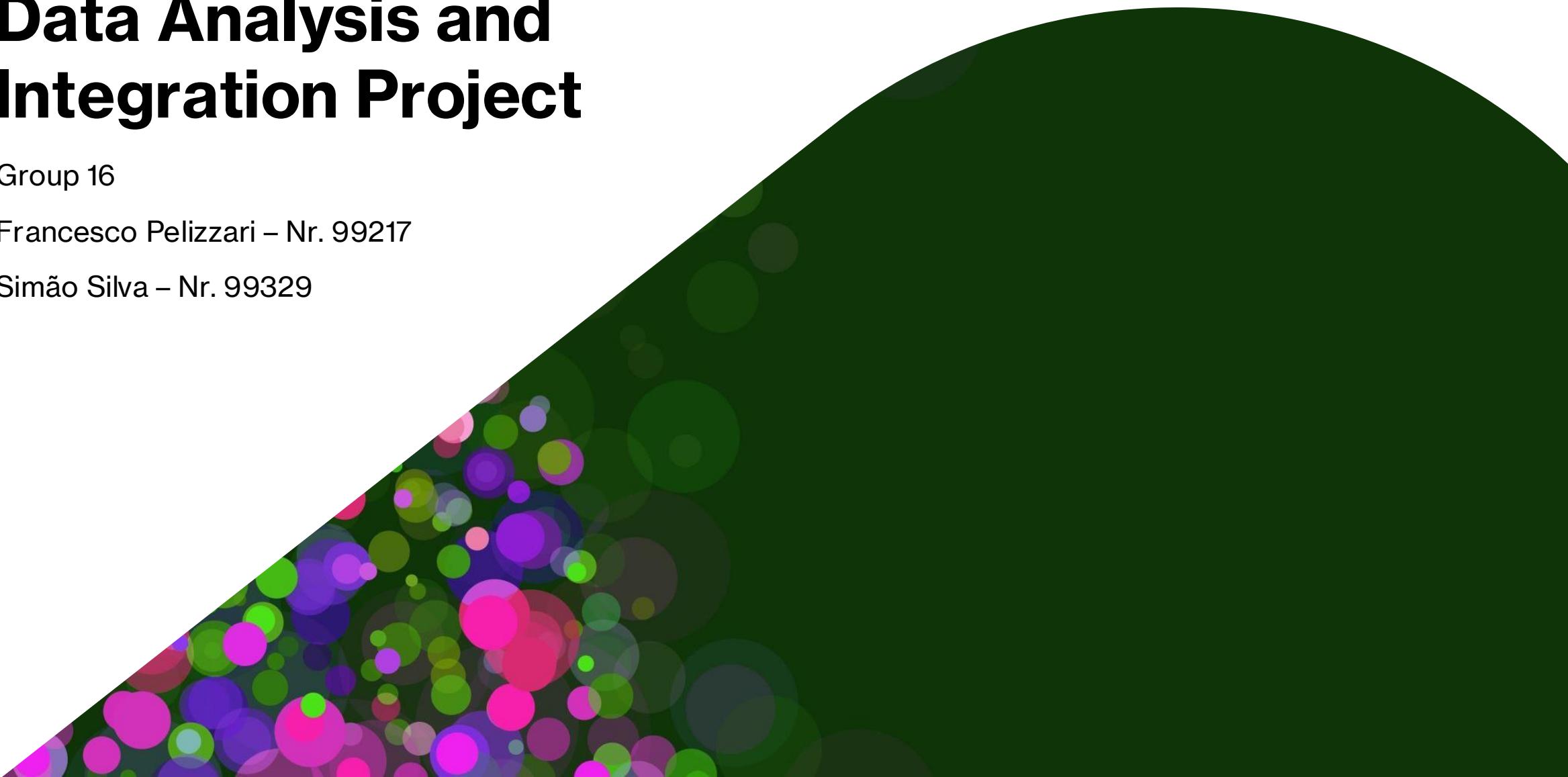


# **Data Analysis and Integration Project**

Group 16

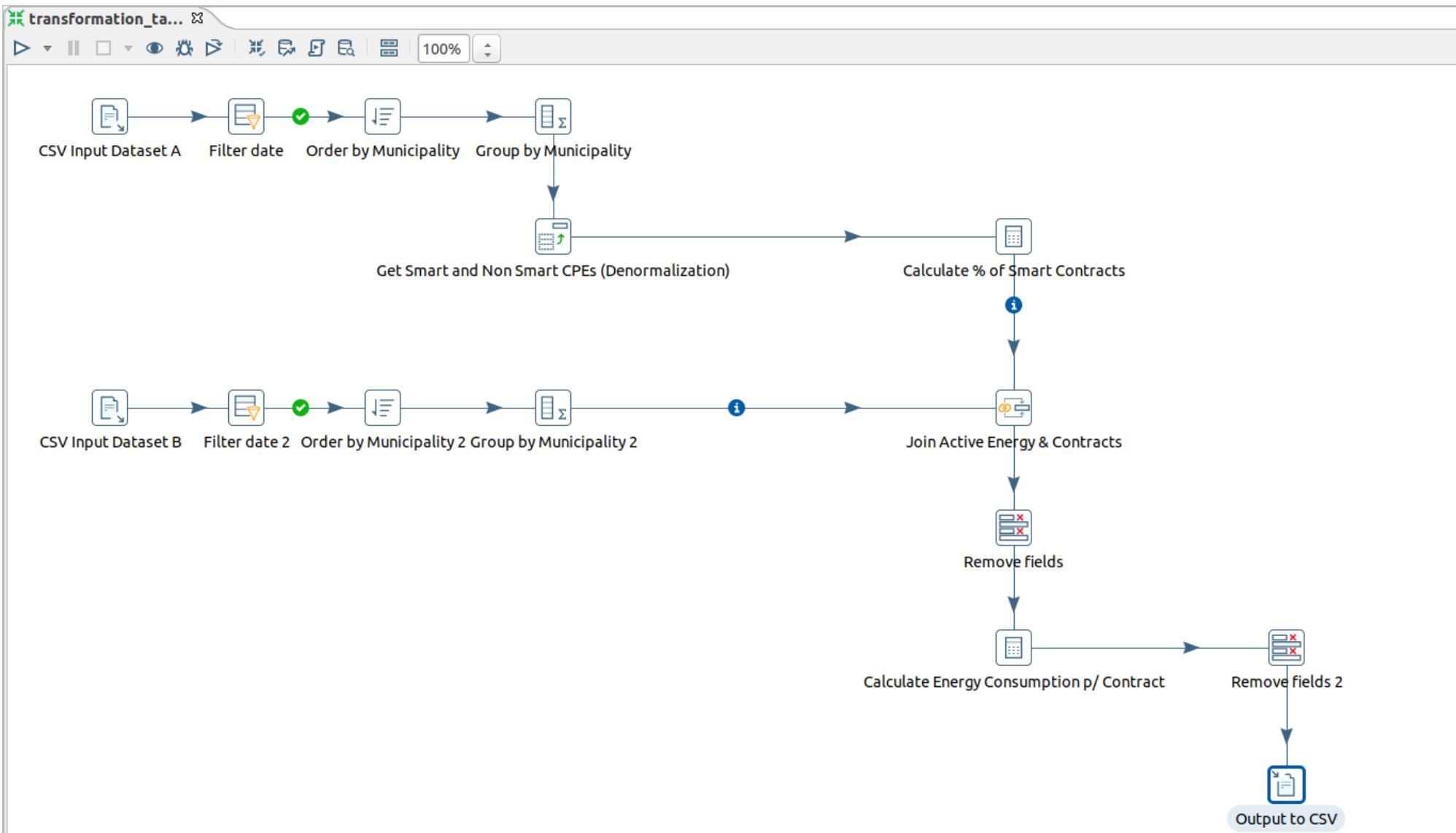
Francesco Pelizzari – Nr. 99217

Simão Silva – Nr. 99329

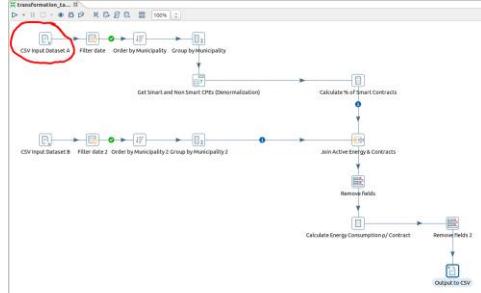


# **Task 1**

# Transformation



# CSV Input Dataset A | Configuration



CSV file input

Step name **CSV Input Dataset A**

Filename **/home/aid/adi-project/data/21-contadores-de-energia.csv**

Delimiter **;**

Enclosure **"**

NIO buffer size **50000**

Lazy conversion?

Header row present?

Add filename to result

The row number field name (optional)

Running in parallel?

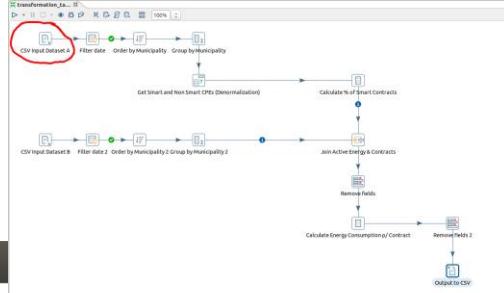
New line possible in fields?

Format **mixed**

File encoding **UTF-8**

	Name	Type	Format	Length	Precision	Currency	Decimal	Group	Trim type
1	Year	Integer	#	15	0	\$	.	,	none
2	Month	Integer	#	15	0	\$	.	,	none
3	Date	String		7		\$	.	,	none
4	District	String		16		\$	.	,	none
5	Municipality	String		27		\$	.	,	none
6	Parish	String		30		\$	.	,	none
7	Includes Smart Meter	String		3		\$	.	,	none
8	Number of CPE's	Integer	#	15	0	\$	.	,	none
9	DistrictCode	Integer	#	15	0	\$	.	,	none
10	DistrictMunicipalityCode	Integer	#	15	0	\$	.	,	none
11	DistrictMunicipalityParishCode	String	#	15	0	\$	.	,	none
12	Active Contract	String		3		\$	.	,	none

# CSV Input Dataset A | Preview

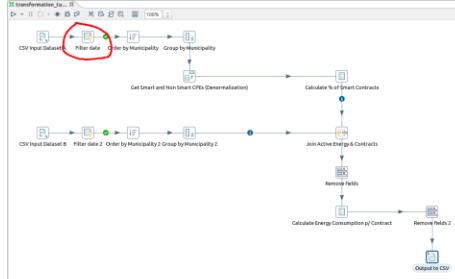


Examine preview data

Rows of step: CSV Input Dataset A (1000 rows)

	Year	Month	Date	District	Municipality	Parish	Includes Smart Meter	Number of CPE's	DistrictCode	DistrictMunicipalityCode	DistrictMunicipalityParishCode	Active
1	2023	10	2023-10	GUARDA	Mêda	AVELOSO	Não	8	9	909	090901	Sim
2	2023	10	2023-10	SANTAREM	Santarém	ALCANHOES	Não	23	14	1416	141605	Sim
3	2023	10	2023-10	SETUBAL	Alcochete	SAMOUCO	Não	2	15	1502	150202	Sim
4	2023	10	2023-10	VISEU	Tabuaço	ADORIGO	Não	35	18	1819	181901	Sim
5	2023	10	2023-10	BRAGA	Terras de Bouro	RIO CALDO	Não	8	3	310	031013	Sim
6	2023	10	2023-10	BRAGANCA	Bragança	CASTRO DE AVELAS	Não	14	4	402	040209	Sim
7	2023	10	2023-10	VILA REAL	Murça	VALONGO DE MILHAIS	Não	8	17	1707	170708	Sim
8	2023	10	2023-10	LISBOA	Alenquer	MECA	Não	14	11	1101	110107	Sim
9	2023	10	2023-10	VIANA DO CASTELO	Caminha	ARGELA	Não	6	16	1602	160205	Sim
10	2023	10	2023-10	GUARDA	Mêda	BARREIRA	Não	2	9	909	090902	Sim
11	2023	10	2023-10	VIANA DO CASTELO	Paredes de Coura	CUNHA	Não	1	16	1605	160507	Sim
12	2023	10	2023-10	VISEU	Tabuaço	VALENCA DO DOURO	Não	2	18	1819	181917	Sim
13	2023	10	2023-10	LEIRIA	Óbidos	USSEIRA	Não	7	10	1012	101209	Sim
14	2023	10	2023-10	VIANA DO CASTELO	Ponte de Lima	BERTIANDOS	Não	2	16	1607	160708	Sim
15	2023	10	2023-10	BRAGANCA	Carrazeda de Ansiães	PARAMBOS	Não	1	4	403	040311	Sim
16	2023	10	2023-10	PORTO	Póvoa de Varzim	UF AGUCADOURA E NAVAIS	Não	1031	13	1313	131314	Sim
17	2023	10	2023-10	COIMBRA	Lousã	UF LOUSA E VILARINHO	Não	34	6	607	060708	Sim
18	2023	10	2023-10	LEIRIA	Caldas da Rainha	UF TORNADA E SALIR DO PORTO	Não	330	10	1006	100619	Sim
19	2023	10	2023-10	CASTELO BRANCO	Castelo Branco	UF FREIXIAL E JUNCAL DO CAMPO	Não	517	5	502	050229	Sim
20	2023	10	2023-10	LEIRIA	Porto de Mós	SAO BENTO	Sim	449	10	1016	101610	Sim
21	2023	10	2023-10	LISBOA	Sintra	COLARES	Sim	4376	11	1111	111105	Sim
22	2023	10	2023-10	BRAGA	Guimarães	FERMENTOES	Não	53	3	308	030815	Sim
23	2023	10	2023-10	VISEU	Mortágua	MARMELEIRA	Não	22	18	1808	180805	Sim
24	2023	10	2023-10	GUARDA	Seia	SANDOMIL	Não	225	9	912	091212	Sim
25	2023	10	2023-10	VISEU	Penalva do Castelo	ESMOLFE	Sim	340	18	1811	181103	Sim
26	2023	10	2023-10	GUARDA	Guarda	UF AVELAS DE AMBOM E ROCAMONDO	Sim	100	9	907	090761	Sim
27	2023	10	2023-10	PORTO	Maia	MOREIRA	Não	2157	13	1306	130609	Sim
28	2023	10	2023-10	AVEIRO	Castelo de Paiva	REAL	Não	297	1	106	010606	Sim
29	2023	10	2023-10	VISEU	Santa Comba Dão	PINHEIRO DE AZERE	Sim	364	18	1814	181403	Sim
30	2023	10	2023-10	LEIRIA	Leiria	AMOR	Sim	2267	10	1009	100901	Sim
31	2023	10	2023-10	VISEU	Lamego	VARZEA DE ABRUNHAIS	Sim	275	18	1805	180523	Sim
32	2023	10	2023-10	GUARDA	Almeida	ALMEIDA	Não	100	10	1010	101005	Sim

# Filter Date | Configuration



**Filter rows**

Step name: **Filter date**

Send 'true' data to step: **Order by Municipality**

Send 'false' data to step:

The condition:

+

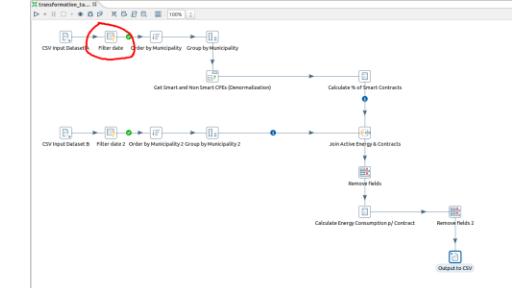
Year = [2024]

AND

Month = [6]

? Help      OK      Cancel

# Filter Date | Preview

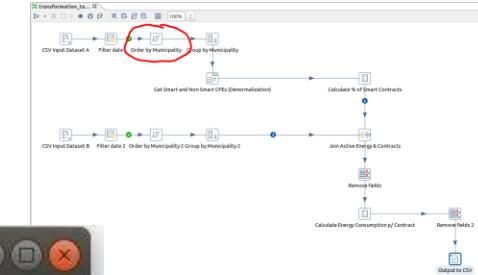


Examine preview data

Rows of step: Filter date (1000 rows)

	Year	Month	Date	District	Municipality	Parish	Includes Smart Meter	Number of CPE's	DistrictCode	DistrictMunicipalityCode	DistrictMunicipalityParishCode	Active C
1	2024	6	2024-06	COIMBRA	Figueira da Foz	TAVAREDE	Sim	6341	6	605	060512	Sim
2	2024	6	2024-06	BRAGA	Fafe	REGADAS	Sim	546	3	307	030723	Sim
3	2024	6	2024-06	BRAGA	Guimarães	BRITO	Não	19	3	308	030807	Sim
4	2024	6	2024-06	VILA REAL	Boticas	PINHO	Sim	344	17	1702	170213	Sim
5	2024	6	2024-06	VIANA DO CASTELO	Viana do Castelo	SAO ROMAO DE NEIVA	Sim	713	16	1609	160923	Sim
6	2024	6	2024-06	BRAGANCA	Mirandela	TORRE DE DONA CHAMA	Não	23	4	407	040730	Sim
7	2024	6	2024-06	CASTELO BRANCO	Belmonte	MACAINHAS	Sim	300	5	501	050105	Sim
8	2024	6	2024-06	CASTELO BRANCO	Fundão	CASTELO NOVO	Não	12	5	504	050413	Sim
9	2024	6	2024-06	SANTAREM	Ourém	CAXARIAS	Sim	1554	14	1421	142104	Sim
10	2024	6	2024-06	BRAGA	Guimarães	UF TABUADELO E SAO FAUSTINO	Sim	1016	3	308	030891	Sim
11	2024	6	2024-06	COIMBRA	Figueira da Foz	SAO PEDRO	Não	12	6	605	060514	Sim
12	2024	6	2024-06	GUARDA	Celorico da Beira	UF CELORICO E VILA BOA MONDEGO	Sim	1791	9	903	090324	Sim
13	2024	6	2024-06	VISEU	Tondela	UF MOURAZ VILA NOVA RAINHA	Sim	484	18	1821	182129	Sim
14	2024	6	2024-06	VISEU	São Pedro do Sul	VILA MAIOR	Não	4	18	1816	181619	Sim
15	2024	6	2024-06	PORTALEGRE	Avis	FIGUEIRA E BARROS	Sim	225	12	1203	120306	Sim
16	2024	6	2024-06	CASTELO BRANCO	Penamacor	UF A BISPO AGUAS A JOAO PIRES	Não	25	5	507	050713	Sim
17	2024	6	2024-06	BRAGA	Fafe	FAFE	Sim	10095	3	307	030709	Sim
18	2024	6	2024-06	VIANA DO CASTELO	Monção	UF MESSEGAES VALADARES E SA	Sim	449	16	1604	160437	Sim
19	2024	6	2024-06	VILA REAL	Vila Pouca de Aguiar	BRAGADO	Sim	237	17	1713	171304	Sim
20	2024	6	2024-06	FARO	Tavira	CACHOPÓ	Sim	344	8	814	081401	Sim
21	2024	6	2024-06	PORTALEGRE	Monforte	SANTO ALEIXO	Não	19	12	1211	121103	Sim
22	2024	6	2024-06	BRAGANCA	Torre de Moncorvo	HORTA DA VILARICA	Não	8	4	409	040909	Sim
23	2024	6	2024-06	LISBOA	Lisboa	LUMIAR	Sim	27507	11	1106	110618	Sim
24	2024	6	2024-06	COIMBRA	Mira	PRAIA DE MIRA	Sim	3655	6	608	060804	Sim
25	2024	6	2024-06	LISBOA	Vila Franca de Xira	UF POVOA SANTA IRIA FORTE CASA	Não	2458	11	1114	111415	Sim
26	2024	6	2024-06	SANTAREM	Torres Novas	UF OLAIA E PACO	Sim	966	14	1419	141919	Sim
27	2024	6	2024-06	BRAGA	Braga	UF CRESPOS E Pousada	Não	82	3	303	030368	Sim
28	2024	6	2024-06	BRAGA	Vila Verde	VALDREU	Não	154	3	313	031355	Sim
29	2024	6	2024-06	BRAGA	Barcelos	UF SEQUEADE BASTUCO	Não	380	3	302	0302FD	Sim
30	2024	6	2024-06	BRAGA	Póvoa de Lanhoso	FERREIROS	Não	21	3	309	030908	Sim
31	2024	6	2024-06	VISEU	Nelas	CANAS DE SENHORIM	Sim	2139	18	1809	180901	Sim

# Order by Municipality | Configuration



Sort rows

Step name **Order by Municipality**

Sort directory `%%java.io.tmpdir%%`

TMP-file prefix `out`

Sort size (rows in memory) `1000000`

Free memory threshold (in %) `10`

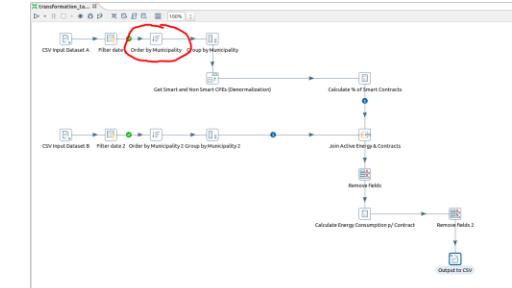
Compress TMP Files?

Only pass unique rows? (verifies keys only)

Fields :

▼	Fieldname	Ascending	Case sensitive compare?	Sort based on current locale?	Collator Strength
1	Municipality	Y	N	N	0
2	Includes Smart Meter	Y	N	N	0

# Order by Municipality | Preview

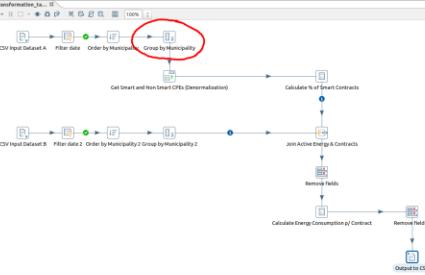


Examine preview data

Rows of step: Order by Municipality (1000 rows)

▼	Year	Month	Date	District	Municipality	Parish	Includes Smart Meter	Number of CPE's	DistrictCode	DistrictMunicipalityCode	DistrictMunicipalityParishCode	Active Contract
1	2024	6	2024-06	SANTAREM	Abrantes	MOURISCAS	Não	309	14	1401	140106	Sim
2	2024	6	2024-06	SANTAREM	Abrantes	UF ABRANTES E ALFERRAREDE	Não	23	14	1401	140120	Sim
3	2024	6	2024-06	SANTAREM	Abrantes	RIO DE MOINHOS	Não	45	14	1401	140108	Sim
4	2024	6	2024-06	SANTAREM	Abrantes	UF S M RIO TORTO ROSSIO S TEJO	Não	292	14	1401	140124	Sim
5	2024	6	2024-06	SANTAREM	Abrantes	PEGO	Não	346	14	1401	140107	Sim
6	2024	6	2024-06	SANTAREM	Abrantes	FONTES	Não	295	14	1401	140118	Sim
7	2024	6	2024-06	SANTAREM	Abrantes	UF SAO FACUNDO E VALE DAS MOS	Não	564	14	1401	140123	Sim
8	2024	6	2024-06	SANTAREM	Abrantes	CARVALHAL	Não	244	14	1401	140119	Sim
9	2024	6	2024-06	SANTAREM	Abrantes	BEMPOSTA	Não	62	14	1401	140104	Sim
10	2024	6	2024-06	SANTAREM	Abrantes	MARTINCHEL	Não	173	14	1401	140105	Sim
11	2024	6	2024-06	SANTAREM	Abrantes	UF ALDEIA DO MATO E SOUTO	Não	348	14	1401	140121	Sim
12	2024	6	2024-06	SANTAREM	Abrantes	TRAMAGAL	Não	13	14	1401	140115	Sim
13	2024	6	2024-06	SANTAREM	Abrantes	UF ALVEGA E CONCAVADA	Não	94	14	1401	140122	Sim
14	2024	6	2024-06	SANTAREM	Abrantes	BEMPOSTA	Sim	984	14	1401	140104	Sim
15	2024	6	2024-06	SANTAREM	Abrantes	PEGO	Sim	1072	14	1401	140107	Sim
16	2024	6	2024-06	SANTAREM	Abrantes	UF ALVEGA E CONCAVADA	Sim	1252	14	1401	140122	Sim
17	2024	6	2024-06	SANTAREM	Abrantes	UF SAO FACUNDO E VALE DAS MOS	Sim	454	14	1401	140123	Sim
18	2024	6	2024-06	SANTAREM	Abrantes	UF ALDEIA DO MATO E SOUTO	Sim	676	14	1401	140121	Sim
19	2024	6	2024-06	SANTAREM	Abrantes	CARVALHAL	Sim	385	14	1401	140119	Sim
20	2024	6	2024-06	SANTAREM	Abrantes	FONTES	Sim	314	14	1401	140118	Sim
21	2024	6	2024-06	SANTAREM	Abrantes	UF S M RIO TORTO ROSSIO S TEJO	Sim	2628	14	1401	140124	Sim
22	2024	6	2024-06	SANTAREM	Abrantes	UF ABRANTES E ALFERRAREDE	Sim	10126	14	1401	140120	Sim
23	2024	6	2024-06	SANTAREM	Abrantes	RIO DE MOINHOS	Sim	633	14	1401	140108	Sim
24	2024	6	2024-06	SANTAREM	Abrantes	MARTINCHEL	Sim	246	14	1401	140105	Sim
25	2024	6	2024-06	SANTAREM	Abrantes	MOURISCAS	Sim	1189	14	1401	140106	Sim
26	2024	6	2024-06	SANTAREM	Abrantes	TRAMAGAL	Sim	1896	14	1401	140115	Sim
27	2024	6	2024-06	GUARDA	Aguiar da Beira	PENA VERDE	Não	7	9	901	090109	Sim
28	2024	6	2024-06	GUARDA	Aguiar da Beira	UF AGUIAR DA BEIRA E CORUCHE	Não	5	9	901	090114	Sim
29	2024	6	2024-06	GUARDA	Aguiar da Beira	PINHEIRO	Não	4	9	901	090110	Sim
30	2024	6	2024-06	GUARDA	Aguiar da Beira	EIRADO	Não	3	9	901	090106	Sim
31	2024	6	2024-06	GUARDA	Aguiar da Beira	UF SOUTO AGUIAR BEIRA VALVERDE	Não	6	9	901	090116	Sim
32	2024	6	2024-06	GUARDA	Aguiar da Beira	CORTICADA	Não	3	9	901	090103	Sim

# Group by Municipality | Configuration



**Group by**

Step name **Group by Municipality**

Include all rows?

Temporary files directory `%%java.io.tmpdir%%`

TMP-file prefix `grp`

Add line number, restart in each group

Line number field name

Always give back a result row

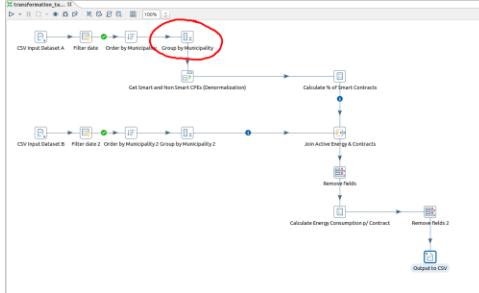
The fields that make up the group:

<input type="button" value="Get Fields"/>
▼ : Group field
1 Municipality
2 Includes Smart Meter

Aggregates :

<input type="button" value="Get lookup fields"/>		
▼ : Name	Subject	Type
1 Number of Contracts	Number of CPE's	Sum

# Group by Municipality | Preview

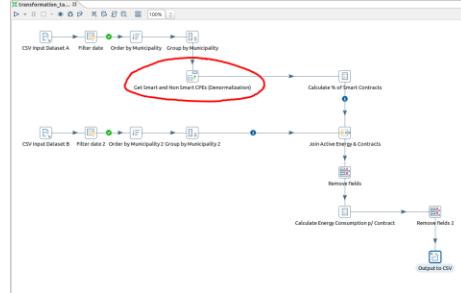


Examine preview data

Rows of step: Group by Municipality (556 rows)			Number of Contracts
	Municipality	Includes Smart Meter	
1	Abrantes	Não	2808
2	Abrantes	Sim	21855
3	Aguiar da Beira	Não	30
4	Aguiar da Beira	Sim	4796
5	Alandroal	Não	772
6	Alandroal	Sim	3237
7	Albergaria-a-Velha	Não	460
8	Albergaria-a-Velha	Sim	13437
9	Albufeira	Não	3112
10	Albufeira	Sim	50215
11	Alcanena	Não	380
12	Alcanena	Sim	7629
13	Alcobaça	Não	2429
14	Alcobaça	Sim	35902
15	Alcochete	Não	8
16	Alcochete	Sim	11491
17	Alcoutim	Não	857
18	Alcoutim	Sim	2738
19	Alcácer do Sal	Não	80
20	Alcácer do Sal	Sim	8063
21	Alenquer	Não	122
22	Alenquer	Sim	24343
23	Alfândega da Fé	Não	64
24	Alfândega da Fé	Sim	4002
25	Alijó	Não	2038
26	Alijó	Sim	6889
27	Aljezur	Não	1305
28	Aljezur	Sim	5130
29	Aljustrel	Não	224
30	Aljustrel	Sim	5642
31	Almada	Não	2153
32	Almada	Sim	113047

# Get Smart and Non Smart CPEs (Denormalization)

## Configuration



Row denormaliser

Step name **Get Smart and Non Smart CPEs (Denormalization)**

The key field **Includes Smart Meter**

The fields that make up the grouping:

Group field
1 Municipality

Get Fields

Target fields:

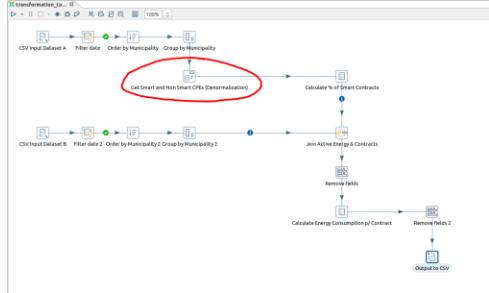
Target fieldname	Value fieldname	Key value	Type	Format	Length	Precision	Currency	Decimal	Group	Null if	Aggregation	Get lookup fields
1 Number of Smart Contracts	Number of Contracts	Sim	Number			0					Sum	
2 Number of Non Smart Contracts	Number of Contracts	Não	Number								Sum	

Help

OK Cancel

# Get Smart and Non Smart CPEs (Denormalization)

## Preview

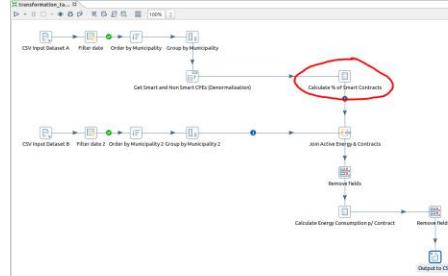


Examine preview data

Rows of step: Get Smart and Non Smart CPEs (Denormalization) (278 rows)

	Municipality	Number of Smart Contracts	Number of Non Smart Contracts
1	Abrantes	21855.0	2808.0
2	Aguiar da Beira	4796.0	30.0
3	Alandroal	3237.0	772.0
4	Albergaria-a-Velha	13437.0	460.0
5	Albufeira	50215.0	3112.0
6	Alcanena	7629.0	380.0
7	Alcobaça	35902.0	2429.0
8	Alcochete	11491.0	8.0
9	Alcoutim	2738.0	857.0
10	Alcácer do Sal	8063.0	80.0
11	Alenquer	24343.0	122.0
12	Alfândega da Fé	4002.0	64.0
13	Alijó	6889.0	2038.0
14	Aljezur	5130.0	1305.0
15	Aljustrel	5642.0	224.0
16	Almada	113047.0	2153.0
17	Almeida	6718.0	98.0
18	Almeirim	12577.0	1229.0
19	Almodôvar	5380.0	118.0
20	Alpiarça	4440.0	60.0
21	Alter do Chão	2771.0	32.0
22	Alvaiázere	5691.0	41.0
23	Alvito	1651.0	4.0
24	Amadora	96788.0	1157.0
25	Amarante	24481.0	6725.0
26	Amares	10586.0	536.0
27	Anadia	14682.0	2189.0
28	Ansião	8776.0	46.0
29	Arcos de Valdevez	17781.0	892.0
30	Arganil	7410.0	3524.0
31	Armamar	4962.0	48.0
32	Arouca	9682.0	2655.0

# Calculate % of Smart Contracts | Configuration



Calculator

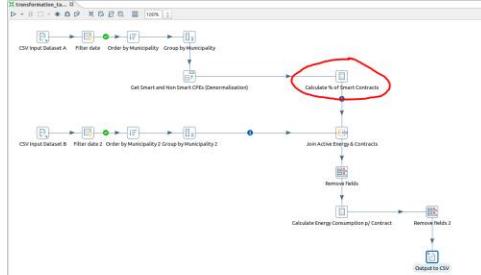
Step name

Throw an error on non existing files

Fields:

New field	Calculation	Field A	Field B	Field C	Value type	Length	Precision	Remove	Conve
1 Total Contracts	A + B	Number of Smart Contracts	Number of Non Smart Contracts		Number			Y	
2 Percentage of Smart Contracts	A / B	Number of Smart Contracts	Total Contracts		Number			N	####
3 Total Contracts	Create a copy of field A	Total Contracts			Integer			N	

# Calculate % of Smart Contracts | Preview

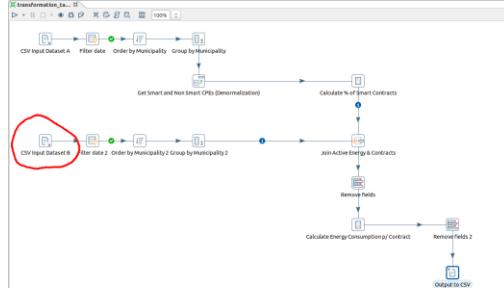


Examine preview data

Rows of step: Calculate % of Smart Contracts (278 rows)

	Municipality	Number of Smart Contracts	Number of Non Smart Contracts	Percentage of Smart Contracts	Total Contracts
1	Abrantes	21855.0	2808.0	88.61%	24663
2	Aguiar da Beira	4796.0	30.0	99.38%	4826
3	Alandroal	3237.0	772.0	80.74%	4009
4	Albergaria-a-Velha	13437.0	460.0	96.69%	13897
5	Albufeira	50215.0	3112.0	94.16%	53327
6	Alcanena	7629.0	380.0	95.26%	8009
7	Alcobaça	35902.0	2429.0	93.66%	38331
8	Alcochete	11491.0	8.0	99.93%	11499
9	Alcoutim	2738.0	857.0	76.16%	3595
10	Alcácer do Sal	8063.0	80.0	99.02%	8143
11	Alenquer	24343.0	122.0	99.5%	24465
12	Alfândega da Fé	4002.0	64.0	98.43%	4066
13	Alijó	6889.0	2038.0	77.17%	8927
14	Aljezur	5130.0	1305.0	79.72%	6435
15	Aljustrel	5642.0	224.0	96.18%	5866
16	Almada	113047.0	2153.0	98.13%	115200
17	Almeida	6718.0	98.0	98.56%	6816
18	Almeirim	12577.0	1229.0	91.1%	13806
19	Almodôvar	5380.0	118.0	97.85%	5498
20	Alpiarça	4440.0	60.0	98.67%	4500
21	Alter do Chão	2771.0	32.0	98.86%	2803
22	Alvaiázere	5691.0	41.0	99.28%	5732
23	Alvito	1651.0	4.0	99.76%	1655
24	Amadora	96788.0	1157.0	98.82%	97945
25	Amarante	24481.0	6725.0	78.45%	31206
26	Amares	10586.0	536.0	95.18%	11122
27	Anadia	14682.0	2189.0	87.03%	16871
28	Ansião	8776.0	46.0	99.48%	8822
29	Arcos de Valdevez	17781.0	892.0	95.22%	18673
30	Arganil	7410.0	3524.0	67.77%	10934
31	Armamar	4962.0	48.0	99.04%	5010
32	Arouca	9682.0	2655.0	78.48%	12337

# CSV Input Dataset B | Configuration



CSV file input

Step name **CSV Input Dataset B**

Filename

Delimiter

Enclosure "

NIO buffer size

Lazy conversion?

Header row present?

Add filename to result

The row number field name (optional)

Running in parallel?

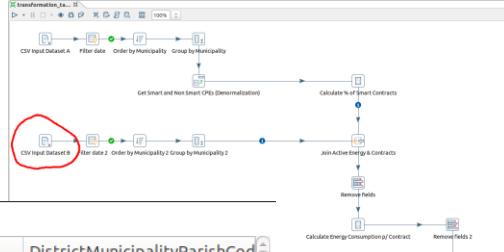
New line possible in fields?

Format

File encoding

Name	Type	Format	Length	Precision	Currency	Decimal	Group	Trim type
1 Year	Integer	#	15	0	\$	.	,	none
2 Month	Integer	#	15	0	\$	.	,	none
3 Date	String		7		\$	.	,	none
4 District	String		16		\$	.	,	none
5 Municipality	String		22		\$	.	,	none
6 parish	String		30		\$	.	,	none
7 Voltage level	String		32		\$	.	,	none
8 Active Energy (kWh)	Number	#.#	11	3	\$	.	,	none
9 DistrictCode	Integer	#	15	0	\$	.	,	none
10 DistrictMunicipalityCode	Integer	#	15	0	\$	.	,	none
11 DistrictMunicipalityParishCode	String		6		\$	.	,	none
12 mes_int	Integer	#	15	0	\$	.	,	none

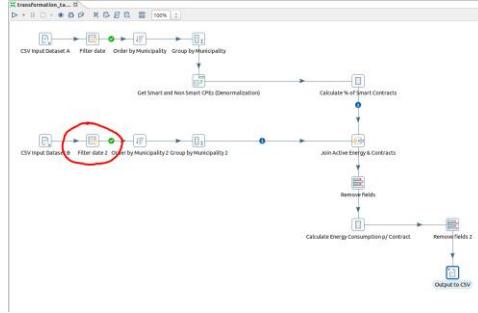
# CSV Input Dataset B | Preview



Rows of step: CSV Input Dataset B (1000 rows)

	Year	Month	Date	District	Municipality	parish	Voltage level	Active Energy (kWh)	DistrictCode	DistrictMunicipalityCode	DistrictMunicipalityParishCode
1	2020	11	2020-11	Évora	Vila Viçosa	N S CONCEICAO E SAO BARTOLOMEU	Baixa Tensão	932900.4	7	0714	071406
2	2020	11	2020-11	Faro	Albufeira	PADERNE	Muito Alta, Alta e Média Tensões	300614.9	8	0801	080103
3	2020	11	2020-11	Faro	Alcoutim	GIOES	Baixa Tensão	33531.7	8	0802	080202
4	2020	11	2020-11	Faro	Alcoutim	UF ALCOUTIM E PEREIRO	Baixa Tensão	315064.6	8	0802	080206
5	2020	11	2020-11	Faro	Alcoutim	UF ALCOUTIM E PEREIRO	Muito Alta, Alta e Média Tensões	14959.2	8	0802	080206
6	2020	11	2020-11	Faro	Aljezur	ODECEIXE	Baixa Tensão	251829.5	8	0803	080303
7	2020	11	2020-11	Faro	Castro Marim	AZINHAL	Baixa Tensão	108590.8	8	0804	080401
8	2020	11	2020-11	Faro	Faro	SANTA BARBARA DE NEXE	Muito Alta, Alta e Média Tensões	90187.8	8	0805	080503
9	2020	11	2020-11	Faro	Faro	UF CONCEICAO E ESTOI	Baixa Tensão	2021643.6	8	0805	080507
10	2020	11	2020-11	Faro	Lagoa	UF ESTOMBAR E PARCHAL	Muito Alta, Alta e Média Tensões	704903.9	8	0806	080607
11	2020	11	2020-11	Faro	Lagos	ODIAXERE	Baixa Tensão	733281.9	8	0807	080704
12	2020	11	2020-11	Faro	Loulé	LOULE (SAO CLEMENTE)	Muito Alta, Alta e Média Tensões	605332.8	8	0808	080808
13	2020	11	2020-11	Faro	Loulé	UF QUERENCA TOR E BENAFIM	Muito Alta, Alta e Média Tensões	43821.8	8	0808	080812
14	2020	11	2020-11	Faro	Olhão	OLHAO	Baixa Tensão	2341014.4	8	0810	081003
15	2020	11	2020-11	Faro	São Brás de Alportel	SAO BRAS DE ALPORTEL	Baixa Tensão	2365711.4	8	0812	081201
16	2020	11	2020-11	Faro	Vila do Bispo	SAGRES	Muito Alta, Alta e Média Tensões	250120.3	8	0815	081504
17	2020	11	2020-11	Faro	Vila Real de Santo António	VILA NOVA DE CACELA	Baixa Tensão	1309636.7	8	0816	081601
18	2020	11	2020-11	Guarda	Aguiar da Beira	PINHEIRO	Baixa Tensão	58706.4	9	0901	090110
19	2020	11	2020-11	Guarda	Almeida	MALHADA SORDA	Baixa Tensão	47519.8	9	0902	090213
20	2020	11	2020-11	Guarda	Almeida	UF JUNCA E NAVES	Baixa Tensão	32638.8	9	0902	090233
21	2020	11	2020-11	Guarda	Celorico da Beira	MESQUITELA	Baixa Tensão	30188.4	9	0903	090310
22	2020	11	2020-11	Guarda	Figueira de Castelo Rodrigo	UF COLMEAL E VILAR TORPIM	Muito Alta, Alta e Média Tensões	4650.2	9	0904	090422
23	2020	11	2020-11	Guarda	Fornos de Algodres	MUXAGATA	Baixa Tensão	28518.2	9	0905	090511
24	2020	11	2020-11	Guarda	Gouveia	SAO PAIO	Muito Alta, Alta e Média Tensões	20579.8	9	0906	090617
25	2020	11	2020-11	Guarda	Gouveia	UF ALDEIAS MANGUALDE SERRA	Muito Alta, Alta e Média Tensões	96292.7	9	0906	090623
26	2020	11	2020-11	Guarda	Gouveia	UF MELO E NABAIS	Baixa Tensão	130899.2	9	0906	090626
27	2020	11	2020-11	Guarda	Guarda	GONCALO BOCAS	Baixa Tensão	41909.1	9	0907	090721
28	2020	11	2020-11	Guarda	Guarda	PANOIAS DE CIMA	Baixa Tensão	98965.9	9	0907	090728
29	2020	11	2020-11	Guarda	Guarda	GUARDA	Muito Alta, Alta e Média Tensões	3676765	9	0907	090758
30	2020	11	2020-11	Guarda	Guarda	UF MIZARELA P SOARES V SOEIRO	Muito Alta, Alta e Média Tensões	248352	9	0907	090763
31	2020	11	2020-11	Guarda	Manteigas	MANTEIGAS (SANTA MARIA)	Baixa Tensão	351592.8	9	0908	090802
32	2020	11	2020-11	Guarda	Pinhel	ALVERCA DA BEIRA/BOUCA COVA	Baixa Tensão	77498.9	9	0910	091029
33	2020	11	2020-11	Guarda	Sabugal	BENDADA	Baixa Tensão	77998	9	0911	091110
34	2020	11	2020-11	Guarda	Sabugal	SOUTO	Baixa Tensão	228642.3	9	0911	091134
35	2020	11	2020-11	Guarda	Seia	SANTIAGO	Baixa Tensão	168645.2	9	0912	091216
36	2020	11	2020-11	Guarda	Seia	VALEZIM	Baixa Tensão	39821.3	9	0912	091225
37	2020	11	2020-11	Guarda	Trancoso	CASTANHEIRA	Baixa Tensão	19354.3	9	0913	091303
38	2020	11	2020-11	Guarda	Trancoso	POVOA DO CONCELHO	Baixa Tensão	34637.1	9	0913	091314
39	2020	11	2020-11	Guarda	Trancoso	VALDUJO	Baixa Tensão	32161.9	9	0913	091325
40	2020	11	2020-11	Guarda	Trancoso	UF TRANCOSO E SOUTO MAIOR	Baixa Tensão	790462.7	9	0913	091332
41	2020	11	2020-11	Leiria	Alcobaça	BARRIO	Baixa Tensão	271538.3	10	1001	100104
42	2020	11	2020-11	Leiria	Alcobaça	CELA	Baixa Tensão	671277.3	10	1001	100106
43	2020	11	2020-11	Leiria	Alcobaça	VIMEIRO	Muito Alta, Alta e Média Tensões	104399.9	10	1001	100116
44	2020	11	2020-11	Leiria	Alcobaça	ALJUBARROTA	Baixa Tensão	1002307.8	10	1001	100120

# Filter Date 2 | Configuration



Filter rows

Step name: **Filter date 2**

Send 'true' data to step: [Order by Municipality 2](#)

Send 'false' data to step:

The condition:

+

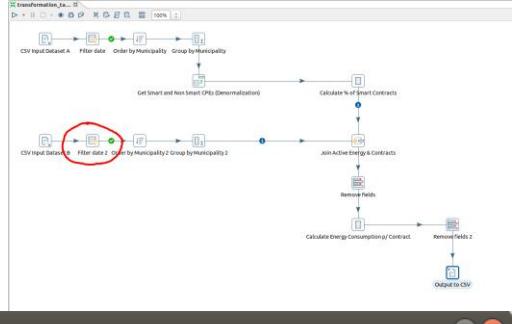
Year = [2024]

AND

Month = [6]

(?) Help OK Cancel

# Filter Date 2 | Preview

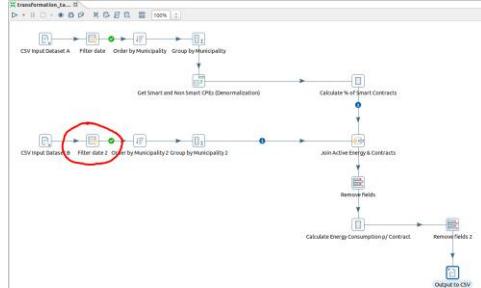


Examine preview data

Rows of step: Filter date 2 (1000 rows)

	Year	Month	Date	District	Municipality	parish	Voltage level	Active Energy (kWh)	DistrictCode	DistrictMunicipal	DistrictMunicipalityParishCode	mes_int
1	2024	6	2024-06	BEJA	Mértola	CORTE DO PINTO	Baixa Tensão	59617	2	209	020902	6
2	2024	6	2024-06	BRAGA	Fafe	AROES (SAO ROMAO)	Muito Alta, Alta e Média Tensões	21795	3	307	030730	6
3	2024	6	2024-06	BRAGA	Vila Nova de Famalicão	RIBA DE AVE	Baixa Tensão	179626	3	312	031234	6
4	2024	6	2024-06	CASTELO BRANCO	Castelo Branco	UF FREIXIAL E JUNCAL DO CAMPO	Baixa Tensão	39445	5	502	050229	6
5	2024	6	2024-06	GUARDA	Celorico da Beira	MINHOCAL	Baixa Tensão	8908	9	903	090311	6
6	2024	6	2024-06	VILA REAL	Montalegre	UF MONTALEGRE E PADROSO	Muito Alta, Alta e Média Tensões	35658	17	1706	170638	6
7	2024	6	2024-06	BRAGA	Vila Nova de Famalicão	UF ESMERIZ E CABECUDOS	Muito Alta, Alta e Média Tensões	174709	3	312	031254	6
8	2024	6	2024-06	EVORA	Mora	PAVIA	Baixa Tensão	78059	7	707	070704	6
9	2024	6	2024-06	PORTO	Vila do Conde	UF VILAR E MOSTEIRO	Baixa Tensão	172450	13	1316	131637	6
10	2024	6	2024-06	SANTAREM	Alcanena	MOITAS VENDA	Baixa Tensão	40326	14	1402	140207	6
11	2024	6	2024-06	VIANA DO CASTELO	Ponte de Lima	CALVELO	Baixa Tensão	43187	16	1607	160714	6
12	2024	6	2024-06	VILA REAL	Ribeira de Pena	UF RIBEIRA PENA SA ALEM TAMEGA	Baixa Tensão	203438	17	1709	170909	6
13	2024	6	2024-06	AVEIRO	Oliveira de Azeméis	CARREGOSA	Muito Alta, Alta e Média Tensões	250906	1	113	011301	6
14	2024	6	2024-06	BEJA	Odemira	SABOIA	Baixa Tensão	49546	2	211	021103	6
15	2024	6	2024-06	EVORA	Mourão	Luz	Baixa Tensão	24176	7	708	070802	6
16	2024	6	2024-06	GUARDA	Trancoso	ALDEIA NOVA	Baixa Tensão	16933	9	913	091301	6
17	2024	6	2024-06	BEJA	Odemira	SAO SALVADOR E SANTA MARIA	Baixa Tensão	203390	2	211	021120	6
18	2024	6	2024-06	PORTALEGRE	Marvão	SANTO ANTONIO DAS AREIAS	Baixa Tensão	69556	12	1210	121003	6
19	2024	6	2024-06	PORTALEGRE	Ponte de Sor	LONGOMEL	Muito Alta, Alta e Média Tensões	2338	12	1213	121305	6
20	2024	6	2024-06	BRAGA	Guimarães	UF AIRAO S M AIRAO S J VERMIL	Muito Alta, Alta e Média Tensões	85846	3	308	030876	6
21	2024	6	2024-06	CASTELO BRANCO	Covilhã	SAO JORGE DA BEIRA	Baixa Tensão	42656	5	503	050318	6
22	2024	6	2024-06	COIMBRA	Tábua	UF COVAS VILA NOVA OLIVEIRINHA	Baixa Tensão	66740	6	616	061617	6
23	2024	6	2024-06	GUARDA	Trancoso	CASTANHEIRA	Baixa Tensão	5899	9	913	091303	6
24	2024	6	2024-06	LISBOA	Torres Vedras	TURCIFAL	Muito Alta, Alta e Média Tensões	597377	11	1113	111317	6
25	2024	6	2024-06	VISEU	Mangualde	UF TAVARES	Baixa Tensão	80469	18	1806	180622	6
26	2024	6	2024-06	VISEU	Sernancelhe	VILA DA PONTE	Muito Alta, Alta e Média Tensões	5178	18	1818	181817	6
27	2024	6	2024-06	VISEU	Vila Nova de Paiva	UF V NOVA PAIVA ALHAIS FRAGUAS	Baixa Tensão	145400	18	1822	182208	6
28	2024	6	2024-06	VISEU	Viseu	CALDE	Muito Alta, Alta e Média Tensões	5615	18	1823	182305	6
29	2024	6	2024-06	VISEU	Viseu	RIO DE LOBA	Baixa Tensão	507699	18	1823	182323	6
30	2024	6	2024-06	BEJA	Beja	CABECA GORDA	Baixa Tensão	82636	2	205	020504	6
31	2024	6	2024-06	BRAGA	Fafe	FORNELOS	Baixa Tensão	86722	3	307	030712	6
32	2024	6	2024-06	BRAGA	Guimarães	UF B S SALVADOR E B S LEOCADIA	Muito Alta, Alta e Média Tensões	72856	3	308	030880	6

# Order by Municipality 2 | Configuration



Sort rows

Step name **Order by Municipality 2**

Sort directory `%%java.io.tmpdir%%`

TMP-file prefix `out`

Sort size (rows in memory) `1000000`

Free memory threshold (in %)

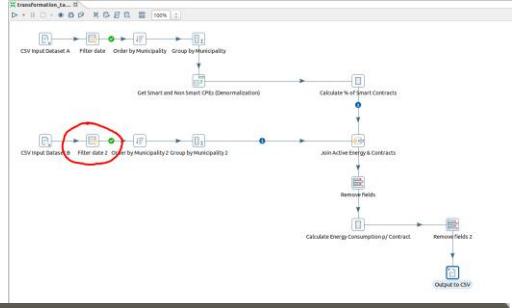
Compress TMP Files?

Only pass unique rows? (verifies keys only)

Fields :

Fieldname	Ascending	Case sensitive compare?	Sort based on current locale?	Collator Strength
1 Municipality	Y	N	N	0

# Order by Municipality 2 | Preview



Examine preview data

Rows of step: Order by Municipality 2 (1000 rows)

▼	Year	Month	Date	District	Municipality	parish	Voltage level	Active Energy (kWh)	DistrictCode	DistrictMunicipalityCode	DistrictMunicipalityParishCod	mes_int
1	2024	6	2024-06	SANTAREM	Abrantes	UF ALDEIA DO MATO E SOUTO	Baixa Tensão	74113	14	1401	140121	6
2	2024	6	2024-06	SANTAREM	Abrantes	BEMPOSTA	Baixa Tensão	98297	14	1401	140104	6
3	2024	6	2024-06	SANTAREM	Abrantes	MARTINCHEL	Baixa Tensão	31292	14	1401	140105	6
4	2024	6	2024-06	SANTAREM	Abrantes	TRAMAGAL	Baixa Tensão	179525	14	1401	140115	6
5	2024	6	2024-06	SANTAREM	Abrantes	UF SAO FACUNDO E VALE DAS MOS	Baixa Tensão	73489	14	1401	140123	6
6	2024	6	2024-06	SANTAREM	Abrantes	CARVALHAL	Baixa Tensão	35760	14	1401	140119	6
7	2024	6	2024-06	SANTAREM	Abrantes	UF S M RIO TORTO ROSSIO S TEJO	Muito Alta, Alta e Média Tensões	26813	14	1401	140124	6
8	2024	6	2024-06	SANTAREM	Abrantes	TRAMAGAL	Muito Alta, Alta e Média Tensões	252392	14	1401	140115	6
9	2024	6	2024-06	SANTAREM	Abrantes	RIO DE MOINHOS	Baixa Tensão	53171	14	1401	140108	6
10	2024	6	2024-06	SANTAREM	Abrantes	UF ABRANTES E ALFERRAREDE	Baixa Tensão	1080350	14	1401	140120	6
11	2024	6	2024-06	SANTAREM	Abrantes	MOURISCAS	Muito Alta, Alta e Média Tensões	17700	14	1401	140106	6
12	2024	6	2024-06	SANTAREM	Abrantes	PEGO	Muito Alta, Alta e Média Tensões	752674	14	1401	140107	6
13	2024	6	2024-06	SANTAREM	Abrantes	UF ALVEGA E CONCAVADA	Muito Alta, Alta e Média Tensões	22276	14	1401	140122	6
14	2024	6	2024-06	SANTAREM	Abrantes	FONTES	Baixa Tensão	35775	14	1401	140118	6
15	2024	6	2024-06	SANTAREM	Abrantes	UF ALDEIA DO MATO E SOUTO	Muito Alta, Alta e Média Tensões	46232	14	1401	140121	6
16	2024	6	2024-06	SANTAREM	Abrantes	UF ALVEGA E CONCAVADA	Baixa Tensão	101749	14	1401	140122	6
17	2024	6	2024-06	SANTAREM	Abrantes	UF S M RIO TORTO ROSSIO S TEJO	Baixa Tensão	258031	14	1401	140124	6
18	2024	6	2024-06	SANTAREM	Abrantes	MOURISCAS	Baixa Tensão	120885	14	1401	140106	6
19	2024	6	2024-06	SANTAREM	Abrantes	PEGO	Baixa Tensão	145601	14	1401	140107	6
20	2024	6	2024-06	SANTAREM	Abrantes	UF ABRANTES E ALFERRAREDE	Muito Alta, Alta e Média Tensões	852859	14	1401	140120	6
21	2024	6	2024-06	SANTAREM	Abrantes	BEMPOSTA	Muito Alta, Alta e Média Tensões	42727	14	1401	140104	6
22	2024	6	2024-06	GUARDA	Aguiar da Beira	FORNINHOS	Baixa Tensão	13033	9	901	090107	6
23	2024	6	2024-06	GUARDA	Aguiar da Beira	UF SEQUEIROS E GRADIZ	Baixa Tensão	33783	9	901	090115	6
24	2024	6	2024-06	GUARDA	Aguiar da Beira	PENA VERDE	Baixa Tensão	43286	9	901	090109	6
25	2024	6	2024-06	GUARDA	Aguiar da Beira	UF AGUIAR DA BEIRA E CORUCHE	Muito Alta, Alta e Média Tensões	61114	9	901	090114	6
26	2024	6	2024-06	GUARDA	Aguiar da Beira	DORNELAS	Baixa Tensão	32570	9	901	090105	6
27	2024	6	2024-06	GUARDA	Aguiar da Beira	PINHEIRO	Baixa Tensão	19536	9	901	090110	6
28	2024	6	2024-06	GUARDA	Aguiar da Beira	UF SOUTO AGUIAR BEIRA VALVERDE	Baixa Tensão	38038	9	901	090116	6
29	2024	6	2024-06	GUARDA	Aguiar da Beira	UF AGUIAR DA BEIRA E CORUCHE	Baixa Tensão	151170	9	901	090114	6
30	2024	6	2024-06	GUARDA	Aguiar da Beira	CORTICADA	Baixa Tensão	14611	9	901	090103	6
31	2024	6	2024-06	GUARDA	Aguiar da Beira	EIRADO	Baixa Tensão	15369	9	901	090106	6
32	2024	6	2024-06	GUARDA	Aguiar da Beira	CARAPITO	Baixa Tensão	34577	9	901	090102	6

# Group by Municipality 2 | Configuration

**Group by**

Step name **Group by Municipality 2**

Include all rows?

Temporary files directory `%%java.io.tmpdir%%`

TMP-file prefix `grp`

Add line number, restart in each group

Line number field name

Always give back a result row

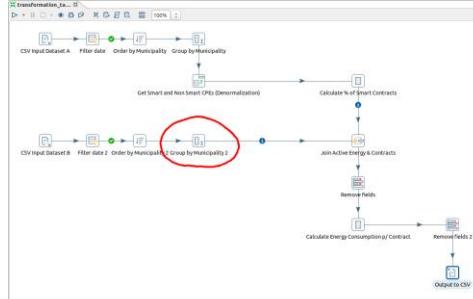
The fields that make up the group:

Group field

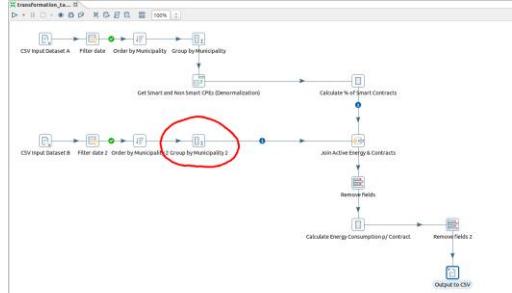
Municipality

Aggregates :

Name	Subject	Type	<input type="button" value="Get lookup fields"/>
1 Active Energy (kWh)	Active Energy (kWh)	Sum	



# Group by Municipality 2 | Preview

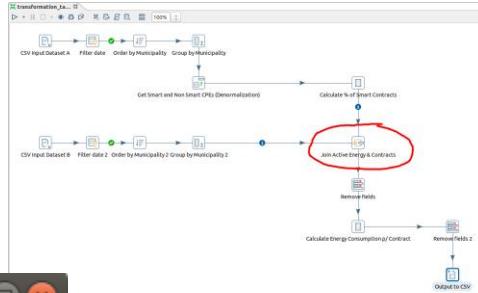


Examine preview data

Rows of step: Group by Municipality 2 (278 rows)

	Municipality	Active Energy (kwh)
1	Abrantes	4301711.0
2	Aguiar da Beira	457087.0
3	Alandroal	827982.0
4	Albergaria-a-Velha	3704565.0
5	Albufeira	11996087.0
6	Alcanena	1959884.0
7	Alcobaça	8415602.0
8	Alcochete	2596452.0
9	Alcoutim	220503.0
10	Alcácer do Sal	2333015.0
11	Alenquer	4757070.0
12	Alfândega da Fé	302471.0
13	Alijó	800888.0
14	Aljezur	773866.0
15	Aljustrel	1607215.0
16	Almada	12926952.0
17	Almeida	547375.0
18	Almeirim	2279284.0
19	Almodôvar	662982.0
20	Alpiarça	990115.0
21	Alter do Chão	318636.0
22	Alvaiázere	525870.0
23	Alvito	538495.0
24	Amadora	10614979.0
25	Amarante	3723051.0
26	Amares	1621765.0
27	Anadia	3150888.0
28	Ansião	1249714.0
29	Arcos de Valdevez	2387321.0
30	Arganil	1003398.0
31	Armamar	677031.0
32	Arouca	1807586.0

# Join Active Energy & Contracts | Configuration



Merge join

Step name: **Join Active Energy & Contracts**

First Step: Group by Municipality 2

Second Step: Calculate % of Smart Contracts

Join Type: INNER

Keys for 1st step:

▼ Key field
1 Municipality

Keys for 2nd step:

▼ Key field
1 Municipality

Get key fields

Get key fields

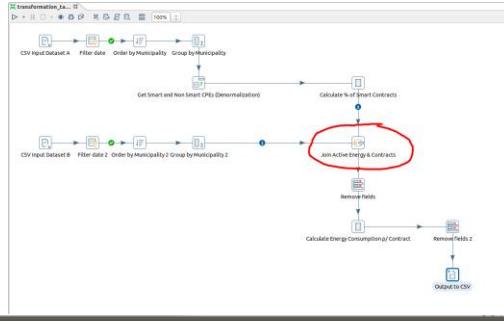
?

Help

OK

Cancel

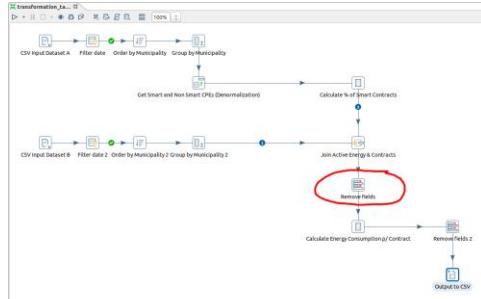
# Join Active Energy & Contracts | Preview



Examine preview data

	Municipality	Active Energy (kWh)	Municipality_1	Number of Smart Contracts	Number of Non Smart Contracts	Percentage of Smart Contracts	Total Contracts
1	Abrantes	4301711.0	Abrantes	21855.0	2808.0	88.61%	24663
2	Aguiar da Beira	457087.0	Aguiar da Beira	4796.0	30.0	99.38%	4826
3	Alandroal	827982.0	Alandroal	3237.0	772.0	80.74%	4009
4	Albergaria-a-Velha	3704565.0	Albergaria-a-Velha	13437.0	460.0	96.69%	13897
5	Albufeira	11996087.0	Albufeira	50215.0	3112.0	94.16%	53327
6	Alcanena	1959884.0	Alcanena	7629.0	380.0	95.26%	8009
7	Alcobaça	8415602.0	Alcobaça	35902.0	2429.0	93.66%	38331
8	Alcochete	2596452.0	Alcochete	11491.0	8.0	99.93%	11499
9	Alcoutim	220503.0	Alcoutim	2738.0	857.0	76.16%	3595
10	Alcácer do Sal	2333015.0	Alcácer do Sal	8063.0	80.0	99.02%	8143
11	Alenquer	4757070.0	Alenquer	24343.0	122.0	99.5%	24465
12	Alfândega da Fé	302471.0	Alfândega da Fé	4002.0	64.0	98.43%	4066
13	Alijó	800888.0	Alijó	6889.0	2038.0	77.17%	8927
14	Aljezur	773866.0	Aljezur	5130.0	1305.0	79.72%	6435
15	Aljustrel	1607215.0	Aljustrel	5642.0	224.0	96.18%	5866
16	Almada	12926952.0	Almada	113047.0	2153.0	98.13%	115200
17	Almeida	547375.0	Almeida	6718.0	98.0	98.56%	6816
18	Almeirim	2279284.0	Almeirim	12577.0	1229.0	91.1%	13806
19	Almodôvar	662982.0	Almodôvar	5380.0	118.0	97.85%	5498
20	Alpiarça	990115.0	Alpiarça	4440.0	60.0	98.67%	4500
21	Alter do Chão	318636.0	Alter do Chão	2771.0	32.0	98.86%	2803
22	Alvaiázere	525870.0	Alvaiázere	5691.0	41.0	99.28%	5732
23	Alvito	538495.0	Alvito	1651.0	4.0	99.76%	1655
24	Amadora	10614979.0	Amadora	96788.0	1157.0	98.82%	97945
25	Amarante	3723051.0	Amarante	24481.0	6725.0	78.45%	31206
26	Amares	1621765.0	Amares	10586.0	536.0	95.18%	11122
27	Anadia	3150888.0	Anadia	14682.0	2189.0	87.03%	16871
28	Ansião	1249714.0	Ansião	8776.0	46.0	99.48%	8822
29	Arcos de Valdevez	2387321.0	Arcos de Valdevez	17781.0	892.0	95.22%	18673
30	Arganil	1003398.0	Arganil	7410.0	3524.0	67.77%	10934
31	Armamar	677031.0	Armamar	4962.0	48.0	99.04%	5010
32	Arouca	1807586.0	Arouca	9682.0	2655.0	78.48%	12337

# Remove Fields | Configuration



Select values

Step name **Remove fields**

Select & Alter **Remove** Meta-data

Fields to remove :

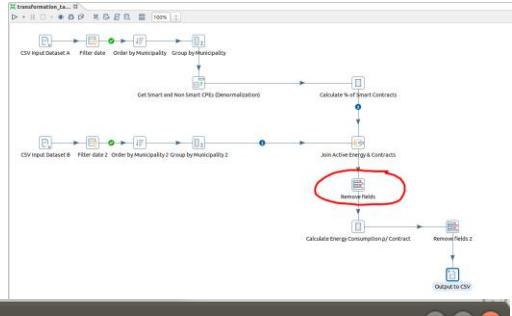
Fieldname
1 Municipality_1
2 Number of Non Smart Contracts
3 Number of Smart Contracts

**Get fields to remove**

OK Cancel

Help

# Remove Fields | Preview



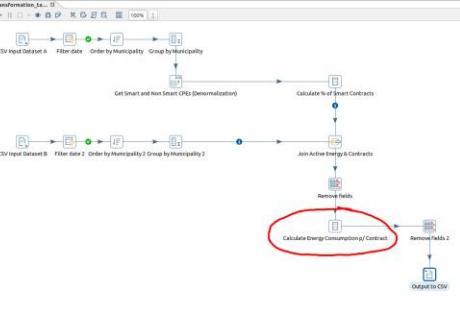
Examine preview data

Rows of step: Remove fields (278 rows)

	Municipality	Active Energy (kWh)	Percentage of Smart Contracts	Total Contracts
1	Abrantes	4301711.0	88.61%	24663
2	Aguiar da Beira	457087.0	99.38%	4826
3	Alandroal	827982.0	80.74%	4009
4	Albergaria-a-Velha	3704565.0	96.69%	13897
5	Albufeira	11996087.0	94.16%	53327
6	Alcanena	1959884.0	95.26%	8009
7	Alcobaça	8415602.0	93.66%	38331
8	Alcochete	2596452.0	99.93%	11499
9	Alcoutim	220503.0	76.16%	3595
10	Alcácer do Sal	2333015.0	99.02%	8143
11	Alenquer	4757070.0	99.5%	24465
12	Alfândega da Fé	302471.0	98.43%	4066
13	Alijó	800888.0	77.17%	8927
14	Aljezur	773866.0	79.72%	6435
15	Aljustrel	1607215.0	96.18%	5866
16	Almada	12926952.0	98.13%	115200
17	Almeida	547375.0	98.56%	6816
18	Almeirim	2279284.0	91.1%	13806
19	Almodôvar	662982.0	97.85%	5498
20	Alpiarça	990115.0	98.67%	4500
21	Alter do Chão	318636.0	98.86%	2803
22	Alvaiázere	525870.0	99.28%	5732
23	Alvito	538495.0	99.76%	1655
24	Amadora	10614979.0	98.82%	97945
25	Amarante	3723051.0	78.45%	31206
26	Amares	1621765.0	95.18%	11122
27	Anadia	3150888.0	87.03%	16871
28	Ansião	1249714.0	99.48%	8822
29	Arcos de Valdevez	2387321.0	95.22%	18673
30	Arganil	1003398.0	67.77%	10934
31	Armamar	677031.0	99.04%	5010
32	Arouca	1807586.0	78.48%	12337

# Calculate Energy Consumption p/ Contract

## - Configuration



**Calculator**

Step name

Throw an error on non existing files

Fields:

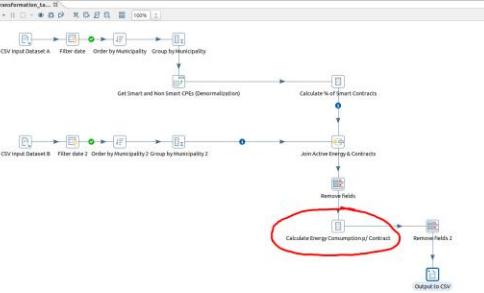
	New field	Calculation	Field A	Field B	Field C	Value type	Length	Precision	Remove	Conversion mask	Deci
1	Average Energy Consumption p/ Contract (kWh)	A / B	Active Energy (kWh)	Total Contracts		Number			N	#####.##	

# Calculate Energy Consumption p/ Contract

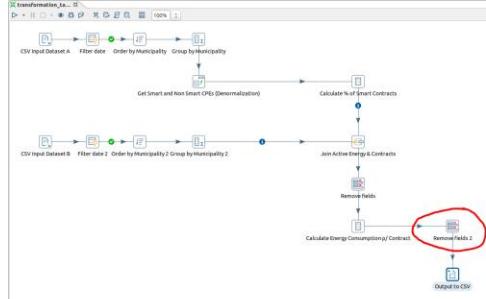
## Preview

Examine preview data

Rows of step: Calculate Energy Consumption p/ Contract (278 rows)					Average Energy Consumption p/ Contract (kWh)
	Municipality	Active Energy (kWh)	Percentage of Smart Contracts	Total Contracts	
1	Abrantes	4301711.0	88.61%	24663	174.42
2	Aguiar da Beira	457087.0	99.38%	4826	94.71
3	Alandroal	827982.0	80.74%	4009	206.53
4	Albergaria-a-Velha	3704565.0	96.69%	13897	266.57
5	Albufeira	11996087.0	94.16%	53327	224.95
6	Alcanena	1959884.0	95.26%	8009	244.71
7	Alcobaça	8415602.0	93.66%	38331	219.55
8	Alcochete	2596452.0	99.93%	11499	225.8
9	Alcoutim	220503.0	76.16%	3595	61.34
10	Alcácer do Sal	2333015.0	99.02%	8143	286.51
11	Alenquer	4757070.0	99.5%	24465	194.44
12	Alfândega da Fé	302471.0	98.43%	4066	74.39
13	Alijó	800888.0	77.17%	8927	89.72
14	Aljezur	773866.0	79.72%	6435	120.26
15	Aljustrel	1607215.0	96.18%	5866	273.99
16	Almada	12926952.0	98.13%	115200	112.21
17	Almeida	547375.0	98.56%	6816	80.31
18	Almeirim	2279284.0	91.1%	13806	165.09
19	Almodôvar	662982.0	97.85%	5498	120.59
20	Alpiarça	990115.0	98.67%	4500	220.03
21	Alter do Chão	318636.0	98.86%	2803	113.68
22	Alvaiázere	525870.0	99.28%	5732	91.74
23	Alvito	538495.0	99.76%	1655	325.37
24	Amadora	10614979.0	98.82%	97945	108.38
25	Amarante	3723051.0	78.45%	31206	119.31
26	Amares	1621765.0	95.18%	11122	145.82
27	Anadia	3150888.0	87.03%	16871	186.76
28	Ansião	1249714.0	99.48%	8822	141.66
29	Arcos de Valdevez	2387321.0	95.22%	18673	127.85
30	Arganil	1003398.0	67.77%	10934	91.77
31	Armamar	677031.0	99.04%	5010	135.14
32	Arouca	1807586.0	78.48%	12337	146.52



# Remove Fields 2 | Configuration



Select values

Step name **Remove fields 2**

Select & Alter Remove Meta-data

Fields to remove :

▼ Fieldname

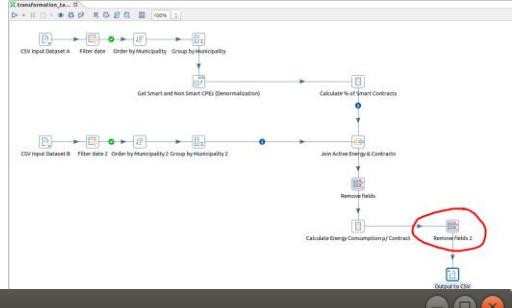
1 Active Energy (kWh)
2 Total Contracts

**Get fields to remove**

OK Cancel

Help

# Remove Fields 2 | Preview

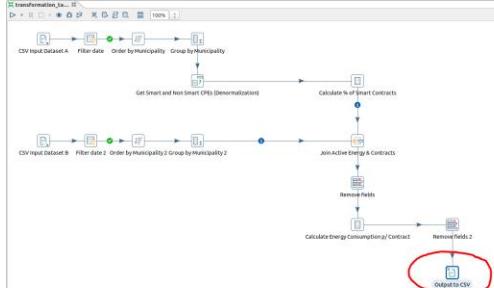


Examine preview data

Rows of step: Remove fields 2 (278 rows)

	Municipality	Percentage of Smart Contracts	Average Energy Consumption p/ Contract (kWh)
1	Abrantes	88.61%	174.42
2	Aguiar da Beira	99.38%	94.71
3	Alandroal	80.74%	206.53
4	Albergaria-a-Velha	96.69%	266.57
5	Albufeira	94.16%	224.95
6	Alcanena	95.26%	244.71
7	Alcobaça	93.66%	219.55
8	Alcochete	99.93%	225.8
9	Alcoutim	76.16%	61.34
10	Alcácer do Sal	99.02%	286.51
11	Alenquer	99.5%	194.44
12	Alfândega da Fé	98.43%	74.39
13	Alijó	77.17%	89.72
14	Aljezur	79.72%	120.26
15	Aljustrel	96.18%	273.99
16	Almada	98.13%	112.21
17	Almeida	98.56%	80.31
18	Almeirim	91.1%	165.09
19	Almodôvar	97.85%	120.59
20	Alpiarça	98.67%	220.03
21	Alter do Chão	98.86%	113.68
22	Alvaiázere	99.28%	91.74
23	Alvito	99.76%	325.37
24	Amadora	98.82%	108.38
25	Amarante	78.45%	119.31
26	Amares	95.18%	145.82
27	Anadia	87.03%	186.76
28	Ansião	99.48%	141.66
29	Arcos de Valdevez	95.22%	127.85
30	Arganil	67.77%	91.77
31	Armamar	99.04%	135.14
32	Arouca	78.48%	146.52

# Output to CSV | Configuration (1/3)



Text file output

Step name **Output to CSV**

File Content Fields

Filename

Pass output to servlet

Create Parent folder

Do not create file at start

Accept file name from field?

File name field

Extension

Include stepnr in filename?

Include partition nr in filename?

Include date in filename?

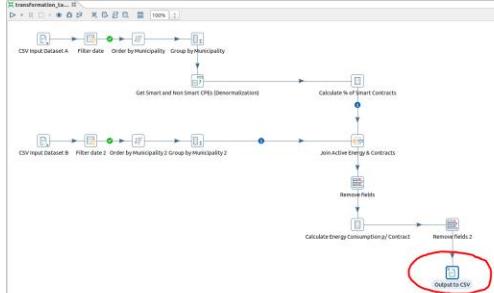
Include time in filename?

Specify Date time format

Date time format

Add filenames to result

# Output to CSV | Configuration (2/3)



Text file output

Step name **Output to CSV**

**File Content Fields**

Append

Separator  ; Insert TAB

Enclosure  " \$

Force the enclosure around fields?

Disable the enclosure fix?

Header

Footer

Format  CR+LF terminated (Windows, DOS) ▼

Compression  None ▼

Encoding  UTF-8 ▼

Right pad fields

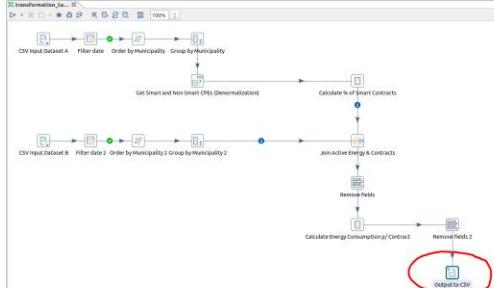
Fast data dump (no formatting)

Split every ... rows  \$

Add Ending line of file  \$

(?) Help OK Cancel

# Output to CSV | Configuration (3/3)



Text file output

Step name **Output to CSV**

File Content Fields

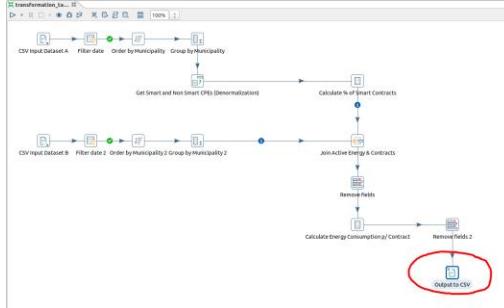
Name	Type	Format	Length	Precision	Currency	Decim
1 Municipality	String		22			
2 Percentage of Smart Contracts	Number	#.#####				
3 Average Energy Consumption p/ Contract (kWh)	Number	#####.##				

Get Fields Minimal width

OK Cancel

Help

# Output to CSV | Preview



Examine preview data

Rows of step: Output to CSV (278 rows)

	Municipality	Percentage of Smart Contracts	Average Energy Consumption p/ Contract (kWh)
1	Abrantes	88.61%	174.42
2	Aguiar da Beira	99.38%	94.71
3	Alandroal	80.74%	206.53
4	Albergaria-a-Velha	96.69%	266.57
5	Albufeira	94.16%	224.95
6	Alcanena	95.26%	244.71
7	Alcobaça	93.66%	219.55
8	Alcochete	99.93%	225.8
9	Alcoutim	76.16%	61.34
10	Alcácer do Sal	99.02%	286.51
11	Alenquer	99.5%	194.44
12	Alfândega da Fé	98.43%	74.39
13	Alijó	77.17%	89.72
14	Aljezur	79.72%	120.26
15	Aljustrel	96.18%	273.99
16	Almada	98.13%	112.21
17	Almeida	98.56%	80.31
18	Almeirim	91.1%	165.09
19	Almodôvar	97.85%	120.59
20	Alpiarça	98.67%	220.03
21	Alter do Chão	98.86%	113.68
22	Alvaiázere	99.28%	91.74
23	Alvito	99.76%	325.37
24	Amadora	98.82%	108.38
25	Amarante	78.45%	119.31
26	Amares	95.18%	145.82
27	Anadia	87.03%	186.76
28	Ansião	99.48%	141.66
29	Arcos de Valdevez	95.22%	127.85
30	Arganil	67.77%	91.77
31	Armamar	99.04%	135.14
32	Arouca	78.48%	146.52

# Output File

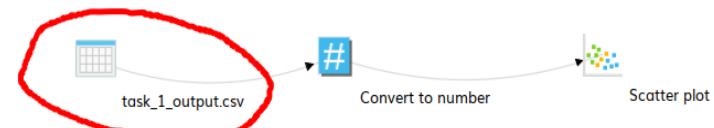
Municipality	Percentage of Smart Contracts	Average Energy Consumption p/ Contract (kwh)
Abrantes	0.8861	174.42
Aguilar da Beira	0.9938	94.71
Alandroal	0.8074	206.53
Albergaria-a-Velha	0.9669	266.57
Albufeira	0.9416	224.95
Alcanena	0.9526	244.71
Alcobaça	0.9366	219.55
Alcochete	0.9993	225.8
Alcoutim	0.7616	61.34
Alcácer do Sal	0.9902	286.51
Alenquer	0.995	194.44
Alfândega da Fé	0.9843	74.39
Alijó	0.7717	89.72
Aljezur	0.7972	120.26
Aljustrel	0.9618	273.99
Almada	0.9813	112.21
Almeida	0.9856	80.31
Almeirim	0.911	165.09
Almodôvar	0.9785	120.59
Alpiarça	0.9867	220.03
Alter do Chão	0.9886	113.68
Alvaiázere	0.9928	91.74
Alvito	0.9976	325.37
Amadora	0.9882	108.38
Amarante	0.7845	119.31
Amares	0.9518	145.82
Anadia	0.8703	186.76
Ansião	0.9948	141.66
Arcos de Valdevez	0.9522	127.85
Arganil	0.6777	91.77
Armamar	0.9904	135.14
Arouca	0.7848	146.52
Arratios	0.8439	191.25
Arronches	0.85	173.86
Arruda dos Vinhos	0.9952	166.98
Aveiro	0.9971	225.01
Avis	0.9954	367.81
Azambuja	0.9934	442.5
Baía	0.9401	88.21
Barcelos	0.8871	222.58
Barrancos	0.9819	157.07
Barreiro	0.9963	100.16
Batalha	0.9993	243.85
Beja	0.996	240
Belmonte	0.9786	98.21
Benavente	0.9701	308.18
Bombarral	0.9944	141.68
Borba	0.7399	158.78
Boticas	0.8823	98.68
Braga	0.9328	205.27
Bragança	0.9104	132.08
Cabeceiras de Basto	0.8926	93.65
Cadaval	0.8847	136.37
Caldas da Rainha	0.9955	153.66
Caminha	0.9826	89.03
Campo Maior	0.984	311.84
Cantanhede	0.9041	148.08
Carrazeda de Ansiães	0.994	73.97
Carregal do Sal	0.9749	152.77
Cartaxo	0.9664	209.69

# **Task 2**

# DataCleaner Analysis Job



# Import CSV File | Configuration



task\_1\_output.csv | DataCleaner

task\_1\_output.csv

output.task\_1\_output.csv

Name	Type
Percentage of Smart Contracts	String
Average Energy Consumption p/ Contra...	String

**X Close**

The screenshot shows the DataCleaner interface with a file named "task\_1\_output.csv" loaded. A new output file, "output.task\_1\_output.csv", is being created. This output file contains two string columns: "Percentage of Smart Contracts" and "Average Energy Consumption p/ Contra...". A "Close" button is visible at the bottom left.

# Convert to Numbers | Configuration



Convert to number | DataCleaner

### Convert to number

Documentation    Rename

#### Input columns

Input: Select all Select none

Percentage of Smart Contracts  
 Average Energy Consumption p/ Contract (kWh)

#### Required properties

Decimal separator:  ,

Minus sign:  -

Thousand separator:  ,

#### Optional properties (1)

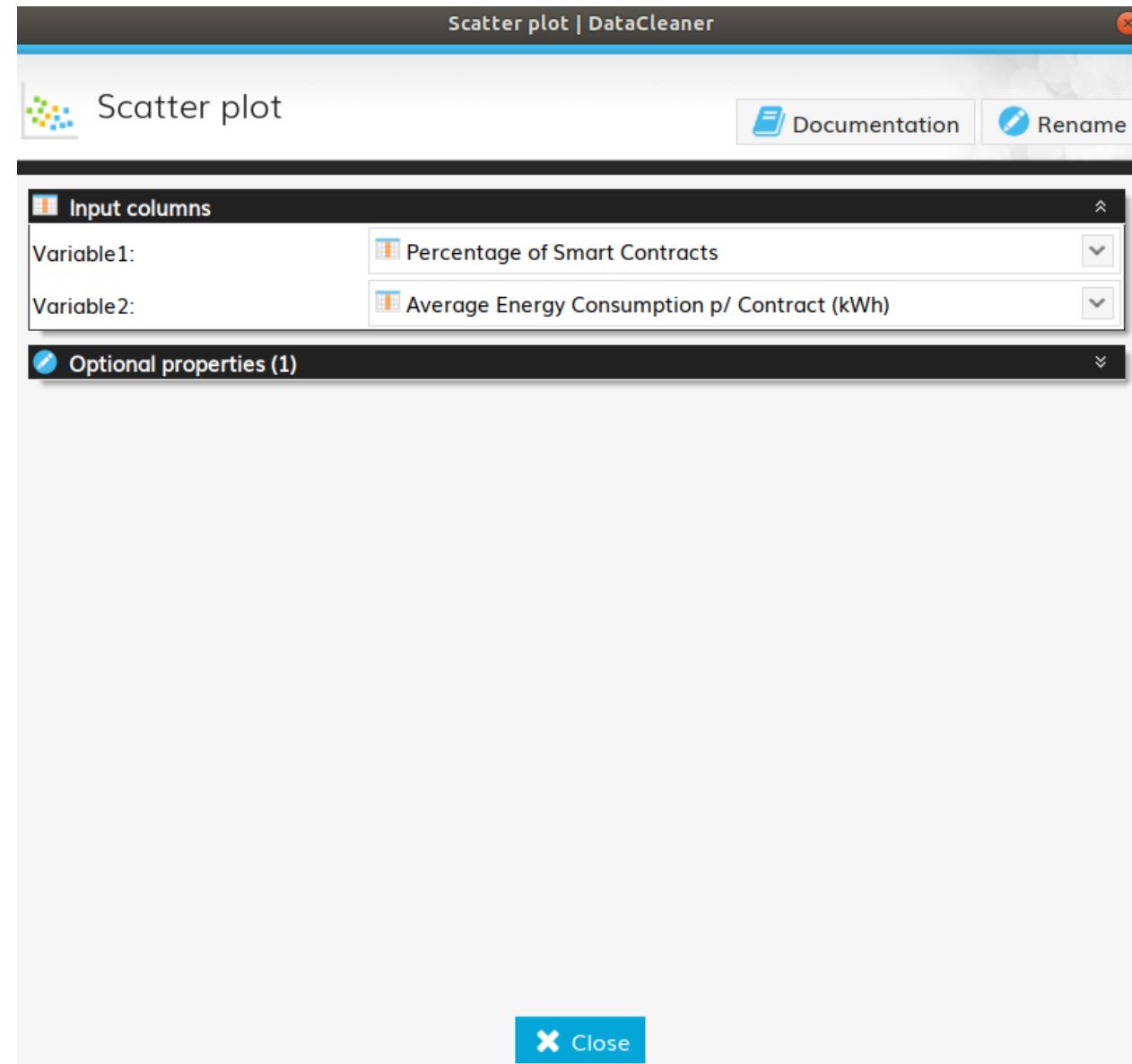
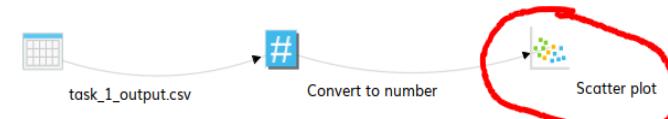
#### Output columns

Name	Type
<input checked="" type="checkbox"/> Percentage of Smart Contracts	<input checked="" type="radio"/> Number
<input checked="" type="checkbox"/> Average Energy Consumption p/ Contract (kWh)	<input checked="" type="radio"/> Number

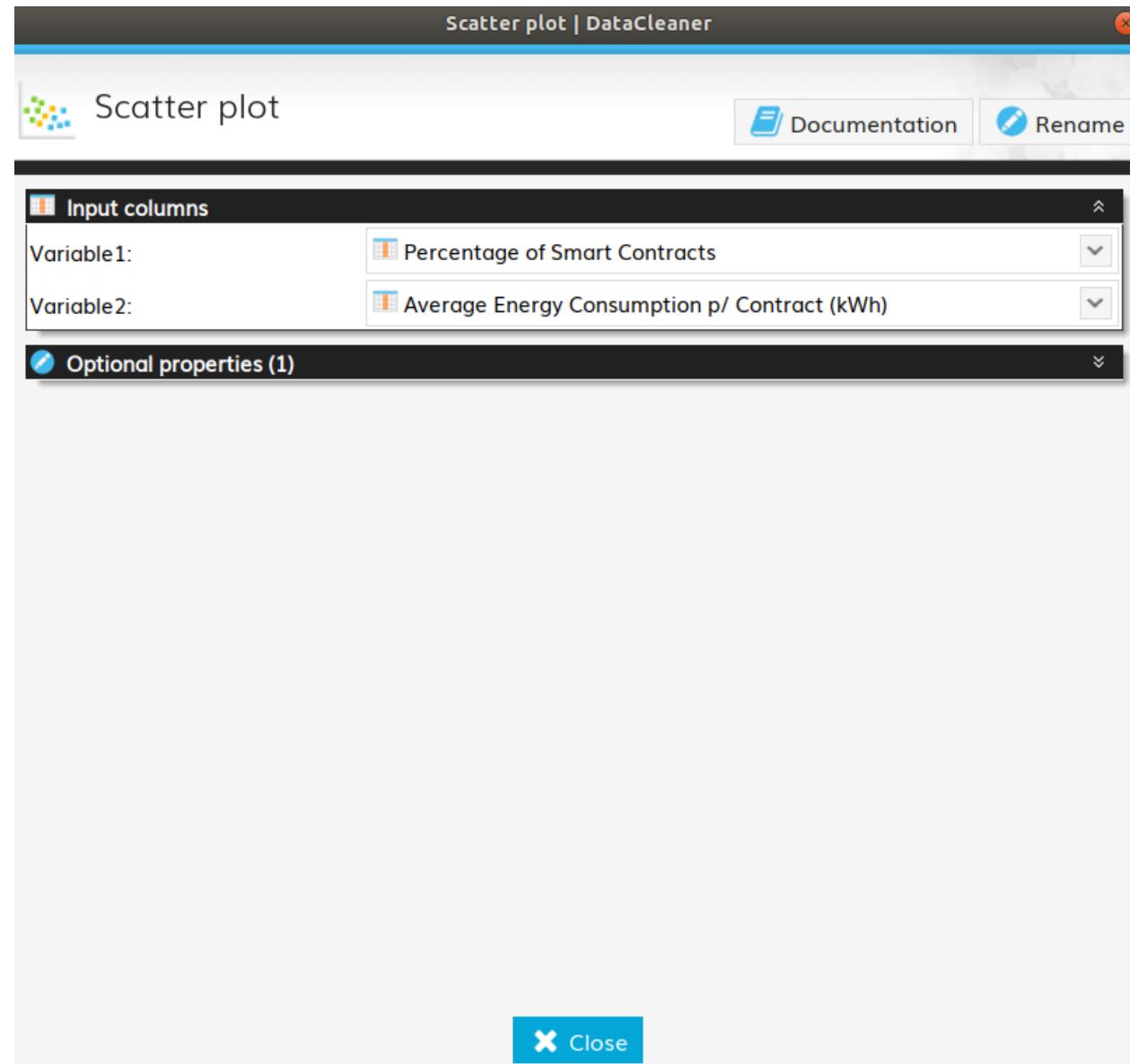
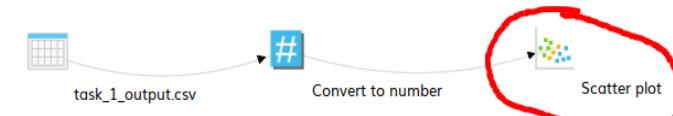
Write data    Preview data | ▾

Close

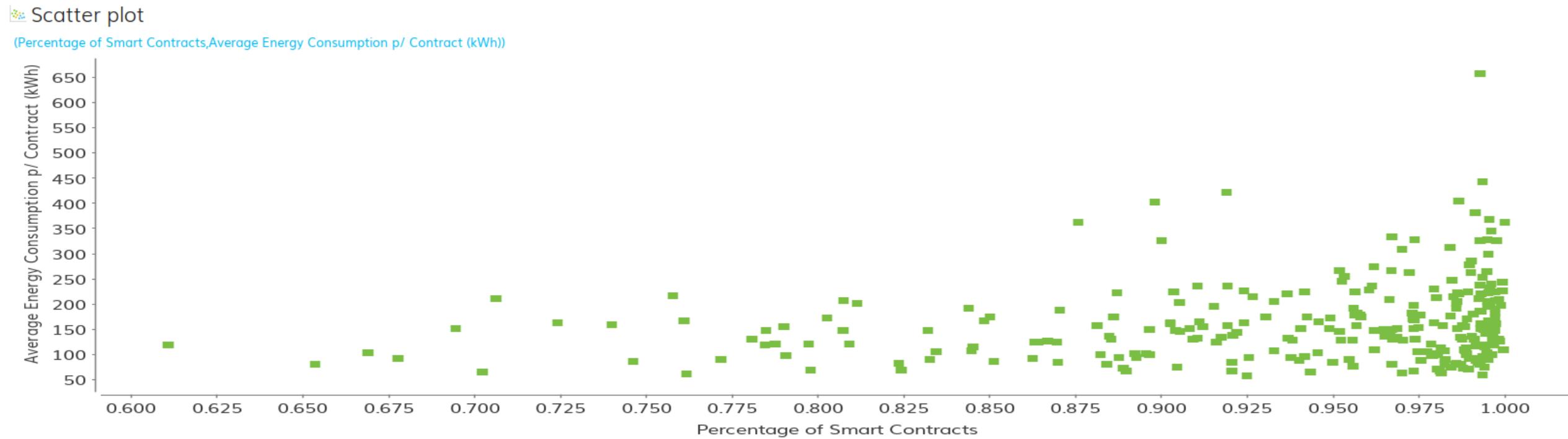
# Scatter Plot | Configuration



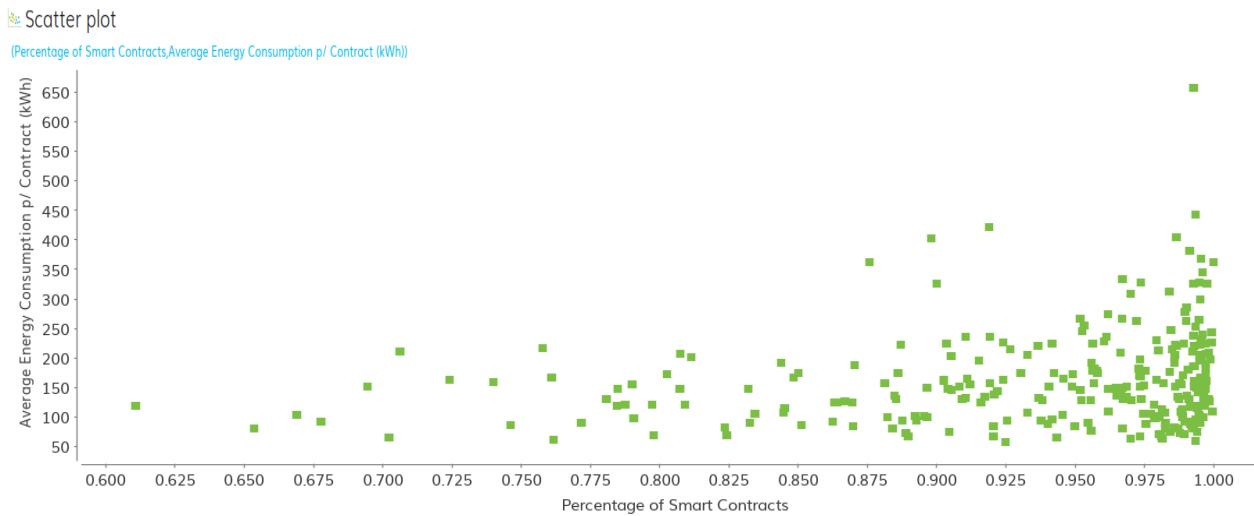
# Scatter Plot | Configuration



# Final Plot



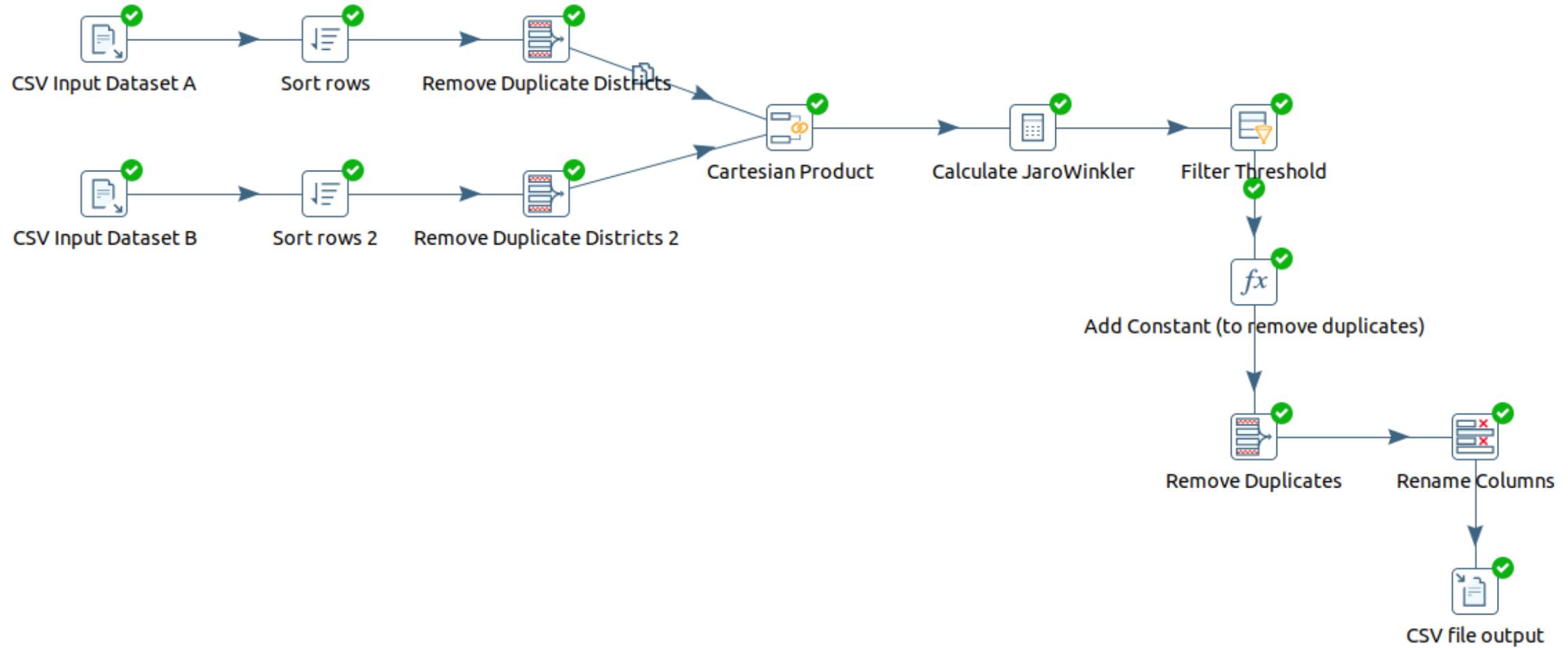
# Final Plot | Considerations

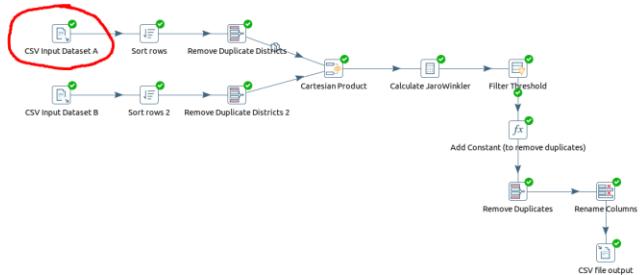


- There seems to exist a **weak positive correlation** between the percentage of smart meters and the average energy consumption per contract.
- As the percentage of smart meters **increases**, the average energy consumption per contract appears to **increase as well**
- **However, the relationship isn't linear**, as there are many points scattered with varying consumption values for similar percentages.
- Therefore, we can state that **there is a positive correlation** between the number of smart contracts and the energy consumption per contract, **but it is a weak correlation**

# **Task 3**

# Transformation





# CSV Input Dataset A | Configuration

**CSV file input**

Step name: **CSV Input Dataset A**

Filename: **/home/aid/adi-project/data/21-contadores-de-energia.csv**

Delimiter: **;**

Enclosure: **"**

NIO buffer size: **50000**

Lazy conversion?

Header row present?

Add filename to result

The row number field name (optional):

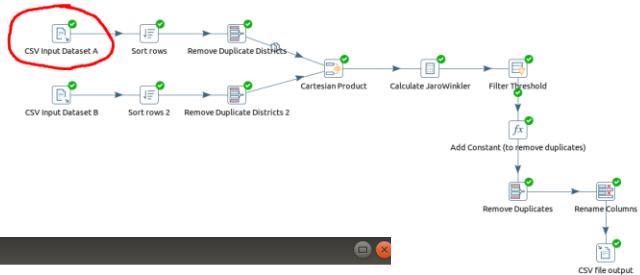
Running in parallel?

New line possible in fields?

Format: **mixed**

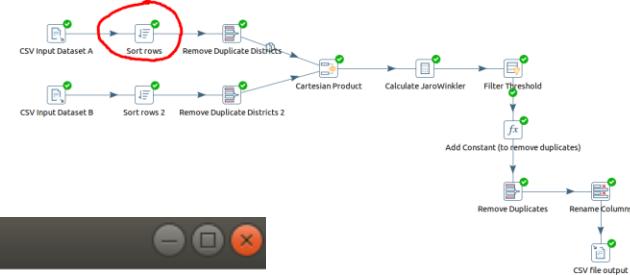
File encoding: **UTF-8**

Name	Type	Format	Length	Precision	Currency	Decimal	Group	Trim type
1	District	String		16	.	,		none



# CSV Input Dataset A | Preview

Examine preview data	
Rows of step: CSV Input Dataset A (1000 rows)	
▼	District
1	GUARDA
2	SANTAREM
3	SETUBAL
4	VISEU
5	BRAGA
6	BRAGANCA
7	VILA REAL
8	LISBOA
9	VIANA DO CASTELO
10	GUARDA
11	VIANA DO CASTELO
12	VISEU
13	LEIRIA
14	VIANA DO CASTELO
15	BRAGANCA
16	PORTO
17	COIMBRA
18	LEIRIA
19	CASTELO BRANCO
20	LEIRIA
21	LISBOA
22	BRAGA
23	VISEU
24	GUARDA
25	VISEU
26	GUARDA
27	PORTO
28	AVEIRO
29	VISEU
30	LEIRIA
31	VISEU
32	BRAGA
33	CASTELO BRANCO
34	BRAGA
35	VIANA DO CASTELO
36	VIANA DO CASTELO
37	BRAGANCA
38	BRAGANCA
39	GUARDA
40	GUARDA
41	GUARDA
42	PORTO
43	SANTAREM
44	SANTAREM
45	COIMBRA



# Sort Rows | Configuration

**Sort rows**

Step name **Sort rows**

Sort directory **%%java.io.tmpdir%%**

TMP-file prefix **out**

Sort size (rows in memory) **1000000**

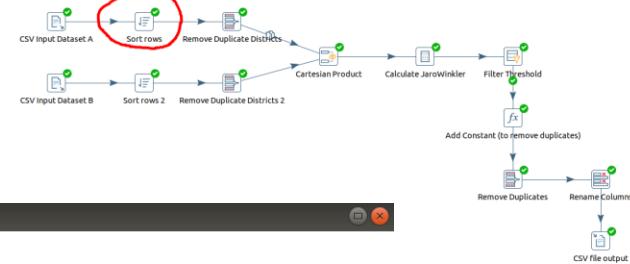
Free memory threshold (in %)

Compress TMP Files?

Only pass unique rows? (verifies keys only)

Fields :

▼	Fieldname	Ascending	Case sensitive compare?	Sort based on current locale?	Collator Strength	Presorted?
1	District	Y	N	N	0	N

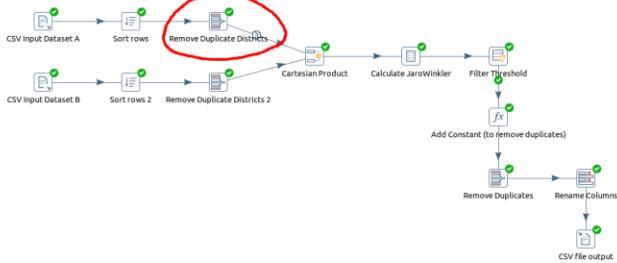


# Sort Rows | Preview

Examine preview data

Rows of step: Sort rows (1000 rows)

	District
1	<null>
2	AVEIRO
3	AVEIRO
4	AVEIRO
5	AVEIRO
6	AVEIRO
7	AVEIRO
8	AVEIRO
9	AVEIRO
10	AVEIRO
11	AVEIRO
12	AVEIRO
13	AVEIRO
14	AVEIRO
15	AVEIRO
16	AVEIRO
17	AVEIRO
18	AVEIRO
19	AVEIRO
20	AVEIRO
21	AVEIRO
22	AVEIRO
23	AVEIRO
24	AVEIRO
25	AVEIRO
26	AVEIRO
27	AVEIRO
28	AVEIRO
29	AVEIRO
30	AVEIRO
31	AVEIRO
32	AVEIRO
33	AVEIRO
34	AVEIRO
35	AVEIRO
36	AVEIRO
37	AVEIRO
38	AVEIRO
39	AVEIRO
40	AVEIRO
41	AVEIRO
42	AVEIRO
43	AVEIRO
44	AVEIRO
45	AVEIRO



# Remove Duplicate Districts | Configuration

Unique rows

Step name **Remove Duplicate Districts**

Settings

Add counter to output?  Counter field

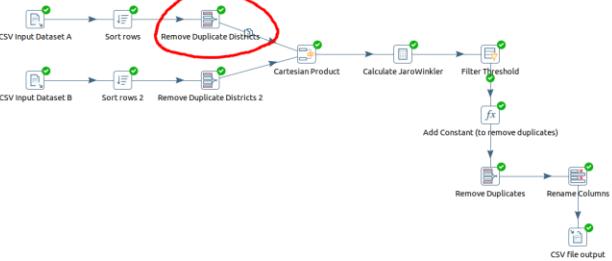
Redirect duplicate row  Error description

Fields to compare on (no entries means: compare complete row)

▼	Fieldname	Ignore case
1	District	N

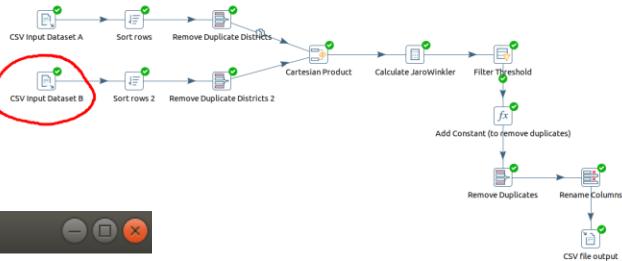
Help OK Cancel Get

# Remove Duplicate Districts | Preview



Examine preview data	
	Rows of step: Remove Duplicate Districts (19 rows)
1	<null>
2	AVEIRO
3	BEJA
4	BRAGA
5	BRAGANCA
6	CASTELO BRANCO
7	COIMBRA
8	EVORA
9	FARO
10	GUARDA
11	LEIRIA
12	LISBOA
13	PORTALEGRE
14	PORTO
15	SANTAREM
16	SETUBAL
17	VIANA DO CASTELO
18	VILA REAL
19	VIDRAX

# CSV Input Dataset B | Configuration



CSV file input

Step name **CSV Input Dataset B**

Filename

Delimiter

Enclosure

NIO buffer size

Lazy conversion?

Header row present?

Add filename to result

The row number field name (optional)

Running in parallel?

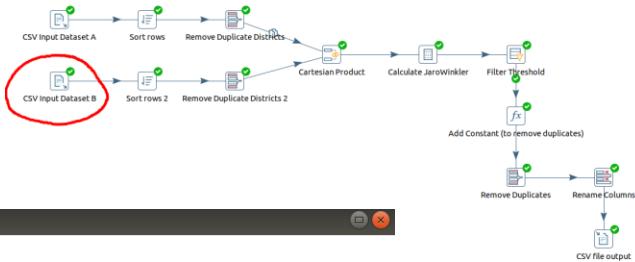
New line possible in fields?

Format

File encoding

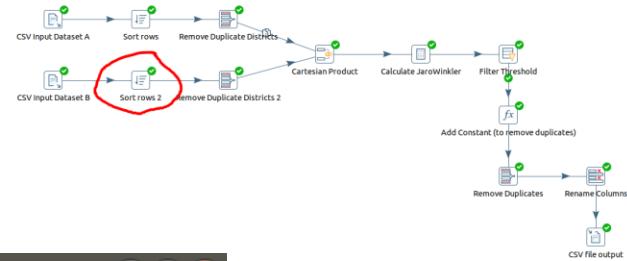
Name	Type	Format	Length	Precision	Currency	Decimal	Group	Trim type
1 District	String		16			.	,	none

# CSV Input Dataset B | Preview



Examine preview data	
Rows of step: CSV Input Dataset B (1000 rows)	
▼	District
1	SANTAREM
2	VISEU
3	VISEU
4	AVEIRO
5	BRAGA
6	BRAGA
7	COIMBRA
8	GUARDA
9	PORTO
10	SANTAREM
11	SANTAREM
12	VIANA DO CASTELO
13	VISEU
14	AVEIRO
15	CASTELO BRANCO
16	COIMBRA
17	GUARDA
18	SANTAREM
19	SETUBAL
20	BRAGA
21	EVORA
22	GUARDA
23	GUARDA
24	LISBOA
25	LISBOA
26	PORTO
27	PORTO
28	SETUBAL
29	VIANA DO CASTELO
30	VILA REAL
31	VISEU
32	BRAGA
33	GUARDA
34	GUARDA
35	LISBOA
36	PORTO
37	PORTO
38	VIANA DO CASTELO
39	VIANA DO CASTELO
40	VIANA DO CASTELO
41	BEJA
42	BRAGA
43	BRAGA
44	BRAGA
45	BRAGANCA

# Sort Rows 2 | Configuration



Sort rows

Step name **Sort rows 2**

Sort directory `%%java.io.tmpdir%%`

TMP-file prefix `out`

Sort size (rows in memory) `1000000`

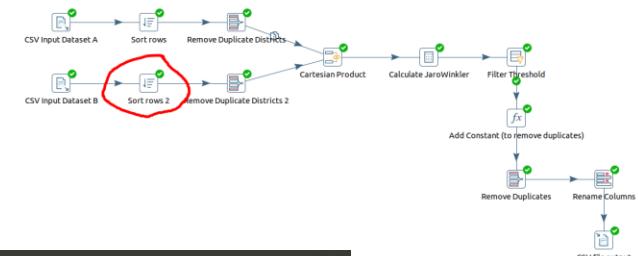
Free memory threshold (in %)

Compress TMP Files?

Only pass unique rows? (verifies keys only)

Fields :

▼	Fieldname	Ascending	Case sensitive compare?	Sort based on current locale?	Collator Strength	Presorted?
1	District	Y	N	N	0	N



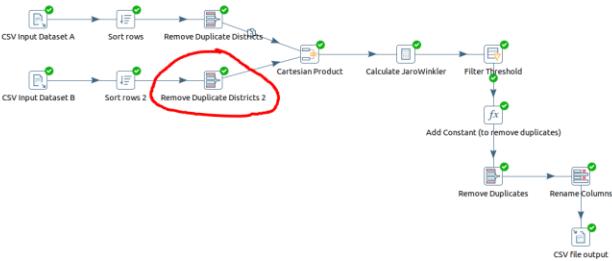
# Sort Rows 2 | Preview

Examine preview data

Rows of step: Sort rows 2 (1000 rows)

	District
1	AVEIRO
2	AVEIRO
3	AVEIRO
4	AVEIRO
5	AVEIRO
6	AVEIRO
7	AVEIRO
8	AVEIRO
9	AVEIRO
10	AVEIRO
11	AVEIRO
12	AVEIRO
13	AVEIRO
14	AVEIRO
15	AVEIRO
16	AVEIRO
17	AVEIRO
18	AVEIRO
19	AVEIRO
20	AVEIRO
21	AVEIRO
22	AVEIRO
23	AVEIRO
24	AVEIRO
25	AVEIRO
26	AVEIRO
27	AVEIRO
28	AVEIRO
29	AVEIRO
30	AVEIRO
31	AVEIRO
32	AVEIRO
33	AVEIRO
34	AVEIRO
35	AVEIRO
36	AVEIRO
37	AVEIRO
38	AVEIRO
39	AVEIRO
40	AVEIRO
41	AVEIRO
42	AVEIRO
43	AVEIRO
44	AVEIRO
45	AVEIRO

# Remove Duplicate Districts 2 | Configuration



Unique rows

Step name **Remove Duplicate Districts 2**

Settings

Add counter to output?  Counter field

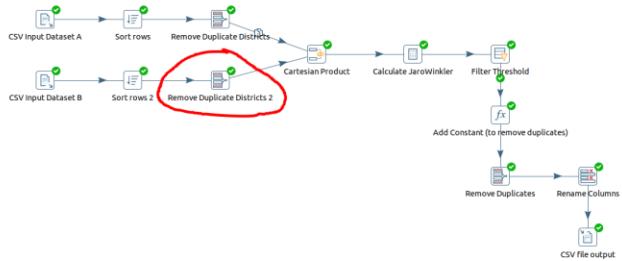
Redirect duplicate row  Error description

Fields to compare on (no entries means: compare complete row)

▼	Fieldname	Ignore case
1	District	N

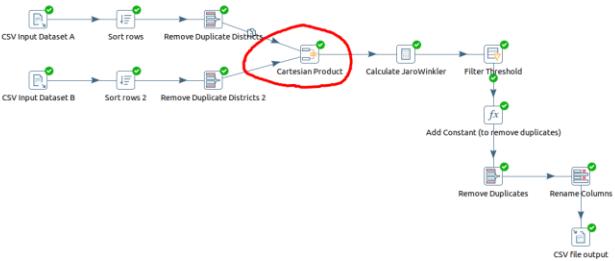
Help OK Cancel Get

# Remove Duplicate Districts 2 | Preview



Rows of step: Remove Duplicate Districts 2 (18 rows)	
	District
1	AVEIRO
2	BEJA
3	BRAGA
4	BRAGANCA
5	CASTELO BRANCO
6	COIMBRA
7	EVORA
8	FARO
9	GUARDA
10	LEIRIA
11	LISBOA
12	PORTALEGRE
13	PORTO
14	SANTAREM
15	SETUBAL
16	VIANA DO CASTELO
17	VILA REAL
18	VISEU

# Cartesian Product | Configuration



Join rows (cartesian product)

Step name

Temp directory  [Browse...](#)

TMP-file prefix

Max. cache size (in rows)

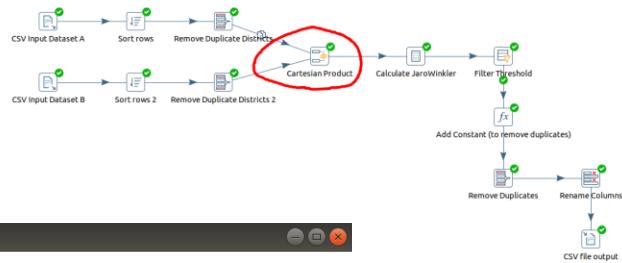
Main step to read from

The condition:

=

[Help](#) [OK](#) [Cancel](#)

# Cartesian Product | Preview

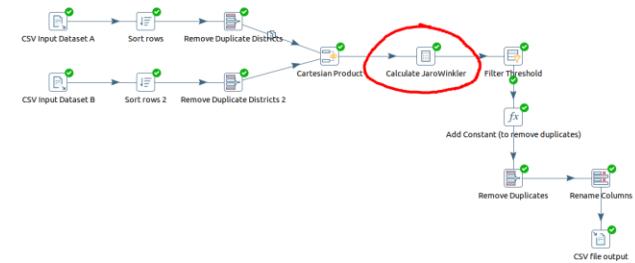


Examine preview data

Rows of step: Cartesian Product (342 rows)

	District	District_1
1	AVEIRO	<null>
2	AVEIRO	AVEIRO
3	AVEIRO	BEJA
4	AVEIRO	BRAGA
5	AVEIRO	BRAGANCA
6	AVEIRO	CASTELO BRANCO
7	AVEIRO	COIMBRA
8	AVEIRO	EVORA
9	AVEIRO	FARO
10	AVEIRO	GUARDA
11	AVEIRO	LEIRIA
12	AVEIRO	LISBOA
13	AVEIRO	PORTALEGRE
14	AVEIRO	PORTO
15	AVEIRO	SANTAREM
16	AVEIRO	SETUBAL
17	AVEIRO	VIANA DO CASTELO
18	AVEIRO	VILA REAL
19	AVEIRO	VISEU
20	BEJA	<null>
21	BEJA	AVEIRO
22	BEJA	BEJA
23	BEJA	BRAGA
24	BEJA	BRAGANCA
25	BEJA	CASTELO BRANCO
26	BEJA	COIMBRA
27	BEJA	EVORA
28	BEJA	FARO
29	BEJA	GUARDA
30	BEJA	LEIRIA
31	BEJA	LISBOA
32	BEJA	PORTALEGRE
33	BEJA	PORTO
34	BEJA	SANTAREM
35	BEJA	SETUBAL
36	BEJA	VIANA DO CASTELO
37	BEJA	VILA REAL
38	BEJA	VISEU
39	BRAGA	<null>
40	BRAGA	AVEIRO
41	BRAGA	BEJA
42	BRAGA	BRAGA
43	BRAGA	BRAGANCA
44	BRAGA	CASTELO BRANCO
45	BRAGA	COIMBRA

# Calculate JaroWinkler | Configuration



Calculator

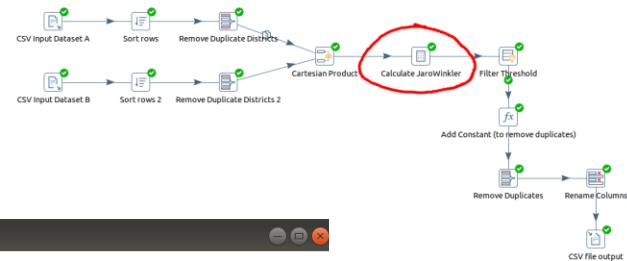
Step name  
Calculate JaroWinkler New

Throw an error on non existing files

Fields:

	New field	Calculation	Field A	Field B	Field C	Value type	Length	Precision	Remove	Conversion mask	Decim.
1	JaroWinkler_Measure	JaroWinkler similitude between String A and String B	District	District_1		None			N		

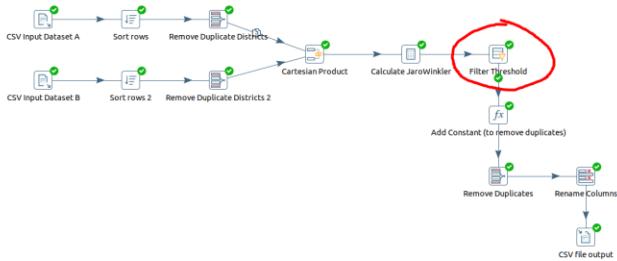
# Calculate JaroWinkler | Preview



Examine preview data

Rows of step: Calculate JaroWinkler (342 rows)

	District	District_1	JaroWinkler_Measure
1	AVEIRO	<null>	<null>
2	AVEIRO	AVEIRO	1.0
3	AVEIRO	BEJA	0.4722222222
4	AVEIRO	BRAGA	0.4555555556
5	AVEIRO	BRAGANCA	0.3611111111
6	AVEIRO	CASTELO BRANCO	0.5674603175
7	AVEIRO	COIMBRA	0.5396825397
8	AVEIRO	EVORA	0.5888888889
9	AVEIRO	FARO	0.75
10	AVEIRO	GUARDA	0.5555555556
11	AVEIRO	LEIRIA	0.6666666667
12	AVEIRO	LISBOA	0.5555555556
13	AVEIRO	PORALEGRE	0.5222222222
14	AVEIRO	PORTO	0.5777777778
15	AVEIRO	SANTAREM	0.5277777778
16	AVEIRO	SETUBAL	0.4365079365
17	AVEIRO	VIANA DO CASTELO	0.5555555556
18	AVEIRO	VILA REAL	0.6203703704
19	AVEIRO	VISEU	0.5888888889
20	BEJA	<null>	<null>
21	BEJA	AVEIRO	0.4722222222
22	BEJA	BEJA	1.0
23	BEJA	BRAGA	0.6333333333
24	BEJA	BRAGANCA	0.5833333333
25	BEJA	CASTELO BRANCO	0.380952381
26	BEJA	COIMBRA	0.0
27	BEJA	EVORA	0.6333333333
28	BEJA	FARO	0.0
29	BEJA	GUARDA	0.4722222222
30	BEJA	LEIRIA	0.6111111111
31	BEJA	LISBOA	0.4722222222
32	BEJA	PORALEGRE	0.45
33	BEJA	PORTO	0.0
34	BEJA	SANTAREM	0.4583333333
35	BEJA	SETUBAL	0.5952380952
36	BEJA	VIANA DO CASTELO	0.4375
37	BEJA	VILA REAL	0.4537037037
38	BEJA	VISEU	0.0
39	BRAGA	<null>	<null>
40	BRAGA	AVEIRO	0.4555555556
41	BRAGA	BEJA	0.6333333333
42	BRAGA	BRAGA	1.0
43	BRAGA	BRAGANCA	0.9375
44	BRAGA	CASTELO BRANCO	0.5142857143
45	BRAGA	COIMBRA	0.4476190476



# Filter Threshold | Configuration

Filter rows

Step name **Filter Threshold**

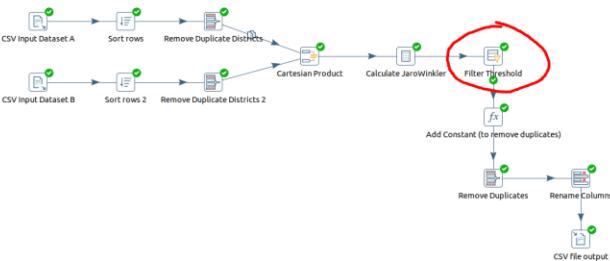
Send 'true' data to step: Add Constant (to remove duplicates)

Send 'false' data to step:

The condition:

JaroWinkler\_Measure > 0 . 95 (Number)

Help OK Cancel



# Filter Threshold | Preview

Examine preview data

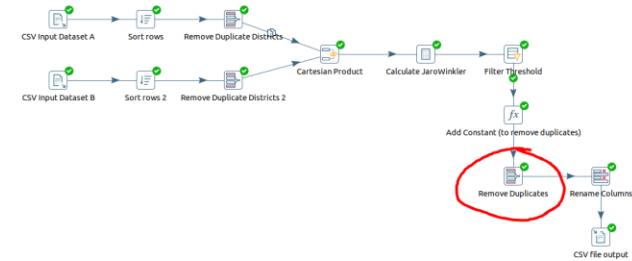
Rows of step: Filter Threshold (18 rows)

	District	District_1	JaroWinkler_Measure
1	AVEIRO	AVEIRO	1.0
2	BEJA	BEJA	1.0
3	BRAGA	BRAGA	1.0
4	BRAGANCA	BRAGANCA	1.0
5	CASTELO BRANCO	CASTELO BRANCO	1.0
6	COIMBRA	COIMBRA	1.0
7	EVORA	EVORA	1.0
8	FARO	FARO	1.0
9	GUARDA	GUARDA	1.0
10	LEIRIA	LEIRIA	1.0
11	LISBOA	LISBOA	1.0
12	PORTALEGRE	PORTALEGRE	1.0
13	PORTO	PORTO	1.0
14	SANTAREM	SANTAREM	1.0
15	SETUBAL	SETUBAL	1.0
16	VIANA DO CASTELO	VIANA DO CASTELO	1.0
17	VILA REAL	VILA REAL	1.0
18	VISEU	VISEU	1.0

# Note

- The next two steps in the transformation process (Add Constant & Remove Duplicates) **are not necessary with the current datasets** (where all the district names match).
- However, if there were similar district names, that would pass the JaroWinkler threshold (for example, Bragança-Braganca), **there would be two pairs of these values (Bragança-Braganca and Braganca-Bragança)**. Therefore, we still included the following two steps.

# Add Constant (to remove duplicates)



## Configuration

Unique rows

Step name **Remove Duplicates**

Settings

Add counter to output?  Counter field

Redirect duplicate row  Error description

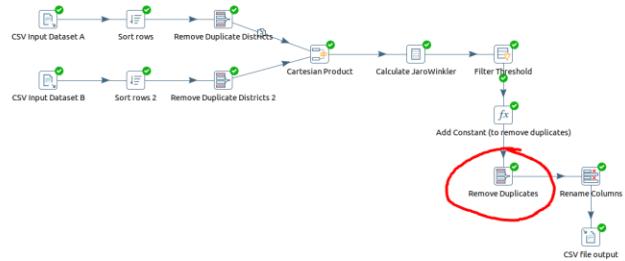
Fields to compare on (no entries means: compare complete row)

▼	Fieldname	Ignore case
1	Ordered_Pair	N

Help OK Cancel Get

# Add Constant (to remove duplicates)

## Preview

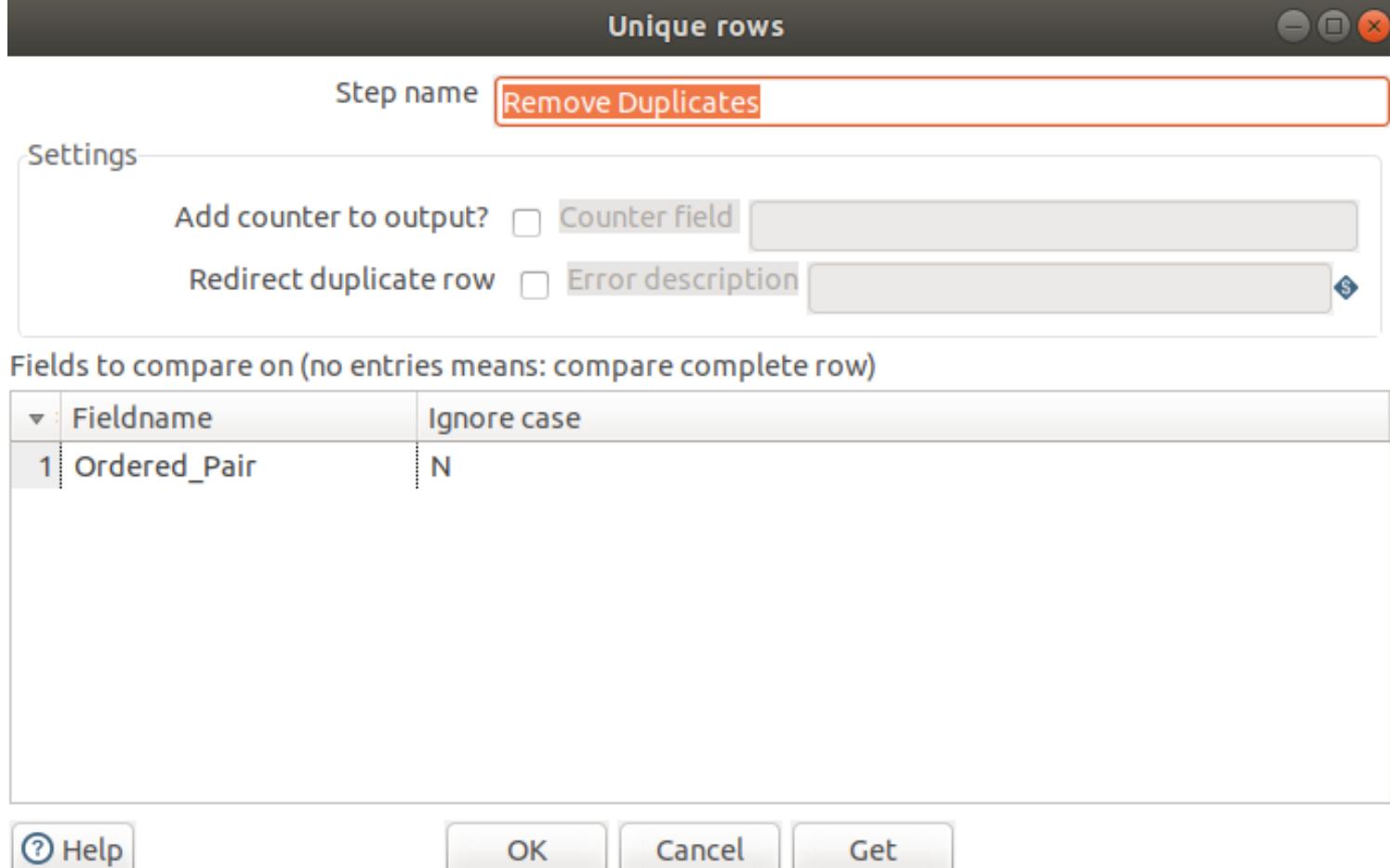
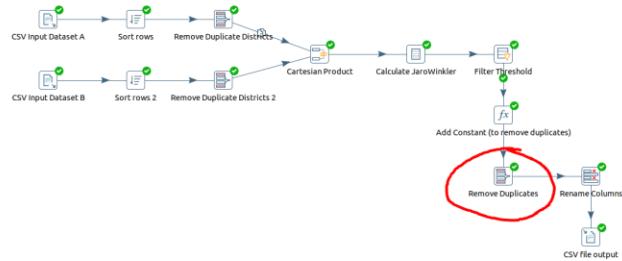


Examine preview data

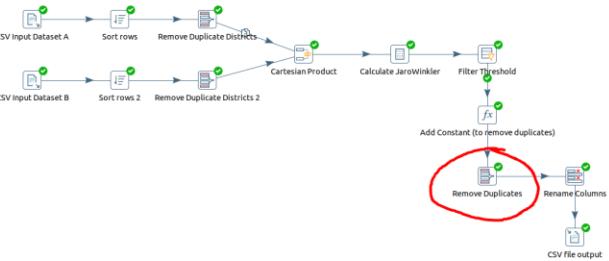
Rows of step: Remove Duplicates (18 rows)

Row	District	District_1	JaroWinkler_Measure	Ordered_Pair
1	AVEIRO	AVEIRO	1.0	AVEIRO-AVEIRO
2	BEJA	BEJA	1.0	BEJA-BEJA
3	BRAGA	BRAGA	1.0	BRAGA-BRAGA
4	BRAGANCA	BRAGANCA	1.0	BRAGANCA-BRAGANCA
5	CASTELO BRANCO	CASTELO BRANCO	1.0	CASTELO BRANCO-CASTELO BRANCO
6	COIMBRA	COIMBRA	1.0	COIMBRA-COIMBRA
7	EVORA	EVORA	1.0	EVORA-EVORA
8	FARO	FARO	1.0	FARO-FARO
9	GUARDA	GUARDA	1.0	GUARDA-GUARDA
10	LEIRIA	LEIRIA	1.0	LEIRIA-LEIRIA
11	LISBOA	LISBOA	1.0	LISBOA-LISBOA
12	PORTALEGRE	PORTALEGRE	1.0	PORTALEGRE-PORTALEGRE
13	PORTO	PORTO	1.0	PORTO-PORTO
14	SANTAREM	SANTAREM	1.0	SANTAREM-SANTAREM
15	SETUBAL	SETUBAL	1.0	SETUBAL-SETUBAL
16	VIANA DO CASTELO	VIANA DO CASTELO	1.0	VIANA DO CASTELO-VIANA DO CASTELO
17	VILA REAL	VILA REAL	1.0	VILA REAL-VILA REAL
18	VISEU	VISEU	1.0	VISEU-VISEU

# Remove Duplicates | Configuration



# Remove Duplicates | Preview

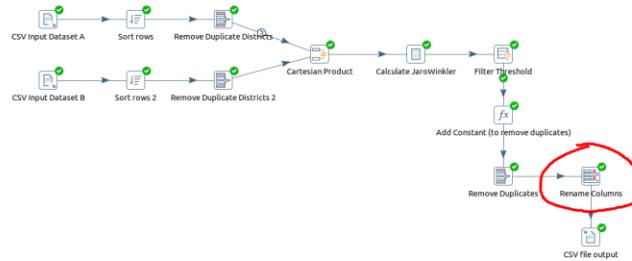


Examine preview data

Rows of step: Remove Duplicates (18 rows)

	District	District_1	JaroWinkler_Measure	Ordered_Pair
1	AVEIRO	AVEIRO	1.0	AVEIRO-AVEIRO
2	BEJA	BEJA	1.0	BEJA-BEJA
3	BRAGA	BRAGA	1.0	BRAGA-BRAGA
4	BRAGANCA	BRAGANCA	1.0	BRAGANCA-BRAGANCA
5	CASTELO BRANCO	CASTELO BRANCO	1.0	CASTELO BRANCO-CASTELO BRANCO
6	COIMBRA	COIMBRA	1.0	COIMBRA-COIMBRA
7	EVORA	EVORA	1.0	EVORA-EVORA
8	FARO	FARO	1.0	FARO-FARO
9	GUARDA	GUARDA	1.0	GUARDA-GUARDA
10	LEIRIA	LEIRIA	1.0	LEIRIA-LEIRIA
11	LISBOA	LISBOA	1.0	LISBOA-LISBOA
12	PORTELEGRE	PORTELEGRE	1.0	PORTELEGRE-PORTELEGRE
13	PORTO	PORTO	1.0	PORTO-PORTO
14	SANTAREM	SANTAREM	1.0	SANTAREM-SANTAREM
15	SETUBAL	SETUBAL	1.0	SETUBAL-SETUBAL
16	VIANA DO CASTELO	VIANA DO CASTELO	1.0	VIANA DO CASTELO-VIANA DO CASTELO
17	VILA REAL	VILA REAL	1.0	VILA REAL-VILA REAL
18	VISEU	VISEU	1.0	VISEU-VISEU

# Remove Duplicates | Configuration



Unique rows

Step name **Remove Duplicates**

Settings

Add counter to output?  Counter field

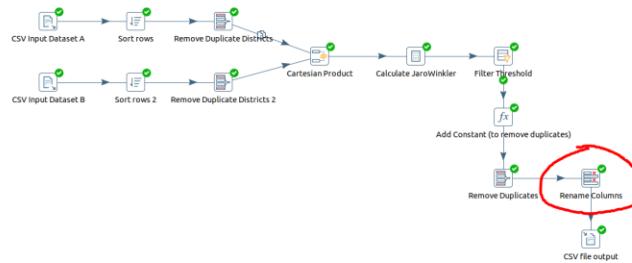
Redirect duplicate row  Error description

Fields to compare on (no entries means: compare complete row)

Fieldname	Ignore case
Ordered_Pair	N

Help OK Cancel Get

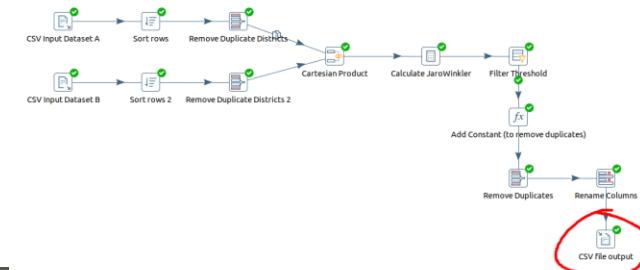
# Rename Columns | Preview



Examine preview data

Rows of step: Rename Columns (18 rows)

	District_A	District_B
1	AVEIRO	AVEIRO
2	BEJA	BEJA
3	BRAGA	BRAGA
4	BRAGANCA	BRAGANCA
5	CASTELO BRANCO	CASTELO BRANCO
6	COIMBRA	COIMBRA
7	EVORA	EVORA
8	FARO	FARO
9	GUARDA	GUARDA
10	LEIRIA	LEIRIA
11	LISBOA	LISBOA
12	PORTALEGRE	PORTALEGRE
13	PORTO	PORTO
14	SANTAREM	SANTAREM
15	SETUBAL	SETUBAL
16	VIANA DO CASTELO	VIANA DO CASTELO
17	VILA REAL	VILA REAL
18	VISEU	VISEU



# CSV File Output | Configuration (1/3)

**Text file output**

Step name **CSV file output**

**File Content Fields**

Filename

Pass output to servlet

Create Parent folder

Do not create file at start

Accept file name from field?

File name field

Extension

Include stepnr in filename?

Include partition nr in filename?

Include date in filename?

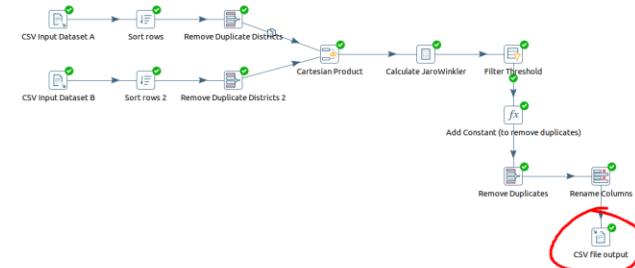
Include time in filename?

Specify Date time format

Date time format

Add filenames to result

# CSV File Output | Configuration (2/3)



Text file output

Step name **CSV file output**

**File Content Fields**

Append

Separator  **Insert TAB**

Enclosure \$

Force the enclosure around fields?

Disable the enclosure fix?

Header

Footer

Format

Compression

Encoding

Right pad fields

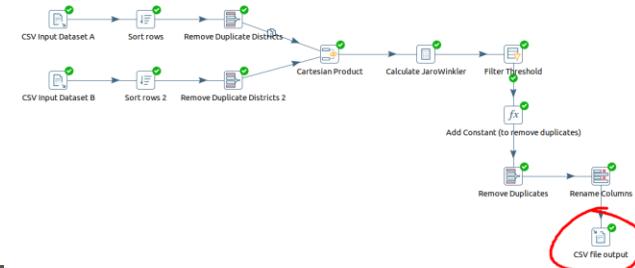
Fast data dump (no formatting)

Split every ... rows

Add Ending line of file

**OK** **Cancel**

# CSV File Output | Configuration (3/3)



Text file output

Step name **CSV file output**

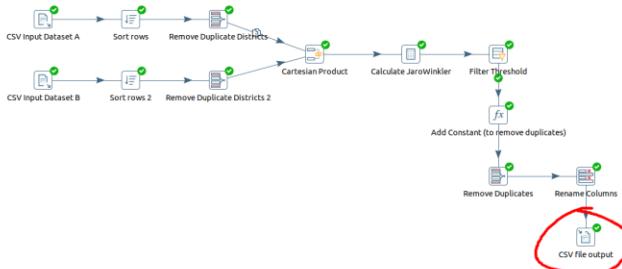
File Content Fields

	Name	Type	Format	Length	Precision	Currency	Decimal	Group	Trim Type	Null
1	District_A	String							both	
2	District_B	String							both	

Get Fields Minimal width

OK Cancel

Help



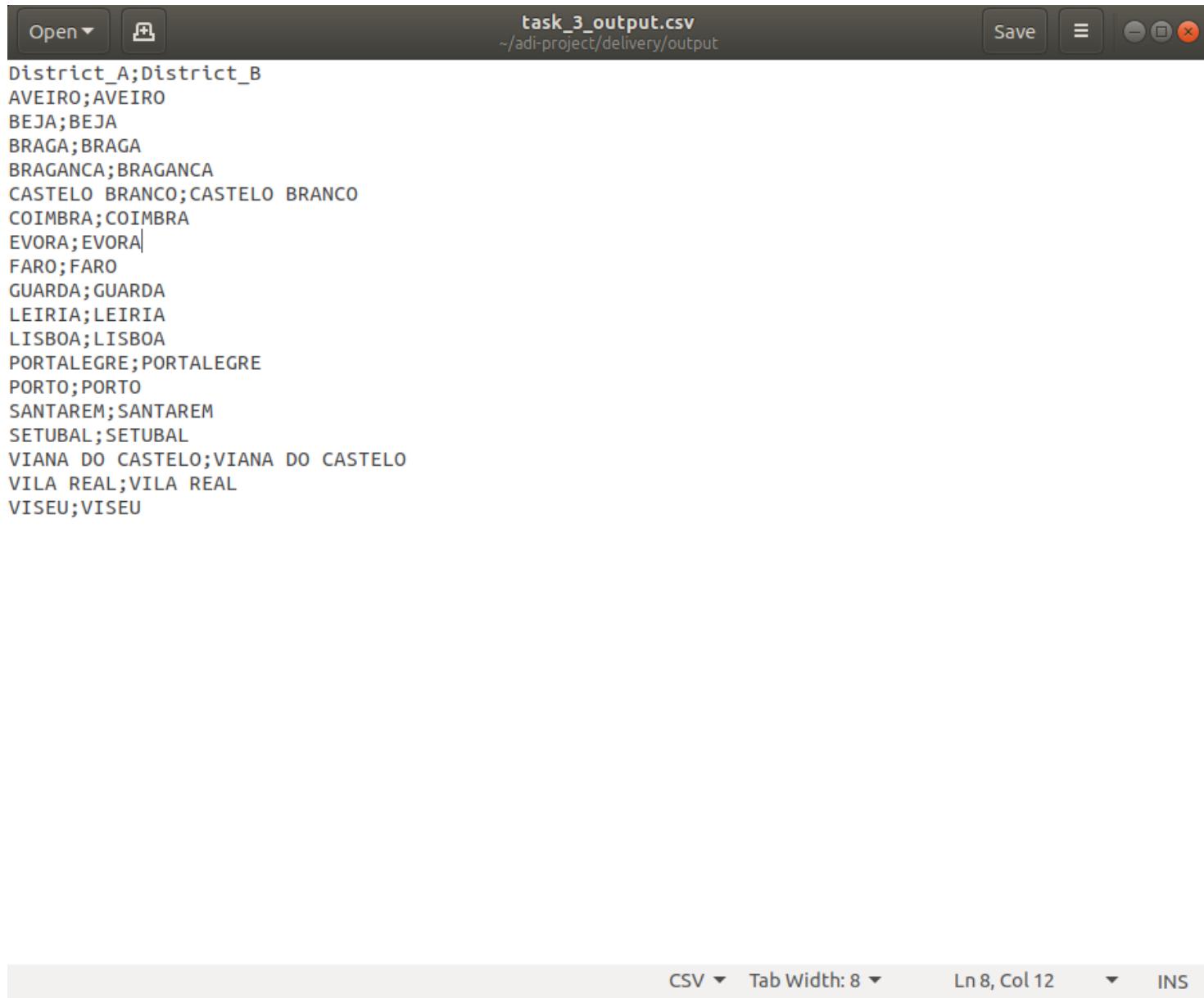
# CSV File Output | Preview

Examine preview data

Rows of step: CSV file output (18 rows)

	District_A	District_B
1	AVEIRO	AVEIRO
2	BEJA	BEJA
3	BRAGA	BRAGA
4	BRAGANCA	BRAGANCA
5	CASTELO BRANCO	CASTELO BRANCO
6	COIMBRA	COIMBRA
7	EVORA	EVORA
8	FARO	FARO
9	GUARDA	GUARDA
10	LEIRIA	LEIRIA
11	LISBOA	LISBOA
12	PORTALEGRE	PORTALEGRE
13	PORTO	PORTO
14	SANTAREM	SANTAREM
15	SETUBAL	SETUBAL
16	VIANA DO CASTELO	VIANA DO CASTELO
17	VILA REAL	VILA REAL
18	VISEU	VISEU

# CSV File Output | Preview



A screenshot of a CSV file preview window titled "task\_3\_output.csv" located at "/adi-project/delivery/output". The window has standard OS X-style controls (Open, Save, Minimize, Close) at the top right. The main area displays a list of 18 entries, each consisting of two district names separated by a semicolon. The entries are:

District_A	District_B
AVEIRO	AVEIRO
BEJA	BEJA
BRAGA	BRAGA
BRAGANCA	BRAGANCA
CASTELO BRANCO	CASTELO BRANCO
COIMBRA	COIMBRA
EVORA	EVORA
FARO	FARO
GUARDA	GUARDA
LEIRIA	LEIRIA
LISBOA	LISBOA
PORTALEGRE	PORTALEGRE
PORTO	PORTO
SANTAREM	SANTAREM
SETUBAL	SETUBAL
VIANA DO CASTELO	VIANA DO CASTELO
VILA REAL	VILA REAL
VISEU	VISEU

At the bottom of the window, there are buttons for "CSV", "Tab Width: 8", "Ln 8, Col 12", and "INS".

# **Task 4**

# Data Warehouse Creation SQL Script

```
delivery > dw > energy_dw.sql > ...
You, 1 second ago | 1 author (You) | ▶ Run | New Tab | 🔒 Active Connection
1  DROP DATABASE IF EXISTS energy_dw;
2  ▷ Run | New Tab
3  CREATE DATABASE energy_dw;
4  ▷ Run | New Tab
5  USE energy_dw;
6  ▷ Run | New Tab | Copy
7  CREATE TABLE dim_time (
8      time_id DATE PRIMARY KEY,
9      year_id INT,
10     season_id INT,          -- 1: Winter, 2: Spring, 3: Summer, 4: Autumn
11    season_name VARCHAR(10),
12    month_id INT,
13   month_name VARCHAR(10)
14 );
15
16  ▷ Run | New Tab | Copy
17  CREATE TABLE dim_location (
18      location_id INT AUTO_INCREMENT PRIMARY KEY,
19      region VARCHAR(50),
20     municipality VARCHAR(50),
21     parish VARCHAR(50),
22     parish_code INT -- due to discrepancies between the names of the parishes in the two datasets, we will use the code
23 );
24
25  -- Create the fact table for energy consumption
26  ▷ Run | New Tab | Copy
27  CREATE TABLE fact_energy_stats (
28      time_id DATE,
29      location_id INT,
30      energy_consumption DECIMAL(10,2), -- Energy consumption in kWh
31      percentage_smart_meters DECIMAL(5,4), -- Percentage with 4 decimal places
32      PRIMARY KEY (time_id, location_id),
33      FOREIGN KEY (time_id) REFERENCES dim_time(time_id),
34      FOREIGN KEY (location_id) REFERENCES dim_location(location_id)
35 );
36
37  You, 1 second ago • Uncommitted changes
```

The diagram illustrates the structure of the Data Warehouse Creation SQL Script. It highlights three main tables: `dim_time`, `dim_location`, and `fact_energy_stats`. Braces on the right side group these tables into three categories:

- `Time Dimension table`: Grouped by a brace above the `dim_time` table.
- `Location Dimension table`: Grouped by a brace above the `dim_location` table.
- `Facts table`: Grouped by a brace above the `fact_energy_stats` table.

# Comments on Design Choices

- **Time Dimension table PK**

- We decided to not use a surrogate key, as it is common practice to not use surrogate keys on time dimension tables.

```
▷ Run | New Tab | Copy
CREATE TABLE dim_time (
    time_id DATE PRIMARY KEY,
    year_id INT,
    season_id INT, -- 1: Winter, 2:
    season_name VARCHAR(10),
    month_id INT,
    month_name VARCHAR(10)
);
```

- **Parish code field in Location Dimension**

- We detected some discrepancies in the names of parishes between Datasets A and B
  - E.g., in Dataset A existed "Azueira e Sobral da Abelheira, and in Dataset B "UF AZUEIRA SOBRAL ABELHEIRA", but it is actually the same parish
  - Due to this, we decided to add the Parish code field, that correctly and uniquely identifies all parishes across datasets

```
▷ Run | New Tab | Copy
CREATE TABLE dim_location (
    location_id INT AUTO_INCREMENT PRIMARY KEY,
    region VARCHAR(50),
    municipality VARCHAR(50),
    parish VARCHAR(50),
    parish_code INT
);
```

due to discrepancies bet

# Comments on Design Choices

- **Using first day of the month to store Year-Month pairs**
  - To meet the requirements of the project, we only needed to store Year-Month pairs in the time dimension
  - However, MySQL does not have a Year-Month data type
  - We did not want to use a String as the data type of the key (e.g., "2024-08"), because the primary key of a dimension table should not be a String (makes joins slow)
  - As mentioned before, we also did not want to use a surrogate key
  - Due to this, we opted to use the MySQL "date" data type for the primary key, and as a convention, always use the first day of the month, despite only being interested in storing month and year

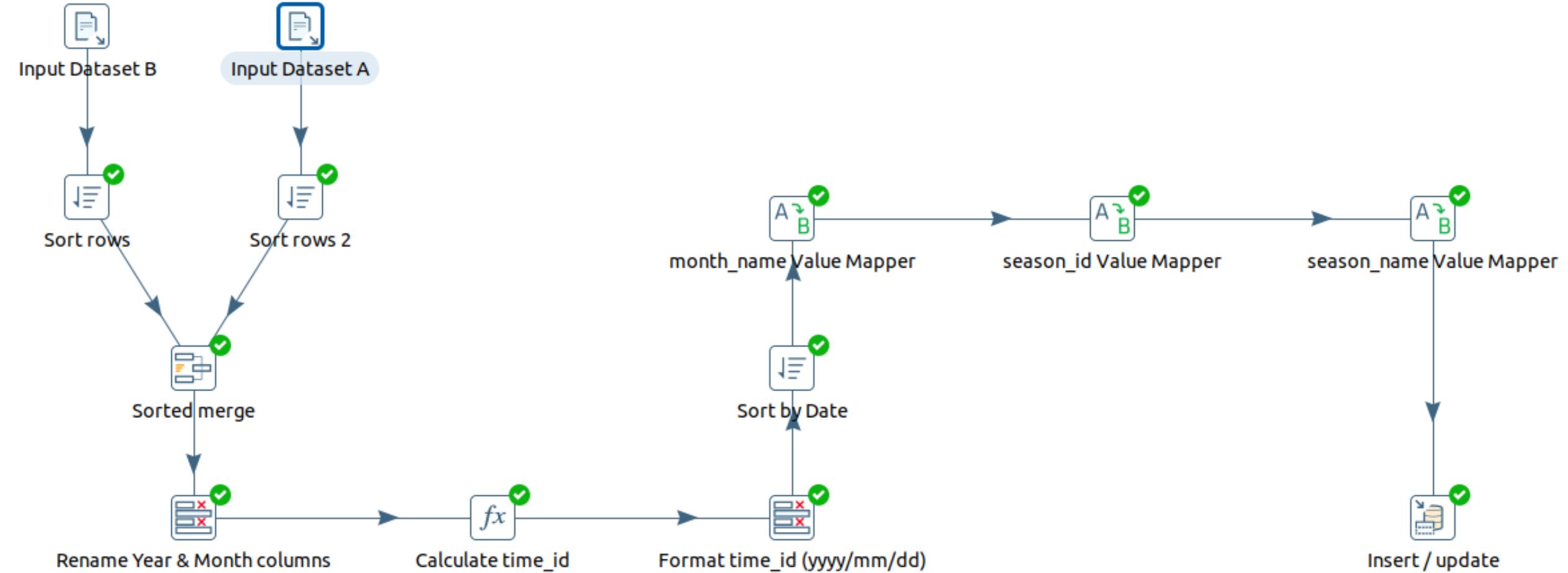
time_id
2020-11-01
2020-12-01
2021-01-01
2021-02-01
2021-03-01
2021-04-01
2021-05-01
2021-06-01
2021-07-01
2021-08-01
2021-09-01
2021-10-01
2021-11-01
2021-12-01
2022-01-01

# **Task 5**

# **Time Dimension Population Transformation**

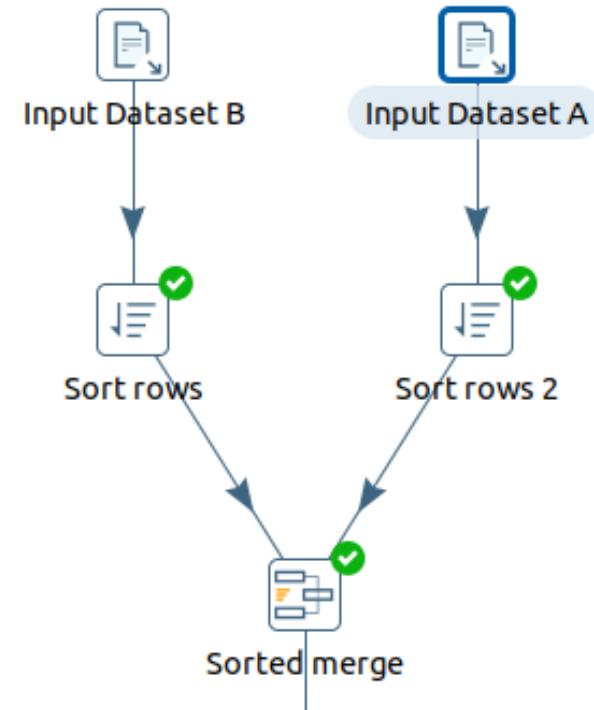


# Transformation

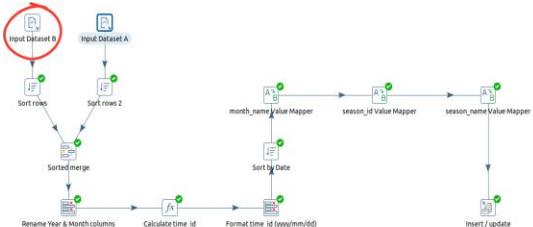


# Considerations on Time Dimension Populate Transformation

- **Using both Datasets as source for Time Dimension**
  - Some months had data in Dataset A that were missing in Dataset B, and vice versa.
  - For this reason, we decided to use both Datasets A and B to populate the dimension table (even though it is stated in task 4 to base the data warehouse schema on Dataset B).



# Input Dataset B | Configuration



## CSV file input

Step name **Input Dataset B**

Filename **/home/aid/adi-project/data/3-consumos-faturados-por-municipio-ultimos-10-anos.csv** \$ [Browse...](#)

Delimiter **;** \$ [Insert TAB](#)

Enclosure **"** \$

NIO buffer size **50000** \$

Lazy conversion?

Header row present?

Add filename to result

The row number field name (optional)

Running in parallel?

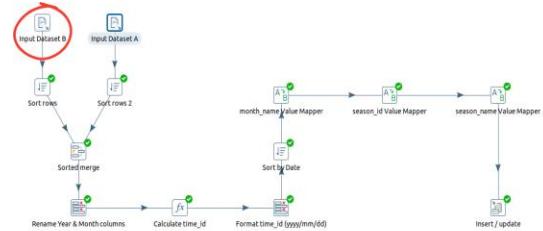
New line possible in fields?

Format **mixed** ▼

File encoding  ▼ \$

Name	Type	Format	Length	Precision	Currency	Decimal	Group	Trim type
1 Year	Integer	#	15	0	\$	.	,	none
2 Month	Integer	#	15	0	\$	.	,	none

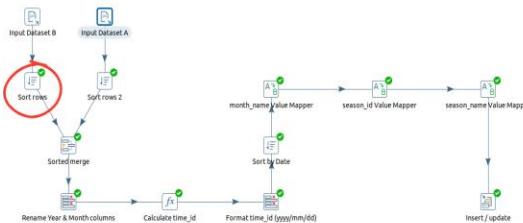
# Input Dataset B | Preview



Rows of step: Input Dataset B (1000 rows)

v	Year	Month
1	2020	11
2	2020	11
3	2020	11
4	2020	11
5	2020	11
6	2020	11
7	2020	11
8	2020	11
9	2020	11
10	2020	11
11	2020	11
12	2020	11
13	2020	11
14	2020	11
15	2020	11
16	2020	11
17	2020	11
18	2020	11
19	2020	11
20	2020	11
21	2020	11
22	2020	11
23	2020	11
24	2020	11
25	2020	11
26	2020	11
27	2020	11
28	2020	11
29	2020	11
30	2020	11
31	2020	11
32	2020	11
33	2020	11
34	2020	11
35	2020	11
36	2020	11
37	2020	11
38	2020	11
39	2020	11
40	2020	11
41	2020	11
42	2020	11
43	2020	11
44	2020	11
45	2020	11

# Sort Rows | Configuration



Sort rows

Step name **Sort by Date**

Sort directory `%%java.io.tmpdir%%` [Browse...](#)

TMP-file prefix `out`

Sort size (rows in memory) `1000000`

Free memory threshold (in %)

Compress TMP Files?

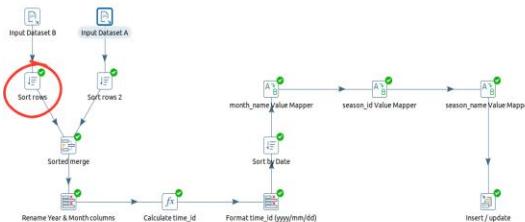
Only pass unique rows? (verifies keys only)

Fields :

▼	Fieldname	Ascending	Case sensitive compare?	Sort based on current locale?	Collator Strength	Presorted?
1	Year	Y	N	N	0	N
2	Month	Y	N	N	0	N

[? Help](#) [OK](#) [Cancel](#) [Get Fields](#)

# Sort Rows | Preview

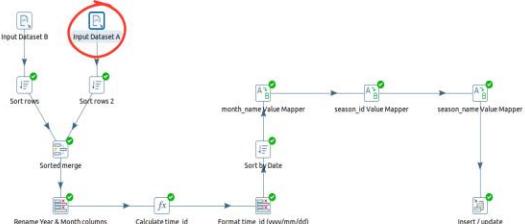


Examine preview data

Rows of step: Sort by Date (45 rows)

	Year	Month
1	2020	11
2	2020	12
3	2021	1
4	2021	2
5	2021	3
6	2021	4
7	2021	5
8	2021	6
9	2021	7
10	2021	8
11	2021	9
12	2021	10
13	2021	11
14	2021	12
15	2022	1
16	2022	2
17	2022	3
18	2022	4
19	2022	5
20	2022	6
21	2022	7
22	2022	8
23	2022	9
24	2022	10
25	2022	11
26	2022	12
27	2023	1
28	2023	2
29	2023	3
30	2023	4
31	2023	5
32	2023	6
33	2023	7
34	2023	8
35	2023	9
36	2023	10
37	2023	11
38	2023	12
39	2024	1
40	2024	2
41	2024	3
42	2024	4
43	2024	5
44	2024	6
45	2024	7

# Input Dataset A | Configuration



CSV file input

Step name **Input Dataset A**

Filename

Delimiter

Enclosure "

NIO buffer size

Lazy conversion?

Header row present?

Add filename to result

The row number field name (optional)

Running in parallel?

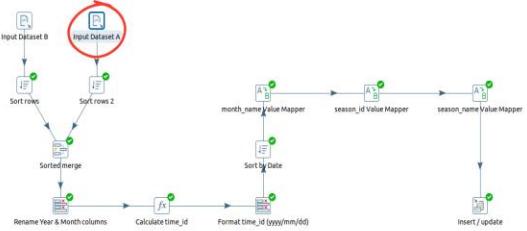
New line possible in fields?

Format

File encoding

Name	Type	Format	Length	Precision	Currency	Decimal	Group	Trim type
1 Year	Integer	#	15	0	\$	.	,	none
2 Month	Integer	#	15	0	\$	.	,	none

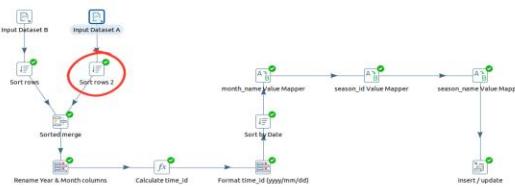
# Input Dataset A | Preview



Rows of step: Input Dataset A (1000 rows)

	Year	Month
1	2024	5
2	2024	5
3	2024	5
4	2024	5
5	2024	5
6	2024	5
7	2024	5
8	2024	5
9	2024	5
10	2024	5
11	2024	5
12	2024	5
13	2024	5
14	2024	5
15	2024	5
16	2024	5
17	2024	5
18	2024	5
19	2024	5
20	2024	5
21	2024	5
22	2024	5
23	2024	5
24	2024	5
25	2024	5
26	2024	5
27	2024	5
28	2024	5
29	2024	5
30	2024	5
31	2024	5
32	2024	5
33	2024	5
34	2024	5
35	2024	5
36	2024	5
37	2024	5
38	2024	5
39	2024	5
40	2024	5
41	2024	5
42	2024	5
43	2024	5
44	2024	5
45	2024	5

# Sort Rows 2 | Configuration



Sort rows

Step name **Sort by Date 2**

Sort directory `%%java.io.tmpdir%%` [Browse...](#)

TMP-file prefix `out`

Sort size (rows in memory) `1000000`

Free memory threshold (in %)

Compress TMP Files?

Only pass unique rows? (verifies keys only)

Fields :

▼	Fieldname	Ascending	Case sensitive compare?	Sort based on current locale?	Collator Strength	Presorted?
1	Year	Y	N	N	0	N
2	Month	Y	N	N	0	N

?

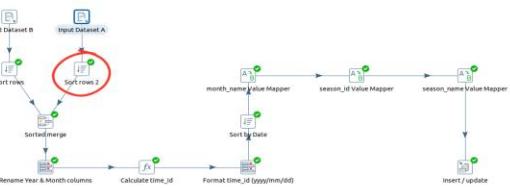
Help

OK

Cancel

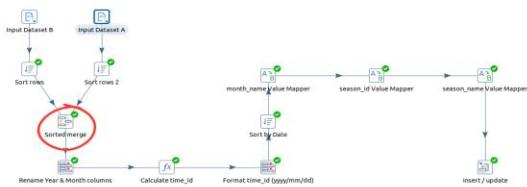
Get Fields

# Sort Rows 2 | Preview



Rows of step: Sort rows 2 (28 rows)

	Year	Month
1	2022	6
2	2022	7
3	2022	8
4	2022	9
5	2022	10
6	2022	11
7	2022	12
8	2023	1
9	2023	2
10	2023	3
11	2023	4
12	2023	5
13	2023	6
14	2023	7
15	2023	8
16	2023	9
17	2023	10
18	2023	11
19	2023	12
20	2024	1
21	2024	2
22	2024	3
23	2024	4
24	2024	5
25	2024	6
26	2024	7
27	2024	8
28	2024	9



# Sorted Merge | Configuration

Sorted merge



Fields :

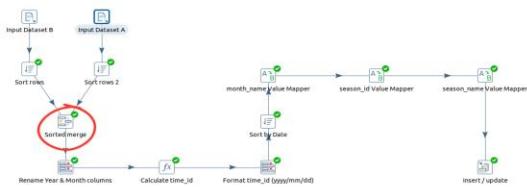
▼	Fieldname	Ascending
1	Year	Y
2	Month	Y

Help

OK

Cancel

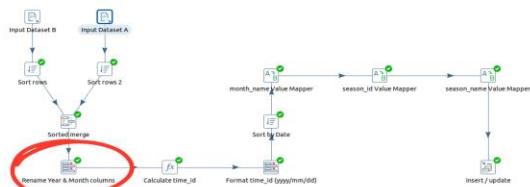
Get Fields



# Sorted Merge | Preview

Rows of step: Sorted merge (73 rows)

	Year	Month
1	2020	11
2	2020	12
3	2021	1
4	2021	2
5	2021	3
6	2021	4
7	2021	5
8	2021	6
9	2021	7
10	2021	8
11	2021	9
12	2021	10
13	2021	11
14	2021	12
15	2022	1
16	2022	2
17	2022	3
18	2022	4
19	2022	5
20	2022	6
21	2022	6
22	2022	7
23	2022	7
24	2022	8
25	2022	8
26	2022	9
27	2022	9
28	2022	10
29	2022	10
30	2022	11
31	2022	11
32	2022	12
33	2022	12
34	2023	1
35	2023	1
36	2023	2
37	2023	2
38	2023	3
39	2023	3
40	2023	4
41	2023	4
42	2023	5
43	2023	5
44	2023	6
45	2023	6



# Rename Year & Month Columns | Configuration

Select values

Step name Rename Year & Month columns

Select & Alter Remove Meta-data

Fields :

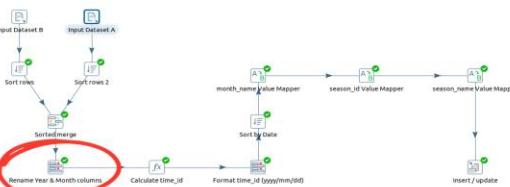
	Fieldname	Rename to	Length	Precision
1	Year	year_id		
2	Month	month_id		

Get fields to select Edit Mapping

Include unspecified fields, ordered by name

Help OK Cancel

# Rename Year & Month Columns | Preview



Rows of step: Rename Year Month columns (73 rows)

	year_id	month_id
1	2020	11
2	2020	12
3	2021	1
4	2021	2
5	2021	3
6	2021	4
7	2021	5
8	2021	6
9	2021	7
10	2021	8
11	2021	9
12	2021	10
13	2021	11
14	2021	12
15	2022	1
16	2022	2
17	2022	3
18	2022	4
19	2022	5
20	2022	6
21	2022	6
22	2022	7
23	2022	7
24	2022	8
25	2022	8
26	2022	9
27	2022	9
28	2022	10
29	2022	10
30	2022	11
31	2022	11
32	2022	12
33	2022	12
34	2023	1
35	2023	1
36	2023	2
37	2023	2
38	2023	3
39	2023	3
40	2023	4
41	2023	4
42	2023	5
43	2023	5
44	2023	6
45	2023	6

# Calculate time\_id | Configuration



Formula

Step name **Calculate time\_id**

Fields:

New field	Formula	Value type	Length	Precision	Replace value
time_id_unparsed	DATE([year_id];[month_id];1)	Date			

Help

OK

Cancel

# Calculate time\_id | Preview

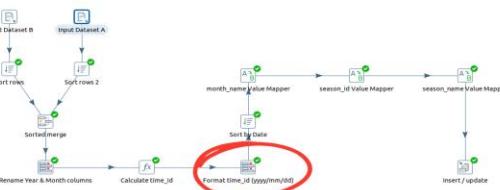


Examine preview data

Rows of step: Calculate time\_id (73 rows)

	year_id	month_id	time_id_unparsed
1	2020	11	2020/11/01 00:00:00.000
2	2020	12	2020/12/01 00:00:00.000
3	2021	1	2021/01/01 00:00:00.000
4	2021	2	2021/02/01 00:00:00.000
5	2021	3	2021/03/01 00:00:00.000
6	2021	4	2021/04/01 00:00:00.000
7	2021	5	2021/05/01 00:00:00.000
8	2021	6	2021/06/01 00:00:00.000
9	2021	7	2021/07/01 00:00:00.000
10	2021	8	2021/08/01 00:00:00.000
11	2021	9	2021/09/01 00:00:00.000
12	2021	10	2021/10/01 00:00:00.000
13	2021	11	2021/11/01 00:00:00.000
14	2021	12	2021/12/01 00:00:00.000
15	2022	1	2022/01/01 00:00:00.000
16	2022	2	2022/02/01 00:00:00.000
17	2022	3	2022/03/01 00:00:00.000
18	2022	4	2022/04/01 00:00:00.000
19	2022	5	2022/05/01 00:00:00.000
20	2022	6	2022/06/01 00:00:00.000
21	2022	6	2022/06/01 00:00:00.000
22	2022	7	2022/07/01 00:00:00.000
23	2022	7	2022/07/01 00:00:00.000
24	2022	8	2022/08/01 00:00:00.000
25	2022	8	2022/08/01 00:00:00.000
26	2022	9	2022/09/01 00:00:00.000
27	2022	9	2022/09/01 00:00:00.000
28	2022	10	2022/10/01 00:00:00.000
29	2022	10	2022/10/01 00:00:00.000
30	2022	11	2022/11/01 00:00:00.000
31	2022	11	2022/11/01 00:00:00.000
32	2022	12	2022/12/01 00:00:00.000
33	2022	12	2022/12/01 00:00:00.000
34	2023	1	2023/01/01 00:00:00.000
35	2023	1	2023/01/01 00:00:00.000
36	2023	2	2023/02/01 00:00:00.000
37	2023	2	2023/02/01 00:00:00.000
38	2023	3	2023/03/01 00:00:00.000
39	2023	3	2023/03/01 00:00:00.000
40	2023	4	2023/04/01 00:00:00.000
41	2023	4	2023/04/01 00:00:00.000
42	2023	5	2023/05/01 00:00:00.000
43	2023	5	2023/05/01 00:00:00.000
44	2023	6	2023/06/01 00:00:00.000
45	2023	6	2023/06/01 00:00:00.000

# Format time\_id (yyyy/mm/dd) | Configuration



Select values

Step name **Format time\_id (yyyy/mm/dd)**

Select & Alter Remove Meta-data

Fields to alter the meta-data for :

▼	Fieldname	Rename to	Type	Length	Precision	Binary to Normal?	Format	Date Format Lenient?	Date Locale
1	time_id_unparsed	time_id	Date			N	yyyy/MM/dd	N	

**Get fields to change**

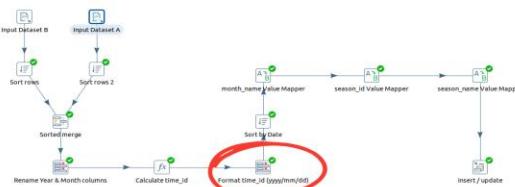
OK Cancel

Help

# Format time\_id (yyyy/mm/dd) | Preview

Rows of step: Format time\_id (yyyy/mm/dd) (73 rows)

	year_id	month_id	time_id
1	2020	11	2020/11/01
2	2020	12	2020/12/01
3	2021	1	2021/01/01
4	2021	2	2021/02/01
5	2021	3	2021/03/01
6	2021	4	2021/04/01
7	2021	5	2021/05/01
8	2021	6	2021/06/01
9	2021	7	2021/07/01
10	2021	8	2021/08/01
11	2021	9	2021/09/01
12	2021	10	2021/10/01
13	2021	11	2021/11/01
14	2021	12	2021/12/01
15	2022	1	2022/01/01
16	2022	2	2022/02/01
17	2022	3	2022/03/01
18	2022	4	2022/04/01
19	2022	5	2022/05/01
20	2022	6	2022/06/01
21	2022	6	2022/06/01
22	2022	7	2022/07/01
23	2022	7	2022/07/01
24	2022	8	2022/08/01
25	2022	8	2022/08/01
26	2022	9	2022/09/01
27	2022	9	2022/09/01
28	2022	10	2022/10/01
29	2022	10	2022/10/01
30	2022	11	2022/11/01
31	2022	11	2022/11/01
32	2022	12	2022/12/01
33	2022	12	2022/12/01
34	2023	1	2023/01/01
35	2023	1	2023/01/01
36	2023	2	2023/02/01
37	2023	2	2023/02/01
38	2023	3	2023/03/01
39	2023	3	2023/03/01
40	2023	4	2023/04/01
41	2023	4	2023/04/01
42	2023	5	2023/05/01
43	2023	5	2023/05/01
44	2023	6	2023/06/01
45	2023	6	2023/06/01



# Sort by Date | Configuration



Sort rows

Step name **Sort by Date**

Sort directory `%%java.io.tmpdir%%` [Browse...](#)

TMP-file prefix `out`

Sort size (rows in memory) `1000000`

Free memory threshold (in %)

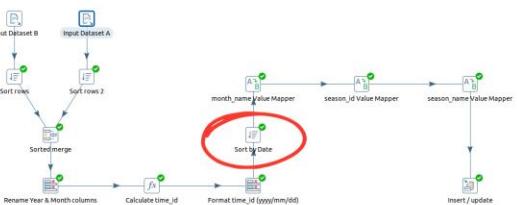
Compress TMP Files?

Only pass unique rows? (verifies keys only)

Fields :

▼	Fieldname	Ascending	Case sensitive compare?	Sort based on current locale?	Collator Strength	Presorted?
1	time_id	Y	N	N	0	N

[Help](#) [OK](#) [Cancel](#) [Get Fields](#)



# Sort by Date | Preview

Rows of step: Sort by Date (47 rows)

	year_id	month_id	time_id
1	2020	11	2020/11/01
2	2020	12	2020/12/01
3	2021	1	2021/01/01
4	2021	2	2021/02/01
5	2021	3	2021/03/01
6	2021	4	2021/04/01
7	2021	5	2021/05/01
8	2021	6	2021/06/01
9	2021	7	2021/07/01
10	2021	8	2021/08/01
11	2021	9	2021/09/01
12	2021	10	2021/10/01
13	2021	11	2021/11/01
14	2021	12	2021/12/01
15	2022	1	2022/01/01
16	2022	2	2022/02/01
17	2022	3	2022/03/01
18	2022	4	2022/04/01
19	2022	5	2022/05/01
20	2022	6	2022/06/01
21	2022	7	2022/07/01
22	2022	8	2022/08/01
23	2022	9	2022/09/01
24	2022	10	2022/10/01
25	2022	11	2022/11/01
26	2022	12	2022/12/01
27	2023	1	2023/01/01
28	2023	2	2023/02/01
29	2023	3	2023/03/01
30	2023	4	2023/04/01
31	2023	5	2023/05/01
32	2023	6	2023/06/01
33	2023	7	2023/07/01
34	2023	8	2023/08/01
35	2023	9	2023/09/01
36	2023	10	2023/10/01
37	2023	11	2023/11/01
38	2023	12	2023/12/01
39	2024	1	2024/01/01
40	2024	2	2024/02/01
41	2024	3	2024/03/01
42	2024	4	2024/04/01
43	2024	5	2024/05/01
44	2024	6	2024/06/01
45	2024	7	2024/07/01

# month\_name Value Mapper | Configuration



Value mapper

Step name: **month\_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	January
2	February
3	March
4	April
5	May
6	June
7	July
8	August
9	September
10	October
11	November
12	December

OK

Cancel

Help

# month\_name Value Mapper | Preview



Rows of step: month\_name Value Mapper (47 rows)

	year_id	month_id	time_id	month_name
1	2020	11	2020/11/01	November
2	2020	12	2020/12/01	December
3	2021	1	2021/01/01	January
4	2021	2	2021/02/01	February
5	2021	3	2021/03/01	March
6	2021	4	2021/04/01	April
7	2021	5	2021/05/01	May
8	2021	6	2021/06/01	June
9	2021	7	2021/07/01	July
10	2021	8	2021/08/01	August
11	2021	9	2021/09/01	September
12	2021	10	2021/10/01	October
13	2021	11	2021/11/01	November
14	2021	12	2021/12/01	December
15	2022	1	2022/01/01	January
16	2022	2	2022/02/01	February
17	2022	3	2022/03/01	March
18	2022	4	2022/04/01	April
19	2022	5	2022/05/01	May
20	2022	6	2022/06/01	June
21	2022	7	2022/07/01	July
22	2022	8	2022/08/01	August
23	2022	9	2022/09/01	September
24	2022	10	2022/10/01	October
25	2022	11	2022/11/01	November
26	2022	12	2022/12/01	December
27	2023	1	2023/01/01	January
28	2023	2	2023/02/01	February
29	2023	3	2023/03/01	March
30	2023	4	2023/04/01	April
31	2023	5	2023/05/01	May
32	2023	6	2023/06/01	June
33	2023	7	2023/07/01	July
34	2023	8	2023/08/01	August
35	2023	9	2023/09/01	September
36	2023	10	2023/10/01	October
37	2023	11	2023/11/01	November
38	2023	12	2023/12/01	December
39	2024	1	2024/01/01	January
40	2024	2	2024/02/01	February
41	2024	3	2024/03/01	March
42	2024	4	2024/04/01	April
43	2024	5	2024/05/01	May
44	2024	6	2024/06/01	June
45	2024	7	2024/07/01	July

# season\_id Value Mapper | Preview



Value mapper

Step name : **season\_id Value Mapper**

Fieldname to use : **month\_id**

Target field name (empty=overwrite) : **season\_id**

Default upon non-matching :

Field values:

	Source value	Target value
1	3	1
2	4	1
3	5	1
4	6	2
5	7	2
6	8	2
7	9	3
8	10	3
9	11	3
10	12	4
11	1	4
12	2	4

# season\_id Value Mapper | Configuration

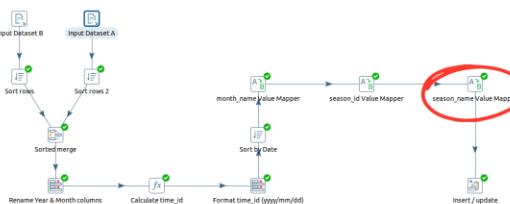


Examine preview data

Rows of step: season\_id Value Mapper (47 rows)

	year_id	month_id	time_id	month_name	season_id
1	2020	11	2020/11/01	November	3
2	2020	12	2020/12/01	December	4
3	2021	1	2021/01/01	January	4
4	2021	2	2021/02/01	February	4
5	2021	3	2021/03/01	March	1
6	2021	4	2021/04/01	April	1
7	2021	5	2021/05/01	May	1
8	2021	6	2021/06/01	June	2
9	2021	7	2021/07/01	July	2
10	2021	8	2021/08/01	August	2
11	2021	9	2021/09/01	September	3
12	2021	10	2021/10/01	October	3
13	2021	11	2021/11/01	November	3
14	2021	12	2021/12/01	December	4
15	2022	1	2022/01/01	January	4
16	2022	2	2022/02/01	February	4
17	2022	3	2022/03/01	March	1
18	2022	4	2022/04/01	April	1
19	2022	5	2022/05/01	May	1
20	2022	6	2022/06/01	June	2
21	2022	7	2022/07/01	July	2
22	2022	8	2022/08/01	August	2
23	2022	9	2022/09/01	September	3
24	2022	10	2022/10/01	October	3
25	2022	11	2022/11/01	November	3
26	2022	12	2022/12/01	December	4
27	2023	1	2023/01/01	January	4
28	2023	2	2023/02/01	February	4
29	2023	3	2023/03/01	March	1
30	2023	4	2023/04/01	April	1
31	2023	5	2023/05/01	May	1
32	2023	6	2023/06/01	June	2
33	2023	7	2023/07/01	July	2
34	2023	8	2023/08/01	August	2
35	2023	9	2023/09/01	September	3
36	2023	10	2023/10/01	October	3
37	2023	11	2023/11/01	November	3
38	2023	12	2023/12/01	December	4
39	2024	1	2024/01/01	January	4
40	2024	2	2024/02/01	February	4
41	2024	3	2024/03/01	March	1
42	2024	4	2024/04/01	April	1
43	2024	5	2024/05/01	May	1
44	2024	6	2024/06/01	June	2
45	2024	7	2024/07/01	July	2

# season\_name Value Mapper | Configuration



Value mapper

Step name: **season\_name Value Mapper**

Fieldname to use: **season\_id**

Target field name (empty=overwrite): **season\_name**

Default upon non-matching:

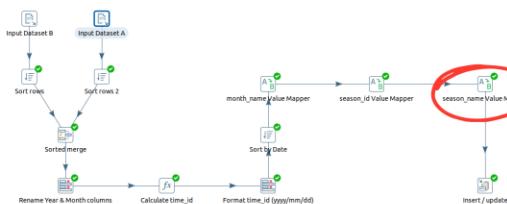
Field values:

	Source value	Target value
1	1	Spring
2	2	Summer
3	3	Autumn
4	4	Winter

OK Cancel

Help

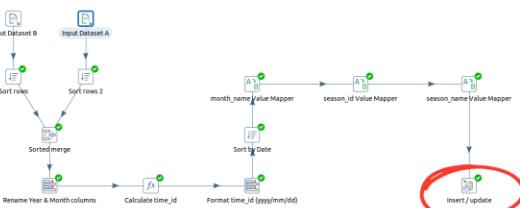
# season\_name Value Mapper | Preview



Rows of step: season\_name Value Mapper (47 rows)

	year_id	month_id	time_id	month_name	season_id	season_name
1	2020	11	2020/11/01	November	3	Autumn
2	2020	12	2020/12/01	December	4	Winter
3	2021	1	2021/01/01	January	4	Winter
4	2021	2	2021/02/01	February	4	Winter
5	2021	3	2021/03/01	March	1	Spring
6	2021	4	2021/04/01	April	1	Spring
7	2021	5	2021/05/01	May	1	Spring
8	2021	6	2021/06/01	June	2	Summer
9	2021	7	2021/07/01	July	2	Summer
10	2021	8	2021/08/01	August	2	Summer
11	2021	9	2021/09/01	September	3	Autumn
12	2021	10	2021/10/01	October	3	Autumn
13	2021	11	2021/11/01	November	3	Autumn
14	2021	12	2021/12/01	December	4	Winter
15	2022	1	2022/01/01	January	4	Winter
16	2022	2	2022/02/01	February	4	Winter
17	2022	3	2022/03/01	March	1	Spring
18	2022	4	2022/04/01	April	1	Spring
19	2022	5	2022/05/01	May	1	Spring
20	2022	6	2022/06/01	June	2	Summer
21	2022	7	2022/07/01	July	2	Summer
22	2022	8	2022/08/01	August	2	Summer
23	2022	9	2022/09/01	September	3	Autumn
24	2022	10	2022/10/01	October	3	Autumn
25	2022	11	2022/11/01	November	3	Autumn
26	2022	12	2022/12/01	December	4	Winter
27	2023	1	2023/01/01	January	4	Winter
28	2023	2	2023/02/01	February	4	Winter
29	2023	3	2023/03/01	March	1	Spring
30	2023	4	2023/04/01	April	1	Spring
31	2023	5	2023/05/01	May	1	Spring
32	2023	6	2023/06/01	June	2	Summer
33	2023	7	2023/07/01	July	2	Summer
34	2023	8	2023/08/01	August	2	Summer
35	2023	9	2023/09/01	September	3	Autumn
36	2023	10	2023/10/01	October	3	Autumn
37	2023	11	2023/11/01	November	3	Autumn
38	2023	12	2023/12/01	December	4	Winter
39	2024	1	2024/01/01	January	4	Winter
40	2024	2	2024/02/01	February	4	Winter
41	2024	3	2024/03/01	March	1	Spring
42	2024	4	2024/04/01	April	1	Spring
43	2024	5	2024/05/01	May	1	Spring
44	2024	6	2024/06/01	June	2	Summer
45	2024	7	2024/07/01	July	2	Summer

# Insert / update | Configuration



**Insert / update**

Step name **Insert / update**

Connection **energy\_dw** ▼ Edit... New... Wizard...

Target schema **energy\_dw** Browse...

Target table **dim\_time** Browse...

Commit size **100**

Don't perform any updates:

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

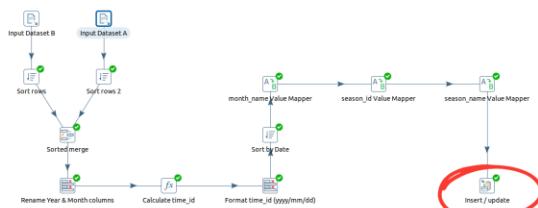
	Table field	Comparator	Stream field1	Stream field2	
1	time_id	=	time_id		<b>Get fields</b>

Update fields:

	Table field	Stream field	Update	
1	year_id	year_id	Y	<b>Get update fields</b>
2	month_id	month_id	Y	<b>Edit mapping</b>
3	month_name	month_name	Y	
4	season_id	season_id	Y	
5	season_name	season_name	Y	
6	time_id	time_id	Y	

Help OK Cancel SQL

# Insert / update | Preview



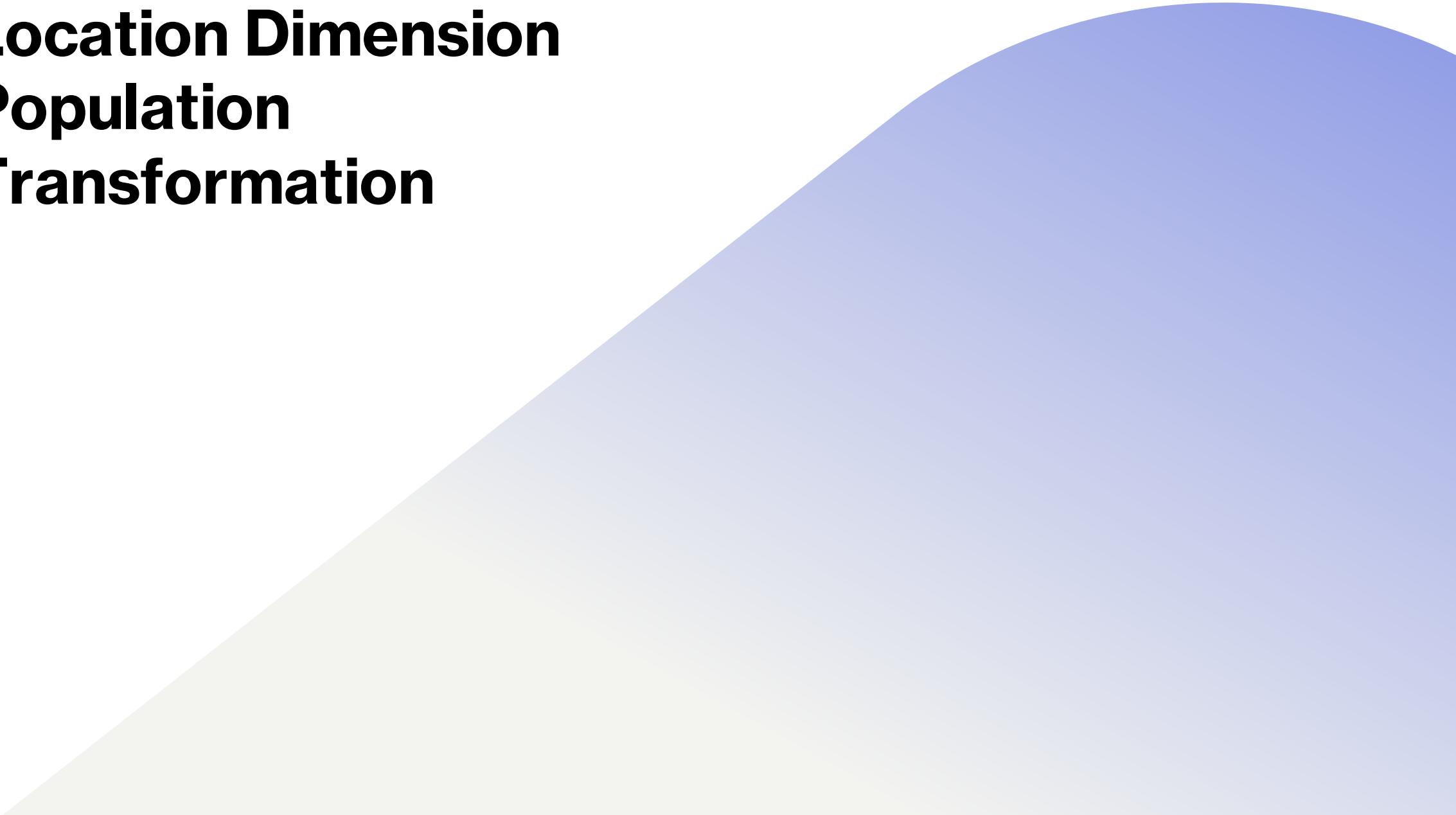
Rows of step: Insert / update (47 rows)

	year_id	month_id	time_id	month_name	season_id	season_name
1	2020	11	2020/11/01	November	3	Autumn
2	2020	12	2020/12/01	December	4	Winter
3	2021	1	2021/01/01	January	4	Winter
4	2021	2	2021/02/01	February	4	Winter
5	2021	3	2021/03/01	March	1	Spring
6	2021	4	2021/04/01	April	1	Spring
7	2021	5	2021/05/01	May	1	Spring
8	2021	6	2021/06/01	June	2	Summer
9	2021	7	2021/07/01	July	2	Summer
10	2021	8	2021/08/01	August	2	Summer
11	2021	9	2021/09/01	September	3	Autumn
12	2021	10	2021/10/01	October	3	Autumn
13	2021	11	2021/11/01	November	3	Autumn
14	2021	12	2021/12/01	December	4	Winter
15	2022	1	2022/01/01	January	4	Winter
16	2022	2	2022/02/01	February	4	Winter
17	2022	3	2022/03/01	March	1	Spring
18	2022	4	2022/04/01	April	1	Spring
19	2022	5	2022/05/01	May	1	Spring
20	2022	6	2022/06/01	June	2	Summer
21	2022	7	2022/07/01	July	2	Summer
22	2022	8	2022/08/01	August	2	Summer
23	2022	9	2022/09/01	September	3	Autumn
24	2022	10	2022/10/01	October	3	Autumn
25	2022	11	2022/11/01	November	3	Autumn
26	2022	12	2022/12/01	December	4	Winter
27	2023	1	2023/01/01	January	4	Winter
28	2023	2	2023/02/01	February	4	Winter
29	2023	3	2023/03/01	March	1	Spring
30	2023	4	2023/04/01	April	1	Spring
31	2023	5	2023/05/01	May	1	Spring
32	2023	6	2023/06/01	June	2	Summer
33	2023	7	2023/07/01	July	2	Summer
34	2023	8	2023/08/01	August	2	Summer
35	2023	9	2023/09/01	September	3	Autumn
36	2023	10	2023/10/01	October	3	Autumn
37	2023	11	2023/11/01	November	3	Autumn
38	2023	12	2023/12/01	December	4	Winter
39	2024	1	2024/01/01	January	4	Winter
40	2024	2	2024/02/01	February	4	Winter
41	2024	3	2024/03/01	March	1	Spring
42	2024	4	2024/04/01	April	1	Spring
43	2024	5	2024/05/01	May	1	Spring
44	2024	6	2024/06/01	June	2	Summer
45	2024	7	2024/07/01	July	2	Summer

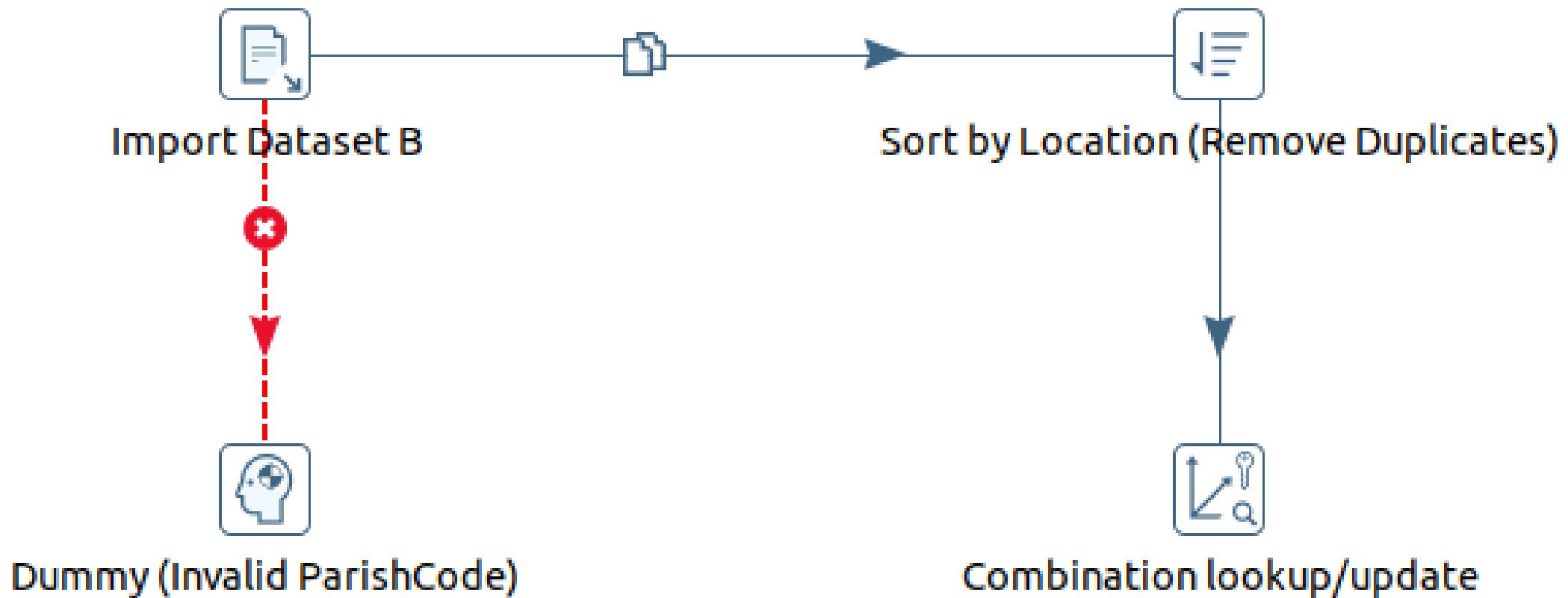
# Output Table

```
mysql> SELECT * FROM energy_dw.dim_time;
+-----+-----+-----+-----+-----+-----+
| time_id | year_id | season_id | season_name | month_id | month_name |
+-----+-----+-----+-----+-----+-----+
| 2020-11-01 | 2020 | 3 | Autumn | 11 | November |
| 2020-12-01 | 2020 | 4 | Winter | 12 | December |
| 2021-01-01 | 2021 | 4 | Winter | 1 | January |
| 2021-02-01 | 2021 | 4 | Winter | 2 | February |
| 2021-03-01 | 2021 | 1 | Spring | 3 | March |
| 2021-04-01 | 2021 | 1 | Spring | 4 | April |
| 2021-05-01 | 2021 | 1 | Spring | 5 | May |
| 2021-06-01 | 2021 | 2 | Summer | 6 | June |
| 2021-07-01 | 2021 | 2 | Summer | 7 | July |
| 2021-08-01 | 2021 | 2 | Summer | 8 | August |
| 2021-09-01 | 2021 | 3 | Autumn | 9 | September |
| 2021-10-01 | 2021 | 3 | Autumn | 10 | October |
| 2021-11-01 | 2021 | 3 | Autumn | 11 | November |
| 2021-12-01 | 2021 | 4 | Winter | 12 | December |
| 2022-01-01 | 2022 | 4 | Winter | 1 | January |
| 2022-02-01 | 2022 | 4 | Winter | 2 | February |
| 2022-03-01 | 2022 | 1 | Spring | 3 | March |
| 2022-04-01 | 2022 | 1 | Spring | 4 | April |
| 2022-05-01 | 2022 | 1 | Spring | 5 | May |
| 2022-06-01 | 2022 | 2 | Summer | 6 | June |
| 2022-07-01 | 2022 | 2 | Summer | 7 | July |
| 2022-08-01 | 2022 | 2 | Summer | 8 | August |
| 2022-09-01 | 2022 | 3 | Autumn | 9 | September |
| 2022-10-01 | 2022 | 3 | Autumn | 10 | October |
| 2022-11-01 | 2022 | 3 | Autumn | 11 | November |
| 2022-12-01 | 2022 | 4 | Winter | 12 | December |
| 2023-01-01 | 2023 | 4 | Winter | 1 | January |
| 2023-02-01 | 2023 | 4 | Winter | 2 | February |
| 2023-03-01 | 2023 | 1 | Spring | 3 | March |
| 2023-04-01 | 2023 | 1 | Spring | 4 | April |
| 2023-05-01 | 2023 | 1 | Spring | 5 | May |
| 2023-06-01 | 2023 | 2 | Summer | 6 | June |
| 2023-07-01 | 2023 | 2 | Summer | 7 | July |
| 2023-08-01 | 2023 | 2 | Summer | 8 | August |
| 2023-09-01 | 2023 | 3 | Autumn | 9 | September |
| 2023-10-01 | 2023 | 3 | Autumn | 10 | October |
| 2023-11-01 | 2023 | 3 | Autumn | 11 | November |
| 2023-12-01 | 2023 | 4 | Winter | 12 | December |
| 2024-01-01 | 2024 | 4 | Winter | 1 | January |
| 2024-02-01 | 2024 | 4 | Winter | 2 | February |
| 2024-03-01 | 2024 | 1 | Spring | 3 | March |
| 2024-04-01 | 2024 | 1 | Spring | 4 | April |
| 2024-05-01 | 2024 | 1 | Spring | 5 | May |
| 2024-06-01 | 2024 | 2 | Summer | 6 | June |
| 2024-07-01 | 2024 | 2 | Summer | 7 | July |
| 2024-08-01 | 2024 | 2 | Summer | 8 | August |
| 2024-09-01 | 2024 | 3 | Autumn | 9 | September |
+-----+-----+-----+-----+-----+-----+
47 rows in set (0.00 sec)
```

# **Location Dimension Population Transformation**

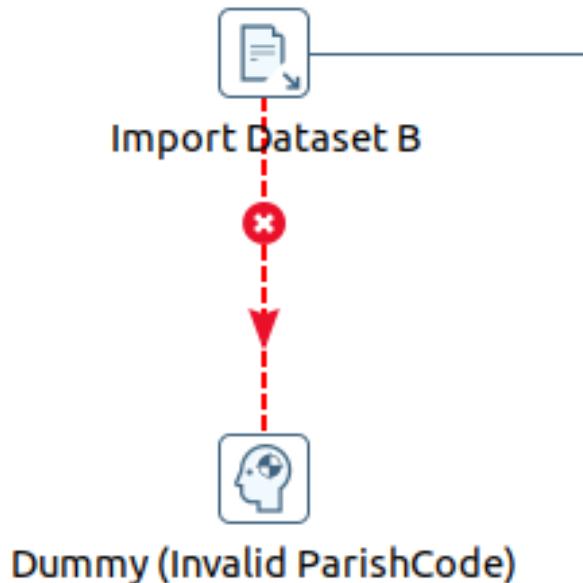


# Transformation

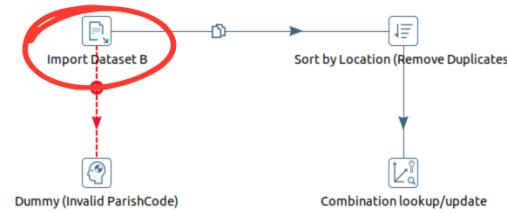


# Considerations on Location Dimension Populate Transformation

- **Using only Dataset B as source for location dimension**
  - In the time dimension table, we used both Datasets A & B as our sources to populate the table
  - However, this is unnecessary in the location dimension, as Dataset B contains all the parishes that Dataset A has (plus 3 extra parishes)
- **Handling errors in importing Dataset B**
  - While importing Dataset B, there are some errors due to invalid entries (DistrictMunicipalityParishCode is imported as Integer, but some invalid entries have it as String, and the conversion fails)
  - To handle this, we redirect the invalid entries to a dummy step



# Import Dataset B | Configuration



CSV File input

Step name **Import Dataset B**

Filename

Delimiter

Enclosure

NIO buffer size

Lazy conversion?

Header row present?

Add filename to result?

The row number field name (optional)

Running in parallel?

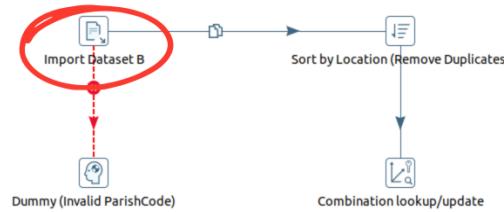
New line possible in fields?

Format

File encoding

Name	Type	Format	Length	Precision	Currency	Decimal	Group	Trim type
1 District	String		16		\$	.	,	none
2 Municipality	String		22		\$	.	,	none
3 parish	String		30		\$	.	,	none
4 DistrictMunicipalityParishCode	Integer							none

# Import Dataset B | Preview



Rows of step: Import Dataset B (1000 rows)

	District	Municipality	parish	DistrictMunicipalityParishCode
1	Évora	Vila Viçosa	N S CONCEICAO E SAO BARTOLOMEU	71406
2	Faro	Albufeira	PADERNE	80103
3	Faro	Alcoutim	GIOES	80202
4	Faro	Alcoutim	UF ALCOUTIM E PEREIRO	80206
5	Faro	Alcoutim	UF ALCOUTIM E PEREIRO	80206
6	Faro	Aljezur	ODECEIXE	80303
7	Faro	Castro Marim	AZINHAL	80401
8	Faro	Faro	SANTA BARBARA DE NEXE	80503
9	Faro	Faro	UF CONCEICAO E ESTOI	80507
10	Faro	Lagoa	UF ESTOMBAR E PARCHAL	80607
11	Faro	Lagos	ODIAXERE	80704
12	Faro	Loulé	LOULE (SAO CLEMENTE)	80808
13	Faro	Loulé	UF QUERENCA TOR E BENAFIM	80812
14	Faro	Olhão	OLHAO	81003
15	Faro	São Brás de Alportel	SAO BRAS DE ALPORTEL	81201
16	Faro	Vila do Bispo	SAGRES	81504
17	Faro	Vila Real de Santo António	VILA NOVA DE CACELA	81601
18	Guarda	Aguiar da Beira	PINHEIRO	90110
19	Guarda	Almeida	MALHADA SORDA	90213
20	Guarda	Almeida	UF JUNCA E NAVES	90233
21	Guarda	Celorico da Beira	MESQUITELA	90310
22	Guarda	Figueira de Castelo Rodrigo	UF COLMEAL E VILAR TORPIM	90422
23	Guarda	Fornos de Algodres	MUXAGATA	90511
24	Guarda	Gouveia	SAO PAIO	90617
25	Guarda	Gouveia	UF ALDEIAS MANGUALDE SERRA	90623
26	Guarda	Gouveia	UF MELO E NABAIS	90626
27	Guarda	Guarda	GONCALO BOCAS	90721
28	Guarda	Guarda	PANOIAS DE CIMA	90728
29	Guarda	Guarda	GUARDA	90758
30	Guarda	Guarda	UF MIZARELA P SOARES V SOEIRO	90763
31	Guarda	Manteigas	MANTEIGAS (SANTA MARIA)	90802
32	Guarda	Pinhel	ALVERCA DA BEIRA/BOUCA COVA	91029
33	Guarda	Sabugal	BENDADA	91110
34	Guarda	Sabugal	SOUTO	91134
35	Guarda	Seia	SANTIAGO	91216
36	Guarda	Seia	VALEZIM	91225
37	Guarda	Trancoso	CASTANHEIRA	91303
38	Guarda	Trancoso	POVOA DO CONCELHO	91314
39	Guarda	Trancoso	VALDUJO	91325
40	Guarda	Trancoso	UF TRANCOSO E SOUTO MAIOR	91332
41	Leiria	Alcobaça	BARRIO	100104
42	Leiria	Alcobaça	CELA	100106
43	Leiria	Alcobaça	VIMEIRO	100116
44	Leiria	Alcobaça	ALJUBARROTA	100120
45	Leiria	Ansião	ANSIAO	100309

# Dummy (Invalid ParishCode) | Preview

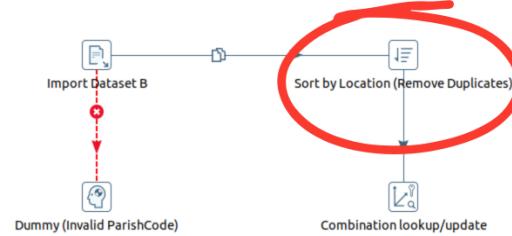


Rows of step: Dummy (Invalid ParishCode) (1000 rows)

	District	Municipality	parish	DistrictMunicipalityParishCode
1	Viana do Castelo	OUTROS VIANA DO CASTELO	OUTROS VIANA DO CASTELO	<null>
2	Aveiro	OUTROS AVEIRO	OUTROS AVEIRO	<null>
3	Coimbra	OUTROS COIMBRA	OUTROS COIMBRA	<null>
4	Lisboa	OUTROS LISBOA	OUTROS LISBOA	<null>
5	Porto	OUTROS PORTO	OUTROS PORTO	<null>
6	Porto	OUTROS PORTO	OUTROS PORTO	<null>
7	Aveiro	OUTROS AVEIRO	OUTROS AVEIRO	<null>
8	Viana do Castelo	OUTROS VIANA DO CASTELO	OUTROS VIANA DO CASTELO	<null>
9	Viseu	OUTROS VISEU	OUTROS VISEU	<null>
10	Aveiro	OUTROS AVEIRO	OUTROS AVEIRO	<null>
11	Beja	OUTROS BEJA	OUTROS BEJA	<null>
12	Braga	OUTROS BRAGA	OUTROS BRAGA	<null>
13	Braga	Barcelos	UF MILHAZES VILAR FIGOS FARIA	<null>
14	Braga	Barcelos	UF MILHAZES VILAR FIGOS FARIA	<null>
15	Braga	Barcelos	UF QUINTIAES E AGUIAR	<null>
16	Braga	Barcelos	UF SILVEIROS E RIO COVO	<null>
17	Braga	Barcelos	UF TAMEL E VILAR DO MONTE	<null>
18	Bragança	OUTROS BRAGANCA	OUTROS BRAGANCA	<null>
19	Évora	OUTROS EVORA	OUTROS EVORA	<null>
20	Porto	OUTROS PORTO	OUTROS PORTO	<null>
21	Vila Real	OUTROS VILA REAL	OUTROS VILA REAL	<null>
22	Aveiro	OUTROS AVEIRO	OUTROS AVEIRO	<null>
23	Beja	OUTROS BEJA	OUTROS BEJA	<null>
24	Braga	OUTROS BRAGA	OUTROS BRAGA	<null>
25	Braga	Barcelos	UF MILHAZES VILAR FIGOS FARIA	<null>
26	Braga	Barcelos	UF QUINTIAES E AGUIAR	<null>
27	Braga	Barcelos	UF SILVEIROS E RIO COVO	<null>
28	Braga	Barcelos	UF VIATOD GRIMANCEL MINHOT FRA	<null>
29	Bragança	OUTROS BRAGANCA	OUTROS BRAGANCA	<null>
30	Castelo Branco	OUTROS CASTELO BRANCO	OUTROS CASTELO BRANCO	<null>
31	Aveiro	OUTROS AVEIRO	OUTROS AVEIRO	<null>
32	Braga	Barcelos	UF MILHAZES VILAR FIGOS FARIA	<null>
33	Braga	Barcelos	UF MILHAZES VILAR FIGOS FARIA	<null>
34	Braga	Barcelos	UF NEGREIROS E CHAVAO	<null>
35	Braga	Barcelos	UF SILVEIROS E RIO COVO	<null>
36	Braga	Barcelos	UF SILVEIROS E RIO COVO	<null>
37	Braga	Barcelos	UF TAMEL E VILAR DO MONTE	<null>
38	Braga	Barcelos	UF VIATOD GRIMANCEL MINHOT FRA	<null>
39	Coimbra	OUTROS COIMBRA	OUTROS COIMBRA	<null>
40	Faro	OUTROS FARO	OUTROS FARO	<null>
41	Guarda	OUTROS GUARDA	OUTROS GUARDA	<null>
42	Portalegre	OUTROS PORTALEGRE	OUTROS PORTALEGRE	<null>
43	Viana do Castelo	OUTROS VIANA DO CASTELO	OUTROS VIANA DO CASTELO	<null>
44	Viseu	OUTROS VISEU	OUTROS VISEU	<null>
45	Aveiro	OUTROS AVEIRO	OUTROS AVEIRO	<null>

# Sort by Location (Remove Duplicates)

## Configuration



Sort rows

Step name **Sort by Location (Remove Duplicates)**

Sort directory `%%java.io.tmpdir%%`

TMP-file prefix `out`

Sort size (rows in memory) `1000000`

Free memory threshold (in %)

Compress TMP Files?

Only pass unique rows? (verifies keys only)

Fields :

▼	Fieldname	Ascending	Case sensitive compare?	Sort based on current locale?	Collator Strength
1	District	Y	N	N	0
2	Municipality	Y	N	N	0
3	parish	Y	N	N	0

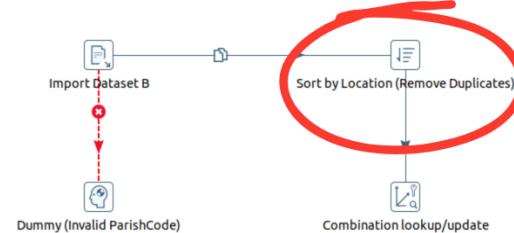
Help OK Cancel Get Fields

# Sort by Location (Remove Duplicates)

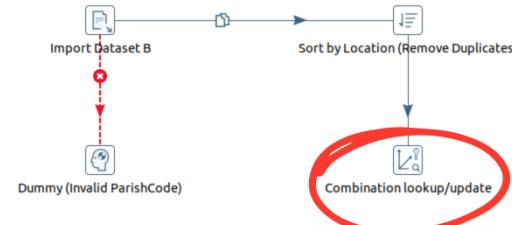
## Preview

Rows of step: Sort by Location (Remove Duplicates) (1000 rows)

	District	Municipality	parish	DistrictMunicipalityParishCode
1	Aveiro	Albergaria-a-Velha	ALBERGARIA-A-VELHA E VALMAIOR	10209
2	Aveiro	Albergaria-a-Velha	ALQUERUBIM	10202
3	Aveiro	Albergaria-a-Velha	ANGEJA	10203
4	Aveiro	Albergaria-a-Velha	BRANCA	10204
5	Aveiro	Albergaria-a-Velha	RIBEIRA DE FRAGUAS	10206
6	Aveiro	Albergaria-a-Velha	SAO JOAO DE LOURE E FROSSOS	10210
7	Aveiro	Anadia	AVELAS DE CAMINHO	10304
8	Aveiro	Anadia	AVELAS DE CIMA	10305
9	Aveiro	Anadia	MOITA	10307
10	Aveiro	Anadia	SANGALHOS	10309
11	Aveiro	Anadia	SAO LOURENCO DO BAIRRO	10310
12	Aveiro	Anadia	UF A DA GANDARA BAIRRO E ANCAS	10316
13	Aveiro	Anadia	UF ARCOS E MOGOFORES	10317
14	Aveiro	Anadia	UF TAMENGOS AGUIM OIS BAIRRO	10318
15	Aveiro	Anadia	VILA NOVA DE MONSARROS	10312
16	Aveiro	Anadia	VILARINHO DO BAIRRO	10313
17	Aveiro	Arouca	ALVARENGA	10402
18	Aveiro	Arouca	CHAVE	10407
19	Aveiro	Arouca	ESCARIZ	10409
20	Aveiro	Arouca	FERMEDO	10411
21	Aveiro	Arouca	MANSORES	10413
22	Aveiro	Arouca	MOLDES	10414
23	Aveiro	Arouca	ROSSAS	10415
24	Aveiro	Arouca	SANTA EULALIA	10416
25	Aveiro	Arouca	SAO MIGUEL DO MATO	10417
26	Aveiro	Arouca	TROPECO	10418
27	Aveiro	Arouca	UF AROUCA E BURGO	10421
28	Aveiro	Arouca	UF CABREIROS ALBERGARIA SERRA	10422
29	Aveiro	Arouca	UF CANELAS E ESPIUNCA	10423
30	Aveiro	Arouca	UF COVELO DE PAIVO E JANARDE	10424
31	Aveiro	Arouca	URRO	10419
32	Aveiro	Arouca	VARZEA	10420
33	Aveiro	Aveiro	ARADAS	10501
34	Aveiro	Aveiro	CACIA	10502
35	Aveiro	Aveiro	EIXO E EIROL	10515
36	Aveiro	Aveiro	ESQUEIRA	10505
37	Aveiro	Aveiro	OLIVEIRINHA	10508
38	Aveiro	Aveiro	REQUEIXO N S FATIMA E NARIZ	10516
39	Aveiro	Aveiro	SANTA JOANA	10513
40	Aveiro	Aveiro	SAO BERNARDO	10510
41	Aveiro	Aveiro	SAO JACINTO	10511
42	Aveiro	Aveiro	UF GLORIA E VERA CRUZ	10517
43	Aveiro	Castelo de Paiva	FORNOS	10602
44	Aveiro	Castelo de Paiva	REAL	10606
45	Aveiro	Castelo de Paiva	SANTA MARIA DE SARDOURA	10607



# Combination lookup/update | Configuration



Combination lookup/update

Step name **Combination lookup/update**

Connection **energy\_dw**

Target schema **energy\_dw**

Target table **dim\_location**

Commit size **100** Cache size **9999**

Pre-load the cache?

Key fields (to look up row in table):

	Dimension field	Field in stream
1	region	District
2	municipality	Municipality
3	parish	parish
4	parish_code	DistrictMunicipalityParishCode

Technical key field **location\_id**

Creation of technical key

Use table maximum + 1

Use sequence

Use auto increment field

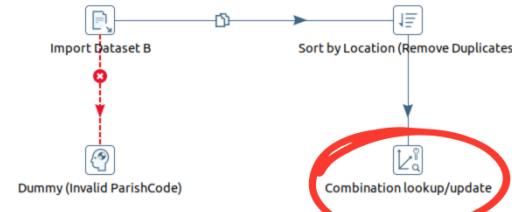
Remove lookup fields?

Use hashcode?

Hashcode field in table

Date of last update field (optional)

# Combination lookup/update | Preview



Rows of step: Combination lookup/update (1000 rows)

	District	Municipality	parish	DistrictMunicipalityParishCode	location_id
1	Aveiro	Albergaria-a-Velha	ALBERGARIA-A-VELHA E VALMAIOR	10209	1
2	Aveiro	Albergaria-a-Velha	ALQUERUBIM	10202	2
3	Aveiro	Albergaria-a-Velha	ANGEJA	10203	3
4	Aveiro	Albergaria-a-Velha	BRANCA	10204	4
5	Aveiro	Albergaria-a-Velha	RIBEIRA DE FRAGUAS	10206	5
6	Aveiro	Albergaria-a-Velha	SAO JOAO DE LOURE E FROSSOS	10210	6
7	Aveiro	Anadia	AVELAS DE CAMINHO	10304	7
8	Aveiro	Anadia	AVELAS DE CIMA	10305	8
9	Aveiro	Anadia	MOITA	10307	9
10	Aveiro	Anadia	SANGALHOS	10309	10
11	Aveiro	Anadia	SAO LOURENCO DO BAIRRO	10310	11
12	Aveiro	Anadia	UF A DA GANDARA BAIRRO E ANCAS	10316	12
13	Aveiro	Anadia	UF ARCOS E MOGOFORES	10317	13
14	Aveiro	Anadia	UF TAMENGOS AGUIM OIS BAIRRO	10318	14
15	Aveiro	Anadia	VILA NOVA DE MONSARROS	10312	15
16	Aveiro	Anadia	VILARINHO DO BAIRRO	10313	16
17	Aveiro	Arouca	ALVARENGA	10402	17
18	Aveiro	Arouca	CHAVE	10407	18
19	Aveiro	Arouca	ESCARIZ	10409	19
20	Aveiro	Arouca	FERMEDO	10411	20
21	Aveiro	Arouca	MANSORES	10413	21
22	Aveiro	Arouca	MOLDES	10414	22
23	Aveiro	Arouca	ROSSAS	10415	23
24	Aveiro	Arouca	SANTA EULALIA	10416	24
25	Aveiro	Arouca	SAO MIGUEL DO MATO	10417	25
26	Aveiro	Arouca	TROPECO	10418	26
27	Aveiro	Arouca	UF AROUCA E BURGO	10421	27
28	Aveiro	Arouca	UF CABREIROS ALBERGARIA SERRA	10422	28
29	Aveiro	Arouca	UF CANELAS E ESPIUNCA	10423	29
30	Aveiro	Arouca	UF COVELO DE PAIVO E JANARDE	10424	30
31	Aveiro	Arouca	URRO	10419	31
32	Aveiro	Arouca	VARZEA	10420	32
33	Aveiro	Aveiro	ARADAS	10501	33
34	Aveiro	Aveiro	CACIA	10502	34
35	Aveiro	Aveiro	EIXO E EIROL	10515	35
36	Aveiro	Aveiro	ESGUEIRA	10505	36
37	Aveiro	Aveiro	OLIVEIRINHA	10508	37
38	Aveiro	Aveiro	REQUEIXO N S FATIMA E NARIZ	10516	38
39	Aveiro	Aveiro	SANTA JOANA	10513	39
40	Aveiro	Aveiro	SAO BERNARDO	10510	40
41	Aveiro	Aveiro	SAO JACINTO	10511	41
42	Aveiro	Aveiro	UF GLORIA E VERA CRUZ	10517	42
43	Aveiro	Castelo de Paiva	FORNOS	10602	43
44	Aveiro	Castelo de Paiva	REAL	10606	44
45	Aveiro	Castelo de Paiva	SANTA MARIA DE SARDOURA	10607	45

# Output Table

location_id	region	municipality	parish	parish_code
1	Aveiro	Albergaria-a-Velha	ALBERGARIA-A-VELHA E VALMAIOR	10209
2	Aveiro	Albergaria-a-Velha	ALQUERUBIM	10202
3	Aveiro	Albergaria-a-Velha	ANGEJA	10203
4	Aveiro	Albergaria-a-Velha	BRANCA	10204
5	Aveiro	Albergaria-a-Velha	RIBEIRA DE FRAGUAS	10206
6	Aveiro	Albergaria-a-Velha	SAO JOAO DE LOURE E FROSSOS	10210
7	Aveiro	Anadia	AVELAS DE CAMINHO	10304
8	Aveiro	Anadia	AVELAS DE CIMA	10305
9	Aveiro	Anadia	MOITA	10307
10	Aveiro	Anadia	SANGALHOS	10309
11	Aveiro	Anadia	SAO LOURENCO DO BAIRRO	10310
12	Aveiro	Anadia	UF A DA GANDARA BAIRRO E ANCAS	10316
13	Aveiro	Anadia	UF ARCOS E MOGOFORES	10317
14	Aveiro	Anadia	UF TAMENGOS AGUIM OIS BAIRRO	10318
15	Aveiro	Anadia	VILA NOVA DE MONSARROS	10312
16	Aveiro	Anadia	VILARINHO DO BAIRRO	10313
17	Aveiro	Arouca	ALVARENGA	10402
18	Aveiro	Arouca	CHAVE	10407
19	Aveiro	Arouca	ESCARIZ	10409
20	Aveiro	Arouca	FERMEDO	10411
21	Aveiro	Arouca	MANSORES	10413
22	Aveiro	Arouca	MOLDES	10414
23	Aveiro	Arouca	ROSSAS	10415
24	Aveiro	Arouca	SANTA EULALIA	10416
25	Aveiro	Arouca	SAO MIGUEL DO MATO	10417
26	Aveiro	Arouca	TROPECO	10418
27	Aveiro	Arouca	UF AROUCA E BURGO	10421
28	Aveiro	Arouca	UF CABREIROS ALBERGARIA SERRA	10422
29	Aveiro	Arouca	UF CANELAS E ESPIUNCA	10423
30	Aveiro	Arouca	UF COVELO DE PAIVO E JANARDE	10424
31	Aveiro	Arouca	URRO	10419
32	Aveiro	Arouca	VARZEA	10420
33	Aveiro	Aveiro	ARADAS	10501
34	Aveiro	Aveiro	CACIA	10502
35	Aveiro	Aveiro	EIXO E EIROL	10515
36	Aveiro	Aveiro	ESGUEIRA	10505
37	Aveiro	Aveiro	OLIVEIRINHA	10508
38	Aveiro	Aveiro	REQUEIXO N S FATIMA E NARIZ	10516
39	Aveiro	Aveiro	SANTA JOANA	10513
40	Aveiro	Aveiro	SAO BERNARDO	10510
41	Aveiro	Aveiro	SAO JACINTO	10511
42	Aveiro	Aveiro	UF GLORIA E VERA CRUZ	10517
43	Aveiro	Castelo de Paiva	FORNOS	10602
44	Aveiro	Castelo de Paiva	REAL	10606
45	Aveiro	Castelo de Paiva	SANTA MARIA DE SARDOURA	10607
46	Aveiro	Castelo de Paiva	SAO MARTINHO DE SARDOURA	10608
47	Aveiro	Castelo de Paiva	UF RAIVA PEDORIDO E PARAISO	10610
48	Aveiro	Castelo de Paiva	UF SOBRADO E BAIRROS	10611
49	Aveiro	Espinho	ESPINHO	10702
50	Aveiro	Espinho	PARAMOS	10704

# **Dimension Tables**

## **Population Job**

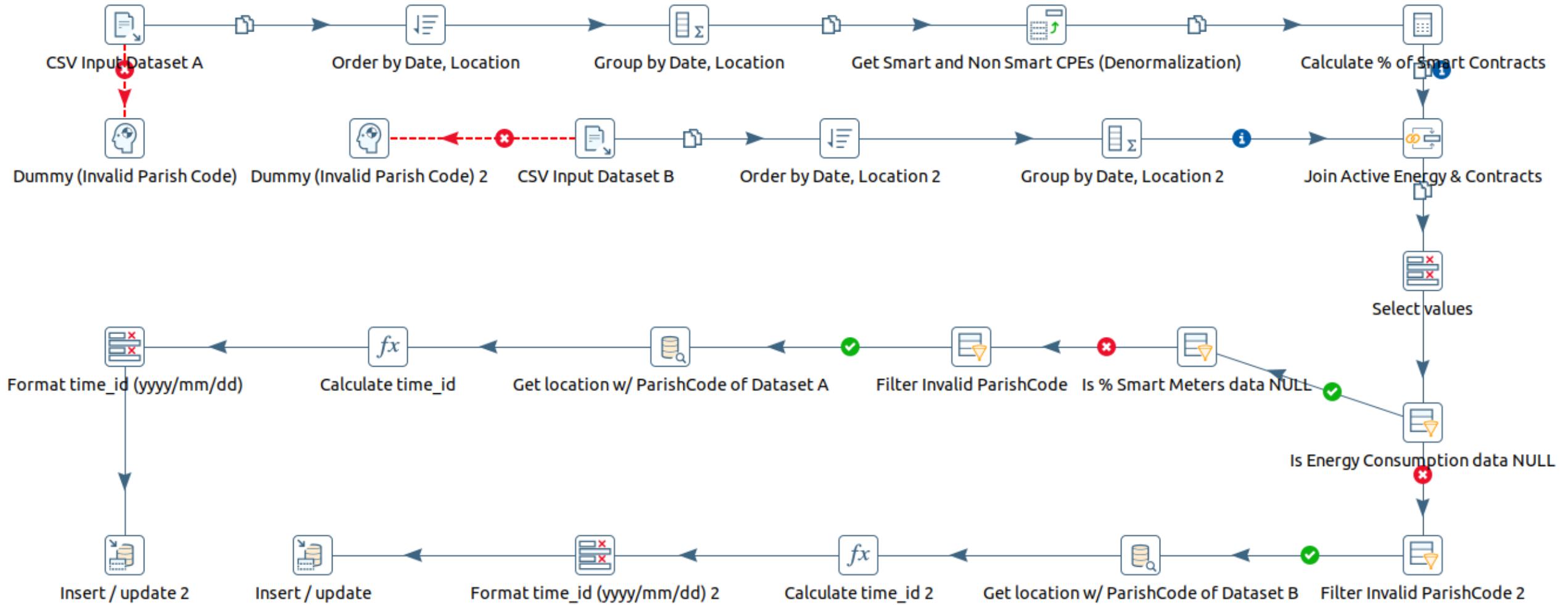
# Job



# **Task 6**

# **Facts Table Population Transformation**

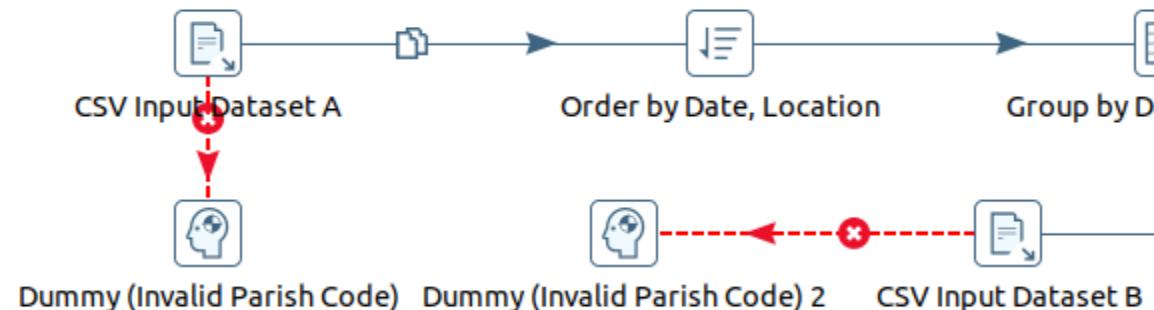
# Transformation



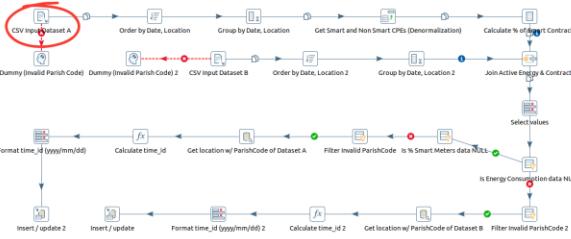
# Considerations on Facts Table Population Transformation

- **Handling errors in importing both Datasets**

- In Datasets A and B, there are entries with invalid DistrictMunicipalityParishCode values that include string characters, making them non-parseable as integers
- Due to this reason, these entries are redirected to Dummy steps



# CSV Input Dataset A | Configuration



CSV file input

Step name **CSV Input Dataset A**

Filename

Delimiter

Enclosure

NIO buffer size

Lazy conversion?

Header row present?

Add filename to result

The row number field name (optional)

Running in parallel?

New line possible in fields?

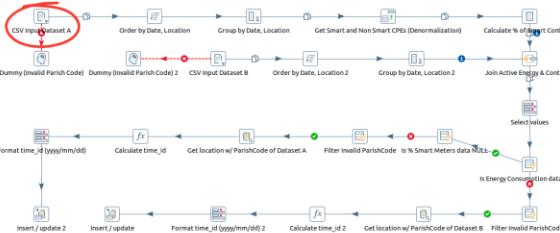
Format

File encoding

Name	Type	Format	Length	Precision	Currency	Decimal	Group	Trim type
1 Year	Integer	#	15	0	\$	.	,	none
2 Month	Integer	#	15	0	\$	.	,	none
3 Date	String		7		\$	.	,	none
4 District	String		16		\$	.	,	none
5 Municipality	String		27		\$	.	,	none
6 Parish	String		30		\$	.	,	none
7 Includes Smart Meter	String		3		\$	.	,	none
8 Number of CPE's	Integer	#	15	0	\$	.	,	none
9 DistrictMunicipalityParishCode	Integer							none

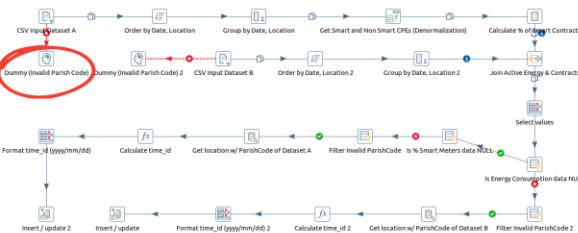
OK   Get Fields   Preview   Cancel

# CSV Input Dataset A | Preview



Rows of step: CSV Input Dataset A (1000 rows)

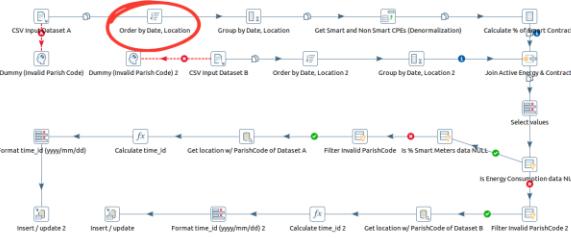
	Year	Month	Date	District	Municipality	Parish	Includes Smart Meter	Number of CPE's	DistrictMunicipalityParishCode
1	2024	5	2024-05	Vila Real	Ribeira de Pena	Alvadia	Sim	155	170901
2	2024	5	2024-05	Bragança	Mogadouro	Travanca	Não	15	40820
3	2024	5	2024-05	Portalegre	Ponte de Sor	Montargil	Não	475	121302
4	2024	5	2024-05	Viseu	Santa Comba Dão	Santa Comba Dão e Couto do Mosteiro	Sim	3141	181411
5	2024	5	2024-05	Portalegre	Arronches	Assunção	Sim	1248	120201
6	2024	5	2024-05	Santarém	Tomar	Asseiceira	Sim	1549	141802
7	2024	5	2024-05	Coimbra	Mira	Carapelhos	Sim	488	60803
8	2024	5	2024-05	Guarda	Celorico da Beira	Prados	Sim	221	90312
9	2024	5	2024-05	Viana do Castelo	Paredes de Coura	Agualonga	Sim	175	160501
10	2024	5	2024-05	Beja	Odemira	Relíquias	Sim	334	21102
11	2024	5	2024-05	Bragança	Macedo de Cavaleiros	Talhínhas e Bagueixe	Sim	319	40544
12	2024	5	2024-05	Coimbra	Condeixa-a-Nova	Zambujal	Não	1	60410
13	2024	5	2024-05	Bragança	Vila Flor	Santa Comba de Vilariça	Não	19	41012
14	2024	5	2024-05	Viana do Castelo	Melgaço	Cousso	Não	96	160304
15	2024	5	2024-05	Castelo Branco	Proença-a-Nova	Sobreira Formosa e Alvito da Beira	Sim	1525	50808
16	2024	5	2024-05	Guarda	Trancoso	Rio de Mel	Sim	186	91316
17	2024	5	2024-05	Braga	Barcelos	Tamel (São Veríssimo)	Sim	1353	30277
18	2024	5	2024-05	Beja	Moura	Amareleja	Não	63	21001
19	2024	5	2024-05	Bragança	Vinhais	Edral	Sim	151	41206
20	2024	5	2024-05	Porto	Paços de Ferreira	Raimonda	Sim	1069	130914
21	2024	5	2024-05	Vila Real	Murça	Murça	Sim	1346	170705
22	2024	5	2024-05	Guarda	Seia	Sazes da Beira	Não	107	91219
23	2024	5	2024-05	Braga	Barcelos	Vila Seca	Sim	342	30287
24	2024	5	2024-05	Viseu	Sátão	Mioma	Não	14	181706
25	2024	5	2024-05	Coimbra	Tábua	Póvoa de Midões	Não	14	61611
26	2024	5	2024-05	Lisboa	Torres Vedras	Ramalhal	Não	594	111311
27	2024	5	2024-05	Lisboa	Cadaval	Alguber	Sim	552	110401
28	2024	5	2024-05	Viana do Castelo	Monção	Ceivães e Badim	Sim	521	160435
29	2024	5	2024-05	Santarém	Santarém	Casével e Vaqueiros	Sim	444	141631
30	2024	5	2024-05	Guarda	Sabugal	Alfaiates	Sim	594	91107
31	2024	5	2024-05	Coimbra	Tábua	Pinheiro de Coja e Meda de Mouros	Sim	166	61619
32	2024	5	2024-05	Braga	Póvoa de Lanhoso	Ferreiros	Sim	176	30908
33	2024	5	2024-05	Bragança	Bragança	Macedo do Mato	Sim	147	40221
34	2024	5	2024-05	Viseu	Tondela	Tondela e Nandufe	Sim	3723	182132
35	2024	5	2024-05	Leiria	Porto de Mós	Mira de Aire	Sim	2285	101608
36	2024	5	2024-05	Viseu	Penalva do Castelo	Vila Cova do Covelo/Mareco	Sim	309	181115
37	2024	5	2024-05	Portalegre	Fronteira	Fronteira	Sim	1348	120802
38	2024	5	2024-05	Beja	Mértola	Mértola	Sim	2380	20904
39	2024	5	2024-05	Braga	Vila Nova de Famalicão	Riba de Ave	Sim	1690	31234
40	2024	5	2024-05	Leiria	Ansião	Pousaflores	Sim	798	100306
41	2024	5	2024-05	Bragança	Vinhais	Curopos e Vale de Janeiro	Não	38	41236
42	2024	5	2024-05	Porto	Penafiel	Castelões	Não	44	131107
43	2024	5	2024-05	Porto	Maia	Cidade da Maia	Sim	21275	130619
44	2024	5	2024-05	Lisboa	Azambuja	Azambuja	Sim	4514	110304
45	2024	5	2024-05	Leiria	Óbidos	Santa Maria, São Pedro e Sobral da Lagoa	Sim	2775	101210



# Dummy (Invalid Parish Code) | Preview

#	Year	Month	Date	District	Municipality	Parish	Includes Smart Meter	Number of CPE's	DistrictMunicipalityParishCode
7	2023	2	2023-02	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	585	<null>
9	2023	1	2023-01	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	587	<null>
11	2022	7	2022-07	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	363	<null>
19	2024	1	2024-01	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	434	<null>
29	2023	11	2023-11	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	533	<null>
31	2023	9	2023-09	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	550	<null>
57	2024	7	2024-07	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	548	<null>
58	2024	5	2024-05	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	483	<null>
62	2024	2	2024-02	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	518	<null>
64	2024	2	2024-02	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	439	<null>
70	2023	11	2023-11	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	426	<null>
73	2024	1	2024-01	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	523	<null>
93	2023	10	2023-10	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	422	<null>
96	2023	10	2023-10	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	538	<null>
102	2024	3	2024-03	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	511	<null>
109	2023	9	2023-09	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	425	<null>
118	2022	11	2022-11	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	357	<null>
121	2023	7	2023-07	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	564	<null>
128	2023	8	2023-08	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	434	<null>
162	2023	1	2023-01	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	363	<null>
173	2024	5	2024-05	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	475	<null>
188	2024	8	2024-08	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	416	<null>
190	2024	9	2024-09	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	699	<null>
193	2023	6	2023-06	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	564	<null>
194	2023	6	2023-06	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	431	<null>
191	2024	6	2024-06	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	461	<null>
193	2023	8	2023-08	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	561	<null>
134	2023	2	2023-02	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	366	<null>
139	2023	4	2023-04	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	575	<null>
140	2023	4	2023-04	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	373	<null>
147	2022	8	2022-08	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	365	<null>
154	2022	6	2022-06	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	609	<null>
168	2024	4	2024-04	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	467	<null>
171	2024	4	2024-04	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	491	<null>
179	2022	8	2022-08	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	620	<null>
182	2022	6	2022-06	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	355	<null>
189	2022	12	2022-12	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	592	<null>
194	2022	9	2022-09	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	605	<null>
197	2024	8	2024-08	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	584	<null>
123	2022	11	2022-11	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	592	<null>
132	2024	3	2024-03	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	447	<null>
138	2023	5	2023-05	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	551	<null>
144	2022	10	2022-10	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Não	596	<null>
146	2022	12	2022-12	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	357	<null>
152	2023	7	2023-07	Braga	Barcelos	Milhazes, Vilar de Figos e Faria	Sim	432	<null>

# Order by Date, Location | Configuration



Sort rows

Step name **Order by Date, Location**

Sort directory **%%java.io.tmpdir%%** [Browse...](#)

TMP-file prefix **out**

Sort size (rows in memory) **1000000**

Free memory threshold (in %)

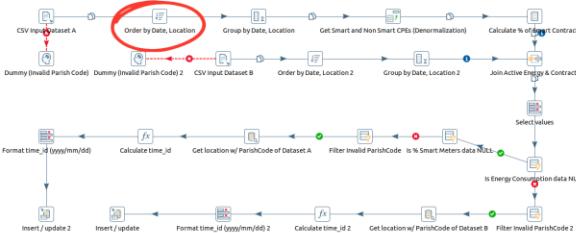
Compress TMP Files?

Only pass unique rows? (verifies keys only)

Fields :

Fieldname	Ascending	Case sensitive compare?	Sort based on current locale?	Collator Strength
1 Year	Y	N	N	0
2 Month	Y	N	N	0
3 DistrictMunicipalityParishCode	Y	N	N	0
4 Parish	Y	N	N	0
5 Municipality	Y	N	N	0
6 District	Y	N	N	0
7 Includes Smart Meter	Y	N	N	0

[? Help](#) [OK](#) [Cancel](#) [Get Fields](#)

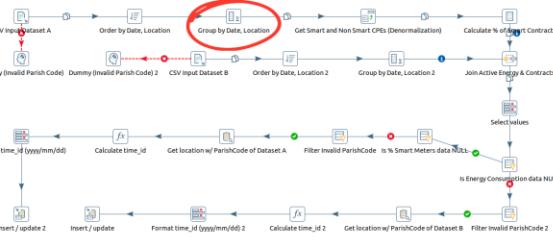


# Order by Date, Location | Preview

Rows of step: Order by Date, Location (1000 rows)

	Year	Month	Date	District	Municipality	Parish	Includes Smart Meter	Number of CPE's	DistrictMunicipalityParishCode
1	2022	6	2022-06	<null>	<null>	<null>	Sim	1	-1
2	2022	6	2022-06	Aveiro	Águeda	Aguada de Cima	Não	383	10103
3	2022	6	2022-06	Aveiro	Águeda	Aguada de Cima	Sim	1770	10103
4	2022	6	2022-06	Aveiro	Águeda	Fermentelos	Não	548	10109
5	2022	6	2022-06	Aveiro	Águeda	Fermentelos	Sim	1249	10109
6	2022	6	2022-06	Aveiro	Águeda	Macinhata do Vouga	Não	666	10112
7	2022	6	2022-06	Aveiro	Águeda	Macinhata do Vouga	Sim	1168	10112
8	2022	6	2022-06	Aveiro	Águeda	Valongo do Vouga	Não	82	10119
9	2022	6	2022-06	Aveiro	Águeda	Valongo do Vouga	Sim	90	10119
10	2022	6	2022-06	Aveiro	Águeda	Águeda e Borralha	Não	407	10121
11	2022	6	2022-06	Aveiro	Águeda	Águeda e Borralha	Sim	7579	10121
12	2022	6	2022-06	Aveiro	Águeda	Barrô e Aguada de Baixo	Não	423	10122
13	2022	6	2022-06	Aveiro	Águeda	Barrô e Aguada de Baixo	Sim	1204	10122
14	2022	6	2022-06	Aveiro	Águeda	Belazaima do Chão, Castanheira do Vouga e Agadão	Não	397	10123
15	2022	6	2022-06	Aveiro	Águeda	Belazaima do Chão, Castanheira do Vouga e Agadão	Sim	501	10123
16	2022	6	2022-06	Aveiro	Águeda	Recordães e Espinhel	Não	758	10124
17	2022	6	2022-06	Aveiro	Águeda	Recordães e Espinhel	Sim	2268	10124
18	2022	6	2022-06	Aveiro	Águeda	Travassô e Óis da Ribeira	Não	247	10125
19	2022	6	2022-06	Aveiro	Águeda	Travassô e Óis da Ribeira	Sim	926	10125
20	2022	6	2022-06	Aveiro	Águeda	Trofa, Segadias e Lamas do Vouga	Não	715	10126
21	2022	6	2022-06	Aveiro	Águeda	Trofa, Segadias e Lamas do Vouga	Sim	1675	10126
22	2022	6	2022-06	Aveiro	Águeda	Préstimo e Macieira de Alcoba	Não	198	10127
23	2022	6	2022-06	Aveiro	Águeda	Préstimo e Macieira de Alcoba	Sim	393	10127
24	2022	6	2022-06	Aveiro	Albergaria-a-Velha	Alquerubim	Não	785	10202
25	2022	6	2022-06	Aveiro	Albergaria-a-Velha	Alquerubim	Sim	320	10202
26	2022	6	2022-06	Aveiro	Albergaria-a-Velha	Angeja	Não	630	10203
27	2022	6	2022-06	Aveiro	Albergaria-a-Velha	Angeja	Sim	364	10203
28	2022	6	2022-06	Aveiro	Albergaria-a-Velha	Branca	Não	1988	10204
29	2022	6	2022-06	Aveiro	Albergaria-a-Velha	Branca	Sim	809	10204
30	2022	6	2022-06	Aveiro	Albergaria-a-Velha	Ribeira de Frágua	Não	615	10206
31	2022	6	2022-06	Aveiro	Albergaria-a-Velha	Ribeira de Frágua	Sim	165	10206
32	2022	6	2022-06	Aveiro	Albergaria-a-Velha	Albergaria-a-Velha e Valmaior	Não	2659	10209
33	2022	6	2022-06	Aveiro	Albergaria-a-Velha	Albergaria-a-Velha e Valmaior	Sim	3886	10209
34	2022	6	2022-06	Aveiro	Albergaria-a-Velha	São João de Loure e Frossos	Não	1079	10210
35	2022	6	2022-06	Aveiro	Albergaria-a-Velha	São João de Loure e Frossos	Sim	365	10210
36	2022	6	2022-06	Aveiro	Anadia	Avelás de Caminho	Não	360	10304
37	2022	6	2022-06	Aveiro	Anadia	Avelás de Caminho	Sim	146	10304
38	2022	6	2022-06	Aveiro	Anadia	Avelás de Cima	Não	771	10305
39	2022	6	2022-06	Aveiro	Anadia	Avelás de Cima	Sim	317	10305
40	2022	6	2022-06	Aveiro	Anadia	Moita	Não	768	10307
41	2022	6	2022-06	Aveiro	Anadia	Moita	Sim	458	10307
42	2022	6	2022-06	Aveiro	Anadia	Sangalhos	Não	1620	10309
43	2022	6	2022-06	Aveiro	Anadia	Sangalhos	Sim	636	10309
44	2022	6	2022-06	Aveiro	Anadia	São Lourenço do Bairro	Não	989	10310
45	2022	6	2022-06	Aveiro	Anadia	São Lourenço do Bairro	Sim	381	10310

# Group by Date, Location | Configuration



**Group by**

Step name **Group by Date, Location**

Include all rows?

Temporary files directory `%%java.io.tmpdir%%`

TMP-file prefix `grp`

Add line number, restart in each group

Line number field name

Always give back a result row

The fields that make up the group:

Group field
1 Year
2 Month
3 DistrictMunicipalityParishCode
4 Parish
5 Municipality
6 District
7 Includes Smart Meter

**Aggregates :**

Name	Subject	Type
1 Number of Contracts	Number of CPE's	Sum

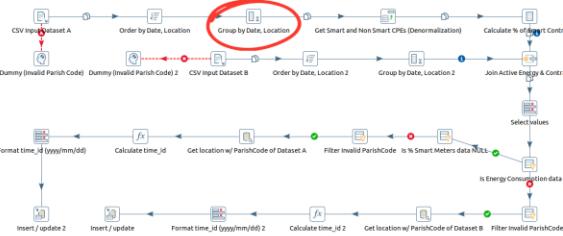
?

Help

OK

Cancel

# Group by Date, Location | Preview

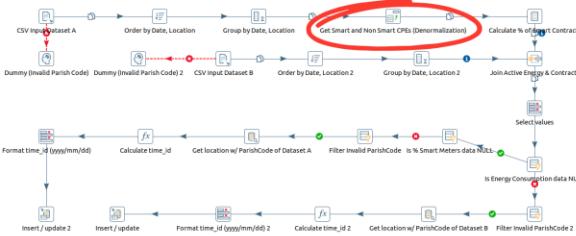


Rows of step: Group by Date, Location (1000 rows)

	Year	Month	DistrictMunicipalityParishCode	Parish	Municipality	District	Includes Smart Meter	Number of Contracts
1	2022	6		-1 <null>	<null>	<null>	Sim	1
2	2022	6		10103 Aguada de Cima	Águeda	Aveiro	Não	383
3	2022	6		10103 Aguada de Cima	Águeda	Aveiro	Sim	1770
4	2022	6		10109 Fermentelos	Águeda	Aveiro	Não	548
5	2022	6		10109 Fermentelos	Águeda	Aveiro	Sim	1249
6	2022	6		10112 Macinhata do Vouga	Águeda	Aveiro	Não	666
7	2022	6		10112 Macinhata do Vouga	Águeda	Aveiro	Sim	1168
8	2022	6		10119 Valongo do Vouga	Águeda	Aveiro	Não	82
9	2022	6		10119 Valongo do Vouga	Águeda	Aveiro	Sim	90
10	2022	6		10121 Águeda e Borralha	Águeda	Aveiro	Não	407
11	2022	6		10121 Águeda e Borralha	Águeda	Aveiro	Sim	7579
12	2022	6		10122 Barrô e Aguada de Baixo	Águeda	Aveiro	Não	423
13	2022	6		10122 Barrô e Aguada de Baixo	Águeda	Aveiro	Sim	1204
14	2022	6		10123 Belazaima do Chão, Castanheira do Vouga e Agadão	Águeda	Aveiro	Não	397
15	2022	6		10123 Belazaima do Chão, Castanheira do Vouga e Agadão	Águeda	Aveiro	Sim	501
16	2022	6		10124 Recardães e Espinhel	Águeda	Aveiro	Não	758
17	2022	6		10124 Recardães e Espinhel	Águeda	Aveiro	Sim	2268
18	2022	6		10125 Travassô e Óis da Ribeira	Águeda	Aveiro	Não	247
19	2022	6		10125 Travassô e Óis da Ribeira	Águeda	Aveiro	Sim	926
20	2022	6		10126 Trofa, Segadães e Lamas do Vouga	Águeda	Aveiro	Não	715
21	2022	6		10126 Trofa, Segadães e Lamas do Vouga	Águeda	Aveiro	Sim	1675
22	2022	6		10127 Préstimo e Macieira de Alcoba	Águeda	Aveiro	Não	198
23	2022	6		10127 Préstimo e Macieira de Alcoba	Águeda	Aveiro	Sim	393
24	2022	6		10202 Alquerubim	Albergaria-a-Velha	Aveiro	Não	785
25	2022	6		10202 Alquerubim	Albergaria-a-Velha	Aveiro	Sim	320
26	2022	6		10203 Angeja	Albergaria-a-Velha	Aveiro	Não	630
27	2022	6		10203 Angeja	Albergaria-a-Velha	Aveiro	Sim	364
28	2022	6		10204 Branca	Albergaria-a-Velha	Aveiro	Não	1988
29	2022	6		10204 Branca	Albergaria-a-Velha	Aveiro	Sim	809
30	2022	6		10206 Ribeira de Fráguas	Albergaria-a-Velha	Aveiro	Não	615
31	2022	6		10206 Ribeira de Fráguas	Albergaria-a-Velha	Aveiro	Sim	165
32	2022	6		10209 Albergaria-a-Velha e Valmaior	Albergaria-a-Velha	Aveiro	Não	2659
33	2022	6		10209 Albergaria-a-Velha e Valmaior	Albergaria-a-Velha	Aveiro	Sim	3886
34	2022	6		10210 São João de Loure e Frossos	Albergaria-a-Velha	Aveiro	Não	1079
35	2022	6		10210 São João de Loure e Frossos	Albergaria-a-Velha	Aveiro	Sim	365
36	2022	6		10304 Avelás de Caminho	Anadia	Aveiro	Não	360
37	2022	6		10304 Avelás de Caminho	Anadia	Aveiro	Sim	146
38	2022	6		10305 Avelás de Cima	Anadia	Aveiro	Não	771
39	2022	6		10305 Avelás de Cima	Anadia	Aveiro	Sim	317
40	2022	6		10307 Moita	Anadia	Aveiro	Não	768
41	2022	6		10307 Moita	Anadia	Aveiro	Sim	458
42	2022	6		10309 Sangalhos	Anadia	Aveiro	Não	1620
43	2022	6		10309 Sangalhos	Anadia	Aveiro	Sim	636
44	2022	6		10310 São Lourenço do Bairro	Anadia	Aveiro	Não	989
45	2022	6		10310 São Lourenço do Bairro	Anadia	Aveiro	Sim	381

# Get Smart and Non Smart CPEs (Denormalization)

## Configuration



Row denormaliser

Step name **Get Smart and Non Smart CPEs (Denormalization)**

The key field **Includes Smart Meter**

The fields that make up the grouping:

Group field  
1 DistrictMunicipalityParishCode Get Fields

Target fields:

Target fieldname	Value fieldname	Key value	Type	Format	Length	Precision	Currency	Decimal	Group	Null if	Aggregation	Get lookup fields
1 Number of Smart Contracts	Number of Contracts	Sim	Number			0					Sum	
2 Number of Non Smart Contracts	Number of Contracts	Não	Number								Sum	

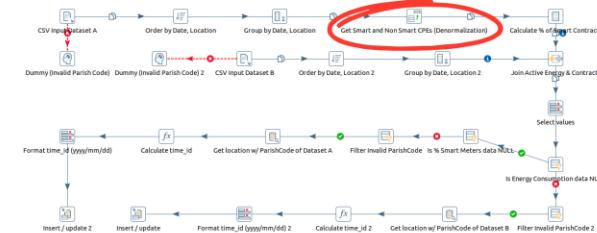
OK Cancel

# Get Smart and Non Smart CPEs (Denormalization)

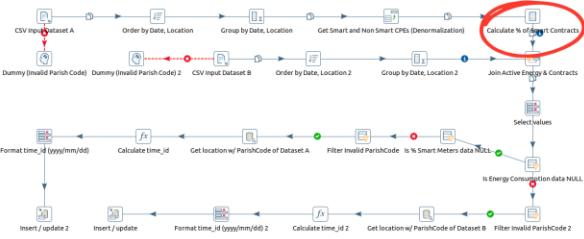
## Preview

Rows of step: Get Smart and Non Smart CPEs (Denormalization) (1000 rows)

	Year	Month	DistrictMunicipalityParishCode	Parish	Municipality	District	Number of Smart Contracts	Number of Non Smart Contracts
1	2022	6		-1 <null>	<null>	<null>	1.0	<null>
2	2022	6	10103	Aguada de Cima	Águeda	Aveiro	1770.0	383.0
3	2022	6	10109	Fermentelos	Águeda	Aveiro	1249.0	548.0
4	2022	6	10112	Macinhata do Vouga	Águeda	Aveiro	1168.0	666.0
5	2022	6	10119	Valongo do Vouga	Águeda	Aveiro	90.0	82.0
6	2022	6	10121	Águeda e Borralha	Águeda	Aveiro	7579.0	407.0
7	2022	6	10122	Barrô e Aguada de Baixo	Águeda	Aveiro	1204.0	423.0
8	2022	6	10123	Belazaima do Chão, Castanheira do Vouga e Agadão	Águeda	Aveiro	501.0	397.0
9	2022	6	10124	Recardães e Espinhel	Águeda	Aveiro	2268.0	758.0
10	2022	6	10125	Travassô e Óis da Ribeira	Águeda	Aveiro	926.0	247.0
11	2022	6	10126	Trofa, Segadães e Lamas do Vouga	Águeda	Aveiro	1675.0	715.0
12	2022	6	10127	Préstimo e Macieira de Alcoba	Águeda	Aveiro	393.0	198.0
13	2022	6	10202	Alquerubim	Albergaria-a-Velha	Aveiro	320.0	785.0
14	2022	6	10203	Angeja	Albergaria-a-Velha	Aveiro	364.0	630.0
15	2022	6	10204	Branca	Albergaria-a-Velha	Aveiro	809.0	1988.0
16	2022	6	10206	Ribeira de Frágua	Albergaria-a-Velha	Aveiro	165.0	615.0
17	2022	6	10209	Albergaria-a-Velha e Valmaior	Albergaria-a-Velha	Aveiro	3886.0	2659.0
18	2022	6	10210	São João de Loure e Frossos	Albergaria-a-Velha	Aveiro	365.0	1079.0
19	2022	6	10304	Avelãs de Caminho	Anadia	Aveiro	146.0	360.0
20	2022	6	10305	Avelãs de Cima	Anadia	Aveiro	317.0	771.0
21	2022	6	10307	Moita	Anadia	Aveiro	458.0	768.0
22	2022	6	10309	Sangalhos	Anadia	Aveiro	636.0	1620.0
23	2022	6	10310	São Lourenço do Bairro	Anadia	Aveiro	381.0	989.0
24	2022	6	10312	Vila Nova de Monsarros	Anadia	Aveiro	228.0	661.0
25	2022	6	10313	Vilarinho do Bairro	Anadia	Aveiro	534.0	1317.0
26	2022	6	10316	Amoreira da Gândara, Paredes do Bairro e Ancas	Anadia	Aveiro	419.0	1174.0
27	2022	6	10317	Arcos e Mogofores	Anadia	Aveiro	1349.0	2566.0
28	2022	6	10318	Tamengos, Aguiim e Óis do Bairro	Anadia	Aveiro	663.0	1385.0
29	2022	6	10402	Alvarenga	Arouca	Aveiro	245.0	706.0
30	2022	6	10407	Chave	Arouca	Aveiro	167.0	519.0
31	2022	6	10409	Escariz	Arouca	Aveiro	312.0	735.0
32	2022	6	10411	Fermedo	Arouca	Aveiro	164.0	536.0
33	2022	6	10413	Mansores	Arouca	Aveiro	130.0	415.0
34	2022	6	10414	Moldes	Arouca	Aveiro	154.0	432.0
35	2022	6	10415	Rossas	Arouca	Aveiro	177.0	559.0
36	2022	6	10416	Santa Eulália	Arouca	Aveiro	267.0	813.0
37	2022	6	10417	São Miguel do Mato	Arouca	Aveiro	81.0	244.0
38	2022	6	10418	Tropeço	Arouca	Aveiro	141.0	427.0
39	2022	6	10419	Urrô	Arouca	Aveiro	138.0	350.0
40	2022	6	10420	Várzea	Arouca	Aveiro	226.0	18.0
41	2022	6	10421	Arouca e Burgo	Arouca	Aveiro	3081.0	120.0
42	2022	6	10422	Cabreiros e Albergaria da Serra	Arouca	Aveiro	41.0	145.0
43	2022	6	10423	Canelas e Espiúanca	Arouca	Aveiro	181.0	444.0
44	2022	6	10424	Covelo de Paivó e Janarde	Arouca	Aveiro	28.0	128.0
45	2022	6	10501	Aradas	Aveiro	Aveiro	5593.0	40.0



# Calculate % of Smart Contracts | Configuration



Calculator

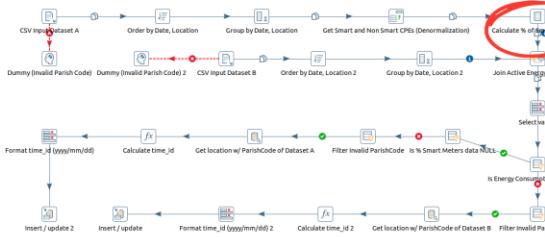
Step name

Throw an error on non existing files

Fields:

New field	Calculation	Field A	Field B	Field C	Value type	Length	Precision	Remove	Conversion mask
1 Total Contracts	A + B	Number of Smart Contracts	Number of Non Smart Contracts		Number			Y	
2 Percentage of Smart Contracts	A / B	Number of Smart Contracts	Total Contracts		Number			N	#####.###%
3 Total Contracts	Create a copy of field A	Total Contracts			Integer			N	

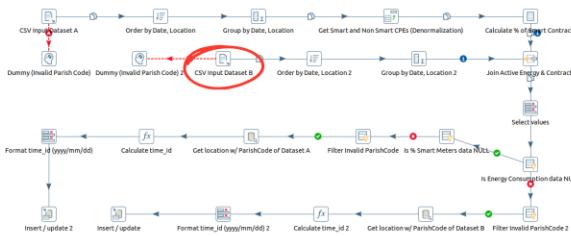
# Calculate % of Smart Contracts | Preview



Rows of step: Calculate % of Smart Contracts (1000 rows)

	Year	Month	DistrictMunicipalityParishCode	Parish	Municipality	District	Number of Smart Contracts	Number of Non Smart Contracts	Percentage of Smart Contracts	Total Contracts
1	2022	6		-1 <null>	<null>	<null>	1.0	<null>	<null>	
2	2022	6	10103	Aguada de Cima	Águeda	Aveiro	1770.0	383.0	82.21%	
3	2022	6	10109	Fermentelos	Águeda	Aveiro	1249.0	548.0	69.5%	
4	2022	6	10112	Macinhata do Vouga	Águeda	Aveiro	1168.0	666.0	63.69%	
5	2022	6	10119	Valongo do Vouga	Águeda	Aveiro	90.0	82.0	52.33%	
6	2022	6	10121	Águeda e Borralha	Águeda	Aveiro	7579.0	407.0	94.9%	
7	2022	6	10122	Barrô e Aguada de Baixo	Águeda	Aveiro	1204.0	423.0	74%	
8	2022	6	10123	Belazaima do Chão, Castanheira do Vouga e Agadão	Águeda	Aveiro	501.0	397.0	55.79%	
9	2022	6	10124	Recordães e Espinhel	Águeda	Aveiro	2268.0	758.0	74.95%	
10	2022	6	10125	Travassô e Óis da Ribeira	Águeda	Aveiro	926.0	247.0	78.94%	
11	2022	6	10126	Trofa, Segadães e Lamas do Vouga	Águeda	Aveiro	1675.0	715.0	70.08%	
12	2022	6	10127	Préstimo e Macieira de Alcoba	Águeda	Aveiro	393.0	198.0	66.5%	
13	2022	6	10202	Alquerubim	Albergaria-a-Velha	Aveiro	320.0	785.0	28.96%	
14	2022	6	10203	Angeja	Albergaria-a-Velha	Aveiro	364.0	630.0	36.62%	
15	2022	6	10204	Branca	Albergaria-a-Velha	Aveiro	809.0	1988.0	28.92%	
16	2022	6	10206	Ribeira de Frágas	Albergaria-a-Velha	Aveiro	165.0	615.0	21.15%	
17	2022	6	10209	Albergaria-a-Velha e Valmaior	Albergaria-a-Velha	Aveiro	3886.0	2659.0	59.37%	
18	2022	6	10210	São João de Loure e Frossos	Albergaria-a-Velha	Aveiro	365.0	1079.0	25.28%	
19	2022	6	10304	Avelás de Caminho	Anadia	Aveiro	146.0	360.0	28.85%	
20	2022	6	10305	Avelás de Cima	Anadia	Aveiro	317.0	771.0	29.14%	
21	2022	6	10307	Moita	Anadia	Aveiro	458.0	768.0	37.36%	
22	2022	6	10309	Sangalhos	Anadia	Aveiro	636.0	1620.0	28.19%	
23	2022	6	10310	São Lourenço do Bairro	Anadia	Aveiro	381.0	989.0	27.81%	
24	2022	6	10312	Vila Nova de Monsarros	Anadia	Aveiro	228.0	661.0	25.65%	
25	2022	6	10313	Vilarinho do Bairro	Anadia	Aveiro	534.0	1317.0	28.85%	
26	2022	6	10316	Amoreira da Gândara, Paredes do Bairro e Anças	Anadia	Aveiro	419.0	1174.0	26.3%	
27	2022	6	10317	Arcos e Mogofores	Anadia	Aveiro	1349.0	2566.0	34.46%	
28	2022	6	10318	Tamengos, Aguium e Óis do Bairro	Anadia	Aveiro	663.0	1385.0	32.37%	
29	2022	6	10402	Alvarenga	Arouca	Aveiro	245.0	706.0	25.76%	
30	2022	6	10407	Chave	Arouca	Aveiro	167.0	519.0	24.34%	
31	2022	6	10409	Escariz	Arouca	Aveiro	312.0	735.0	29.8%	
32	2022	6	10411	Fermedo	Arouca	Aveiro	164.0	536.0	23.43%	
33	2022	6	10413	Mansores	Arouca	Aveiro	130.0	415.0	23.85%	
34	2022	6	10414	Moldes	Arouca	Aveiro	154.0	432.0	26.28%	
35	2022	6	10415	Rossas	Arouca	Aveiro	177.0	559.0	24.05%	
36	2022	6	10416	Santa Eulália	Arouca	Aveiro	267.0	813.0	24.72%	
37	2022	6	10417	São Miguel do Mato	Arouca	Aveiro	81.0	244.0	24.92%	
38	2022	6	10418	Tropeço	Arouca	Aveiro	141.0	427.0	24.82%	
39	2022	6	10419	Urrô	Arouca	Aveiro	138.0	350.0	28.28%	
40	2022	6	10420	Várzea	Arouca	Aveiro	226.0	18.0	92.62%	
41	2022	6	10421	Arouca e Burgo	Arouca	Aveiro	3081.0	120.0	96.25%	
42	2022	6	10422	Cabreiros e Albergaria da Serra	Arouca	Aveiro	41.0	145.0	22.04%	
43	2022	6	10423	Canelas e Espiunca	Arouca	Aveiro	181.0	444.0	28.96%	
44	2022	6	10424	Covelo de Paivô e Janarde	Arouca	Aveiro	28.0	128.0	17.95%	

# CSV Input Dataset B | Configuration



**CSV file input**

Step name **CSV Input Dataset B**

Filename

Delimiter

Enclosure

NIO buffer size

Lazy conversion?

Header row present?

Add filename to result

The row number field name (optional)

Running in parallel?

New line possible in fields?

Format

File encoding

Name	Type	Format	Length	Precision	Currency	Decimal	Group	Trim type
1 Year	Integer	#	15	0	\$	.	,	none
2 Month	Integer	#	15	0	\$	.	,	none
3 Date	String		7		\$	.	,	none
4 District	String		16		\$	.	,	none
5 Municipality	String		22		\$	.	,	none
6 parish	String		30		\$	.	,	none
7 Voltage level	String		32		\$	.	,	none
8 Active Energy (kWh)	Number	#.#	11	3	\$	.	,	none
9 DistrictMunicipalityParishCode	Integer							none

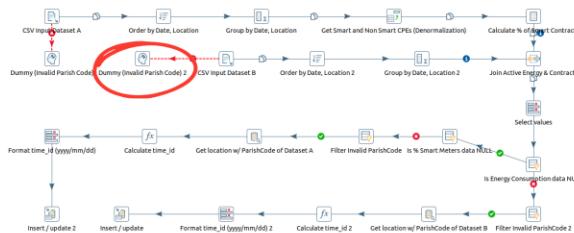
# CSV Input Dataset B | Preview



Rows of step: CSV Input Dataset B (1000 rows)

	Year	Month	Date	District	Municipality	parish	Voltage level	Active Energy (kWh)	DistrictMunicipalityParishCode
1	2020	11	2020-11	Évora	Vila Viçosa	N S CONCEICAO E SAO BARTOLOMEU	Baixa Tensão	932900.4	71406
2	2020	11	2020-11	Faro	Albufeira	PADERNE	Muito Alta, Alta e Média Tensões	300614.9	80103
3	2020	11	2020-11	Faro	Alcoutim	GIOES	Baixa Tensão	33531.7	80202
4	2020	11	2020-11	Faro	Alcoutim	UF ALCOUTIM E PEREIRO	Baixa Tensão	315064.6	80206
5	2020	11	2020-11	Faro	Alcoutim	UF ALCOUTIM E PEREIRO	Muito Alta, Alta e Média Tensões	14959.2	80206
6	2020	11	2020-11	Faro	Aljezur	ODECEIXE	Baixa Tensão	251829.5	80303
7	2020	11	2020-11	Faro	Castro Marim	AZINHAL	Baixa Tensão	108590.8	80401
8	2020	11	2020-11	Faro	Faro	SANTA BARBARA DE NEXE	Muito Alta, Alta e Média Tensões	90187.8	80503
9	2020	11	2020-11	Faro	Faro	UF CONCEICAO E ESTOI	Baixa Tensão	2021643.6	80507
10	2020	11	2020-11	Faro	Lagoa	UF ESTOMBAR E PARCHAL	Muito Alta, Alta e Média Tensões	704903.9	80607
11	2020	11	2020-11	Faro	Lagos	ODIAXERE	Baixa Tensão	733281.9	80704
12	2020	11	2020-11	Faro	Loulé	LOULE (SAO CLEMENTE)	Muito Alta, Alta e Média Tensões	605332.8	80808
13	2020	11	2020-11	Faro	Loulé	UF QUERENCA TOR E BENAFIM	Muito Alta, Alta e Média Tensões	43821.8	80812
14	2020	11	2020-11	Faro	Olhão	OLHAO	Baixa Tensão	2341014.4	81003
15	2020	11	2020-11	Faro	São Brás de Alportel	SAO BRAS DE ALPORTEL	Baixa Tensão	2365711.4	81201
16	2020	11	2020-11	Faro	Vila do Bispo	SAGRES	Muito Alta, Alta e Média Tensões	250120.3	81504
17	2020	11	2020-11	Faro	Vila Real de Santo António	VILA NOVA DE CACELA	Baixa Tensão	1309636.7	81601
18	2020	11	2020-11	Guarda	Aguiar da Beira	PINHEIRO	Baixa Tensão	58706.4	90110
19	2020	11	2020-11	Guarda	Almeida	MALHADA SORDA	Baixa Tensão	47519.8	90213
20	2020	11	2020-11	Guarda	Almeida	UF JUNCA E NAVES	Baixa Tensão	32638.8	90233
21	2020	11	2020-11	Guarda	Celorico da Beira	MESQUITELA	Baixa Tensão	30188.4	90310
22	2020	11	2020-11	Guarda	Figueira de Castelo Rodrigo	UF COLMEAL E VILAR TORPIM	Muito Alta, Alta e Média Tensões	4650.2	90422
23	2020	11	2020-11	Guarda	Fornos de Algodres	MUXAGATA	Baixa Tensão	28518.2	90511
24	2020	11	2020-11	Guarda	Gouveia	SAO PAIO	Muito Alta, Alta e Média Tensões	20579.8	90617
25	2020	11	2020-11	Guarda	Gouveia	UF ALDEIAS MANGUALDE SERRA	Muito Alta, Alta e Média Tensões	96292.7	90623
26	2020	11	2020-11	Guarda	Gouveia	UF MELO E NABAIS	Baixa Tensão	130899.2	90626
27	2020	11	2020-11	Guarda	Guarda	GONCALO BOCAS	Baixa Tensão	41909.1	90721
28	2020	11	2020-11	Guarda	Guarda	PANOIAS DE CIMA	Baixa Tensão	98965.9	90728
29	2020	11	2020-11	Guarda	Guarda	GUARDA	Muito Alta, Alta e Média Tensões	3676765	90758
30	2020	11	2020-11	Guarda	Guarda	UF MIZARELA P SOARES V SOEIRO	Muito Alta, Alta e Média Tensões	248352	90763
31	2020	11	2020-11	Guarda	Manteigas	MANTEIGAS (SANTA MARIA)	Baixa Tensão	351592.8	90802
32	2020	11	2020-11	Guarda	Pinhel	ALVERCA DA BEIRA/BOUCA COVA	Baixa Tensão	77498.9	91029
33	2020	11	2020-11	Guarda	Sabugal	BENDADA	Baixa Tensão	77998	91110
34	2020	11	2020-11	Guarda	Sabugal	SOUTO	Baixa Tensão	228642.3	91134
35	2020	11	2020-11	Guarda	Seia	SANTIAGO	Baixa Tensão	168645.2	91216
36	2020	11	2020-11	Guarda	Seia	VALEZIM	Baixa Tensão	39821.3	91225
37	2020	11	2020-11	Guarda	Trancoso	CASTANHEIRA	Baixa Tensão	19354.3	91303
38	2020	11	2020-11	Guarda	Trancoso	POVOA DO CONCELHO	Baixa Tensão	34637.1	91314
39	2020	11	2020-11	Guarda	Trancoso	VALDUJO	Baixa Tensão	32161.9	91325
40	2020	11	2020-11	Guarda	Trancoso	UF TRANCOSO E SOUTO MAIOR	Baixa Tensão	790462.7	91332
41	2020	11	2020-11	Leiria	Alcobaça	BARRIO	Baixa Tensão	271538.3	100104
42	2020	11	2020-11	Leiria	Alcobaça	CELA	Baixa Tensão	671277.3	100106
43	2020	11	2020-11	Leiria	Alcobaça	VIMEIRO	Muito Alta, Alta e Média Tensões	104399.9	100116
44	2020	11	2020-11	Leiria	Alcobaça	ALJUBARROTA	Baixa Tensão	1002307.8	100120
45	2020	11	2020-11	Leiria	Ansião	ANSIAO	Baixa Tensão	621886.6	100309

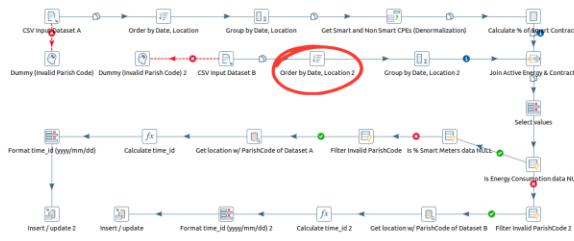
# Dummy (Invalid Parish Code) 2 | Preview



Rows of step: Dummy (Invalid Parish Code) 2 (1000 rows)

	Year	Month	Date	District	Municipality	parish	Voltage level	Active Energy (kWh)	DistrictMunicipalityParishCode
1	2020	11	2020-11	Viana do Castelo	OUTROS VIANA DO CASTELO	OUTROS VIANA DO CASTELO	Muito Alta, Alta e Média Tensões	1576856.9	<null>
2	2020	12	2020-12	Aveiro	OUTROS AVEIRO	OUTROS AVEIRO	Muito Alta, Alta e Média Tensões	575446	<null>
3	2020	12	2020-12	Coimbra	OUTROS COIMBRA	OUTROS COIMBRA	Muito Alta, Alta e Média Tensões	1472673.3	<null>
4	2020	12	2020-12	Lisboa	OUTROS LISBOA	OUTROS LISBOA	Muito Alta, Alta e Média Tensões	126369.6	<null>
5	2020	12	2020-12	Porto	OUTROS PORTO	OUTROS PORTO	Baixa Tensão	9950.5	<null>
6	2020	12	2020-12	Porto	OUTROS PORTO	OUTROS PORTO	Muito Alta, Alta e Média Tensões	1528726.2	<null>
7	2021	1	2021-01	Aveiro	OUTROS AVEIRO	OUTROS AVEIRO	Muito Alta, Alta e Média Tensões	609168.8	<null>
8	2021	10	2021-10	Viana do Castelo	OUTROS VIANA DO CASTELO	OUTROS VIANA DO CASTELO	Muito Alta, Alta e Média Tensões	1697866.7	<null>
9	2021	10	2021-10	Viseu	OUTROS VISEU	OUTROS VISEU	Muito Alta, Alta e Média Tensões	2004405.2	<null>
10	2021	11	2021-11	Aveiro	OUTROS AVEIRO	OUTROS AVEIRO	Muito Alta, Alta e Média Tensões	1146840.6	<null>
11	2021	11	2021-11	Beja	OUTROS BEJA	OUTROS BEJA	Muito Alta, Alta e Média Tensões	24043295.8	<null>
12	2021	11	2021-11	Braga	OUTROS BRAGA	OUTROS BRAGA	Baixa Tensão	11532	<null>
13	2021	11	2021-11	Braga	Barcelos	UF MILHAZES VILAR FIGOS FARIA	Baixa Tensão	264108.1	<null>
14	2021	11	2021-11	Braga	Barcelos	UF MILHAZES VILAR FIGOS FARIA	Muito Alta, Alta e Média Tensões	36853.1	<null>
15	2021	11	2021-11	Braga	Barcelos	UF QUINTIAES E AGUIAR	Baixa Tensão	186308.6	<null>
16	2021	11	2021-11	Braga	Barcelos	UF SILVEIROS E RIO COVO	Baixa Tensão	218979.3	<null>
17	2021	11	2021-11	Braga	Barcelos	UF TAMEL E VILAR DO MONTE	Baixa Tensão	178131.3	<null>
18	2021	11	2021-11	Bragança	OUTROS BRAGANCA	OUTROS BRAGANCA	Muito Alta, Alta e Média Tensões	2006449.2	<null>
19	2021	11	2021-11	Évora	OUTROS EVORA	OUTROS EVORA	Muito Alta, Alta e Média Tensões	128016.1	<null>
20	2021	11	2021-11	Porto	OUTROS PORTO	OUTROS PORTO	Muito Alta, Alta e Média Tensões	1814205.2	<null>
21	2021	11	2021-11	Vila Real	OUTROS VILA REAL	OUTROS VILA REAL	Muito Alta, Alta e Média Tensões	1874723.3	<null>
22	2021	12	2021-12	Aveiro	OUTROS AVEIRO	OUTROS AVEIRO	Muito Alta, Alta e Média Tensões	1247377.5	<null>
23	2021	12	2021-12	Beja	OUTROS BEJA	OUTROS BEJA	Muito Alta, Alta e Média Tensões	24732406.9	<null>
24	2021	12	2021-12	Braga	OUTROS BRAGA	OUTROS BRAGA	Muito Alta, Alta e Média Tensões	3901479.9	<null>
25	2021	12	2021-12	Braga	Barcelos	UF MILHAZES VILAR FIGOS FARIA	Muito Alta, Alta e Média Tensões	34224.5	<null>
26	2021	12	2021-12	Braga	Barcelos	UF QUINTIAES E AGUIAR	Baixa Tensão	198994	<null>
27	2021	12	2021-12	Braga	Barcelos	UF SILVEIROS E RIO COVO	Muito Alta, Alta e Média Tensões	810339.7	<null>
28	2021	12	2021-12	Braga	Barcelos	UF VIATOD GRIMANCEL MINHOT FRA	Baixa Tensão	9568.9	<null>
29	2021	12	2021-12	Bragança	OUTROS BRAGANCA	OUTROS BRAGANCA	Muito Alta, Alta e Média Tensões	2142902.4	<null>
30	2021	12	2021-12	Castelo Branco	OUTROS CASTELO BRANCO	OUTROS CASTELO BRANCO	Muito Alta, Alta e Média Tensões	1909146.7	<null>
31	2022	5	2022-05	Aveiro	OUTROS AVEIRO	OUTROS AVEIRO	Muito Alta, Alta e Média Tensões	1309715.6	<null>
32	2022	5	2022-05	Braga	Barcelos	UF MILHAZES VILAR FIGOS FARIA	Muito Alta, Alta e Média Tensões	37842.5	<null>
33	2022	5	2022-05	Braga	Barcelos	UF MILHAZES VILAR FIGOS FARIA	Baixa Tensão	250172.9	<null>
34	2022	5	2022-05	Braga	Barcelos	UF NEGREIROS E CHAVAO	Baixa Tensão	374696	<null>
35	2022	5	2022-05	Braga	Barcelos	UF SILVEIROS E RIO COVO	Baixa Tensão	222322.2	<null>
36	2022	5	2022-05	Braga	Barcelos	UF SILVEIROS E RIO COVO	Muito Alta, Alta e Média Tensões	826136.5	<null>
37	2022	5	2022-05	Braga	Barcelos	UF TAMEL E VILAR DO MONTE	Muito Alta, Alta e Média Tensões	281047.7	<null>
38	2022	5	2022-05	Braga	Barcelos	UF VIATOD GRIMANCEL MINHOT FRA	Baixa Tensão	8901.4	<null>
39	2022	5	2022-05	Coimbra	OUTROS COIMBRA	OUTROS COIMBRA	Muito Alta, Alta e Média Tensões	1488677.3	<null>
40	2022	5	2022-05	Faro	OUTROS FARO	OUTROS FARO	Muito Alta, Alta e Média Tensões	195960.2	<null>
41	2022	5	2022-05	Guarda	OUTROS GUARDA	OUTROS GUARDA	Muito Alta, Alta e Média Tensões	1844206.1	<null>
42	2022	5	2022-05	Portalegre	OUTROS PORTALEGRE	OUTROS PORTALEGRE	Muito Alta, Alta e Média Tensões	185633.8	<null>
43	2022	5	2022-05	Viana do Castelo	OUTROS VIANA DO CASTELO	OUTROS VIANA DO CASTELO	Muito Alta, Alta e Média Tensões	1672700.6	<null>
44	2022	5	2022-05	Viseu	OUTROS VISEU	OUTROS VISEU	Muito Alta, Alta e Média Tensões	1842982.4	<null>
45	2022	6	2022-06	Aveiro	OUTROS AVEIRO	OUTROS AVEIRO	Muito Alta, Alta e Média Tensões	1317475.8	<null>

# Order by Date, Location 2 | Configuration



Sort rows

Step name **Order by Date, Location 2**

Sort directory **%%java.io.tmpdir%%**

TMP-file prefix **out**

Sort size (rows in memory) **1000000**

Free memory threshold (in %)

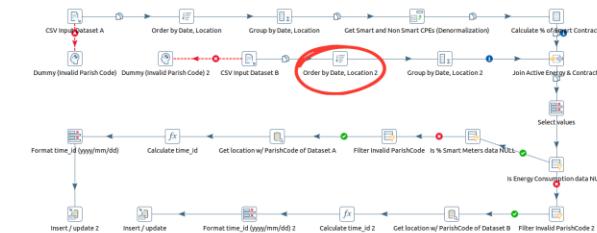
Compress TMP Files?

Only pass unique rows? (verifies keys only)

Fields :

Fieldname	Ascending	Case sensitive compare?	Sort based on current locale?	Collator Strength
1 Year	Y	N	N	0
2 Month	Y	N	N	0
3 DistrictMunicipalityParishCode	Y	N	N	0
4 parish	Y	N	N	0
5 Municipality	Y	N	N	0
6 District	Y	N	N	0

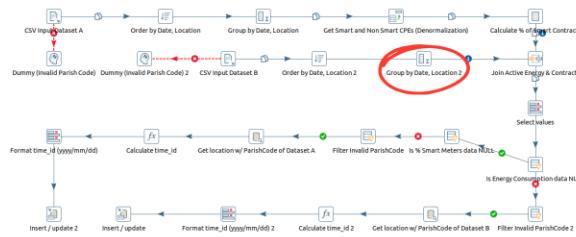
# Order by Date, Location 2 | Preview



Rows of step: Order by Date, Location 2 (1000 rows)

	Year	Month	Date	District	Municipality	parish	Voltage level	Active Energy (kWh)	DistrictMunicipalityParishCode
1	2020	11	2020-11	Aveiro	Águeda	AGUADA DE CIMA	Muito Alta, Alta e Média Tensões	2127099.9	10103
2	2020	11	2020-11	Aveiro	Águeda	AGUADA DE CIMA	Baixa Tensão	718225.3	10103
3	2020	11	2020-11	Aveiro	Águeda	FERMENTELOS	Muito Alta, Alta e Média Tensões	121674.8	10109
4	2020	11	2020-11	Aveiro	Águeda	FERMENTELOS	Baixa Tensão	464994.3	10109
5	2020	11	2020-11	Aveiro	Águeda	MACINHATA DO VOUGA	Baixa Tensão	503481.9	10112
6	2020	11	2020-11	Aveiro	Águeda	MACINHATA DO VOUGA	Muito Alta, Alta e Média Tensões	1026743.1	10112
7	2020	11	2020-11	Aveiro	Águeda	VALONGO DO VOUGA	Baixa Tensão	54027.3	10119
8	2020	11	2020-11	Aveiro	Águeda	VALONGO DO VOUGA	Muito Alta, Alta e Média Tensões	932476.8	10119
9	2020	11	2020-11	Aveiro	Águeda	UF AGUEDA E BORRALHA	Baixa Tensão	2484105.5	10121
10	2020	11	2020-11	Aveiro	Águeda	UF AGUEDA E BORRALHA	Muito Alta, Alta e Média Tensões	7559447.5	10121
11	2020	11	2020-11	Aveiro	Águeda	UF BARRO E AGUADA DE BAIXO	Baixa Tensão	617928.9	10122
12	2020	11	2020-11	Aveiro	Águeda	UF BARRO E AGUADA DE BAIXO	Muito Alta, Alta e Média Tensões	2969736.6	10122
13	2020	11	2020-11	Aveiro	Águeda	UF BELAZAIMA CAST VOUGA AGADAO	Muito Alta, Alta e Média Tensões	297420.4	10123
14	2020	11	2020-11	Aveiro	Águeda	UF BELAZAIMA CAST VOUGA AGADAO	Baixa Tensão	236211.2	10123
15	2020	11	2020-11	Aveiro	Águeda	UF RECARDAES E ESPINHEL	Baixa Tensão	923405.2	10124
16	2020	11	2020-11	Aveiro	Águeda	UF RECARDAES E ESPINHEL	Muito Alta, Alta e Média Tensões	1486393.7	10124
17	2020	11	2020-11	Aveiro	Águeda	UF TRAVASSO E OIS DA RIBEIRA	Muito Alta, Alta e Média Tensões	1352761.1	10125
18	2020	11	2020-11	Aveiro	Águeda	UF TRAVASSO E OIS DA RIBEIRA	Baixa Tensão	391637.4	10125
19	2020	11	2020-11	Aveiro	Águeda	UF TROFA SEGADAES LAMAS VOUGA	Baixa Tensão	848705.4	10126
20	2020	11	2020-11	Aveiro	Águeda	UF TROFA SEGADAES LAMAS VOUGA	Muito Alta, Alta e Média Tensões	835527.7	10126
21	2020	11	2020-11	Aveiro	Águeda	UF PRESTIMO MACIEIRA ALCoba	Baixa Tensão	125214.5	10127
22	2020	11	2020-11	Aveiro	Águeda	UF PRESTIMO MACIEIRA ALCoba	Muito Alta, Alta e Média Tensões	11616.3	10127
23	2020	11	2020-11	Aveiro	Albergaria-a-Velha	ALQUERUBIM	Baixa Tensão	297512.7	10202
24	2020	11	2020-11	Aveiro	Albergaria-a-Velha	ANGEJA	Baixa Tensão	285297.4	10203
25	2020	11	2020-11	Aveiro	Albergaria-a-Velha	BRANCA	Muito Alta, Alta e Média Tensões	774606.8	10204
26	2020	11	2020-11	Aveiro	Albergaria-a-Velha	BRANCA	Baixa Tensão	878355.3	10204
27	2020	11	2020-11	Aveiro	Albergaria-a-Velha	RIBEIRA DE FRAGUAS	Baixa Tensão	192192	10206
28	2020	11	2020-11	Aveiro	Albergaria-a-Velha	ALBERGARIA-A-VELHA E VALMAIOR	Muito Alta, Alta e Média Tensões	10636138.2	10209
29	2020	11	2020-11	Aveiro	Albergaria-a-Velha	ALBERGARIA-A-VELHA E VALMAIOR	Baixa Tensão	2119722.6	10209
30	2020	11	2020-11	Aveiro	Albergaria-a-Velha	SAO JOAO DE LOURE E FROSSOS	Muito Alta, Alta e Média Tensões	29317.7	10210
31	2020	11	2020-11	Aveiro	Albergaria-a-Velha	SAO JOAO DE LOURE E FROSSOS	Baixa Tensão	380304.2	10210
32	2020	11	2020-11	Aveiro	Anadia	AVELAS DE CAMINHO	Baixa Tensão	174000.4	10304
33	2020	11	2020-11	Aveiro	Anadia	AVELAS DE CAMINHO	Muito Alta, Alta e Média Tensões	595163	10304
34	2020	11	2020-11	Aveiro	Anadia	AVELAS DE CIMA	Muito Alta, Alta e Média Tensões	185510.5	10305
35	2020	11	2020-11	Aveiro	Anadia	AVELAS DE CIMA	Baixa Tensão	277593.8	10305
36	2020	11	2020-11	Aveiro	Anadia	MOITA	Baixa Tensão	308844.2	10307
37	2020	11	2020-11	Aveiro	Anadia	SANGALHOS	Muito Alta, Alta e Média Tensões	526436.3	10309
38	2020	11	2020-11	Aveiro	Anadia	SANGALHOS	Baixa Tensão	726808.8	10309
39	2020	11	2020-11	Aveiro	Anadia	SAO LOURENCO DO BAIRRO	Baixa Tensão	328254.5	10310
40	2020	11	2020-11	Aveiro	Anadia	SAO LOURENCO DO BAIRRO	Muito Alta, Alta e Média Tensões	229457.6	10310
41	2020	11	2020-11	Aveiro	Anadia	VILA NOVA DE MONSARROS	Baixa Tensão	226012	10312
42	2020	11	2020-11	Aveiro	Anadia	VILARINHO DO BAIRRO	Baixa Tensão	434682.3	10313
43	2020	11	2020-11	Aveiro	Anadia	VILARINHO DO BAIRRO	Muito Alta, Alta e Média Tensões	35468.1	10313
44	2020	11	2020-11	Aveiro	Anadia	UF A DA GANDARA BAIRRO E ANCAS	Baixa Tensão	406576.2	10316
45	2020	11	2020-11	Aveiro	Anadia	UF A DA GANDARA BAIRRO E ANCAS	Muito Alta, Alta e Média Tensões	227186.3	10316

# Group by Date, Location 2 | Configuration



## Group by

Step name **Group by Date, Location 2**

Include all rows?

Temporary files directory `%%java.io.tmpdir%%`

TMP-file prefix `grp`

Add line number, restart in each group

Line number field name

Always give back a result row

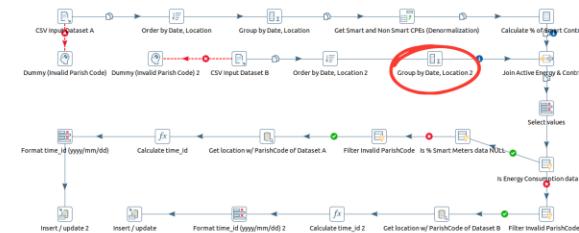
The fields that make up the group:

<input type="button" value="Get Fields"/>
<b>Group field</b>
1 Year
2 Month
3 DistrictMunicipalityParishCode
4 parish
5 Municipality
6 District

Aggregates :

<input type="button" value="Get lookup fields"/>		
Name	Subject	Type
1 Active Energy (kwh)	Active Energy (kwh)	Sum

# Group by Date, Location 2 | Preview

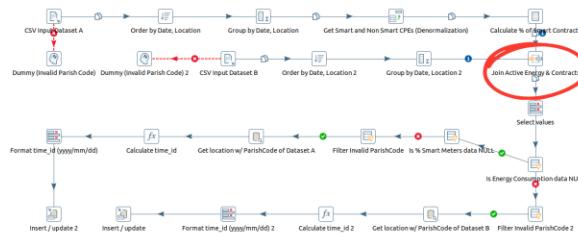


Rows of step: Group by Date, Location 2 (1000 rows)

	Year	Month	DistrictMunicipalityParishCode	parish	Municipality	District	Active Energy (kWh)	
1	2020	11		10103	AGUADA DE CIMA	Águeda	Aveiro	2845325.2770000002
2	2020	11		10109	FERMENTELOS	Águeda	Aveiro	586669.115
3	2020	11		10112	MACINHATA DO VOUGA	Águeda	Aveiro	1530224.987
4	2020	11		10119	VALONGO DO VOUGA	Águeda	Aveiro	986504.078
5	2020	11		10121	UF AGUEDA E BORRALHA	Águeda	Aveiro	10043552.972000001
6	2020	11		10122	UF BARRO E AGUADA DE BAIXO	Águeda	Aveiro	3587665.522
7	2020	11		10123	UF BELAZAIMA CAST VOUGA AGADAO	Águeda	Aveiro	533631.594
8	2020	11		10124	UF RECARDAES E ESPINHEL	Águeda	Aveiro	2409798.922
9	2020	11		10125	UF TRAVASSO E OIS DA RIBEIRA	Águeda	Aveiro	1744398.483
10	2020	11		10126	UF TROFA SEGADAES LAMAS VOUGA	Águeda	Aveiro	1684233.096
11	2020	11		10127	UF PRESTIMO MACIEIRA ALCoba	Águeda	Aveiro	136830.788
12	2020	11		10202	ALQUERUBIM	Albergaria-a-Velha	Aveiro	297512.707
13	2020	11		10203	ANGEJA	Albergaria-a-Velha	Aveiro	285297.371
14	2020	11		10204	BRANCA	Albergaria-a-Velha	Aveiro	1652962.031
15	2020	11		10206	RIBEIRA DE FRAGUAS	Albergaria-a-Velha	Aveiro	192192.035
16	2020	11		10209	ALBERGARIA-A-VELHA E VALMAIOR	Albergaria-a-Velha	Aveiro	12755860.874
17	2020	11		10210	SAO JOAO DE LOURE E FROSSOS	Albergaria-a-Velha	Aveiro	409621.899
18	2020	11		10304	AVELAS DE CAMINHO	Anadia	Aveiro	769163.342
19	2020	11		10305	AVELAS DE CIMA	Anadia	Aveiro	463104.336
20	2020	11		10307	MOITA	Anadia	Aveiro	308844.162
21	2020	11		10309	SANGALHOS	Anadia	Aveiro	1253245.089
22	2020	11		10310	SAO LOURENCO DO BAIRRO	Anadia	Aveiro	557712.122
23	2020	11		10312	VILA NOVA DE MONSARROS	Anadia	Aveiro	226012.006
24	2020	11		10313	VILARINHO DO BAIRRO	Anadia	Aveiro	470150.462
25	2020	11		10316	UF A DA GANDARA BAIRRO E ANCAS	Anadia	Aveiro	633762.508
26	2020	11		10317	UF ARCOS E MOGOFORES	Anadia	Aveiro	2256227.692
27	2020	11		10318	UF TAMENGOS AGUIM OIS BAIRRO	Anadia	Aveiro	4374423.25
28	2020	11		10402	ALVARENGA	Arouca	Aveiro	213637.495
29	2020	11		10407	CHAVE	Arouca	Aveiro	437035.453
30	2020	11		10409	ESCARIZ	Arouca	Aveiro	790132.425
31	2020	11		10411	FERMEDO	Arouca	Aveiro	170521.851
32	2020	11		10413	MANSORES	Arouca	Aveiro	358185.285
33	2020	11		10414	MOLDES	Arouca	Aveiro	115513.168
34	2020	11		10415	ROSSAS	Arouca	Aveiro	176678.434
35	2020	11		10416	SANTA EULALIA	Arouca	Aveiro	329304.687
36	2020	11		10417	SAO MIGUEL DO MATO	Arouca	Aveiro	81803.276
37	2020	11		10418	TROPECO	Arouca	Aveiro	234485.847
38	2020	11		10419	URRO	Arouca	Aveiro	110407.599
39	2020	11		10420	VARZEA	Arouca	Aveiro	60315.421
40	2020	11		10421	UF AROUCA E BURGO	Arouca	Aveiro	1227164.666
41	2020	11		10422	UF CABREIROS ALBERGARIA SERRA	Arouca	Aveiro	38345.124
42	2020	11		10423	UF CANELAS E ESPIUNCA	Arouca	Aveiro	188829.866
43	2020	11		10424	UF COVELO DE PAIVO E JANARDE	Arouca	Aveiro	17139.627
44	2020	11		10501	ARADAS	Aveiro	Aveiro	3532098.07
45	2020	11		10502	CACIA	Aveiro	Aveiro	34994094.618999995

# Join Active Energy & Contracts

## Configuration



Merge join

Step name: **Join Active Energy & Contracts**

First Step: Group by Date, Location 2

Second Step: Calculate % of Smart Contracts

Join Type: FULL OUTER

Keys for 1st step:

Key field
1 Year
2 Month
3 DistrictMunicipalityParishCode

Keys for 2nd step:

Key field
1 Year
2 Month
3 DistrictMunicipalityParishCode

Get key fields

Get key fields

Help

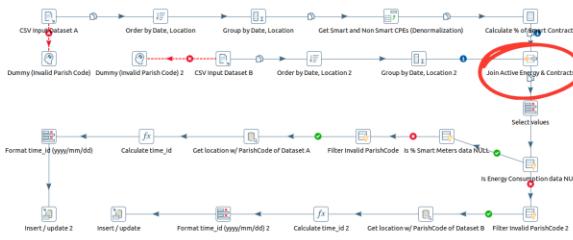
OK Cancel

# Join Active Energy & Contracts

## Preview (January 2020)

Rows of step: Join Active Energy Contracts (1000 rows)

	Year	Month	District	Municipality	ParishCode	parish	Municipality	District	Active Energy (kWh)	Year_1	Month_1	District	Municipality	ParishCode_1	Parish_1	Municipality_1	District_1
1	2020	11		Águeda	10103	AGUADA DE CIMA	Aveiro		2845325.2770000002	<null>	<null>			<null>	<null>	<null>	<null>
2	2020	11		Águeda	10109	FERMENTELOS	Aveiro		586669.115	<null>	<null>			<null>	<null>	<null>	<null>
3	2020	11		Águeda	10112	MACINHATA DO VOUGA	Aveiro		1530224.987	<null>	<null>			<null>	<null>	<null>	<null>
4	2020	11		Águeda	10119	VALONGO DO VOUGA	Aveiro		986504.078	<null>	<null>			<null>	<null>	<null>	<null>
5	2020	11		Águeda	10121	UF AGUEDA E BORRALHA	Aveiro		10043552.97200001	<null>	<null>			<null>	<null>	<null>	<null>
6	2020	11		Águeda	10122	UF BARRO E AGUADA DE BAIXO	Aveiro		3587665.522	<null>	<null>			<null>	<null>	<null>	<null>
7	2020	11		Águeda	10123	UF BELAZAIMA CAST VOUGA AGADAO	Aveiro		533631.594	<null>	<null>			<null>	<null>	<null>	<null>
8	2020	11		Águeda	10124	UF RECARDAES E ESPINHEL	Aveiro		2409798.922	<null>	<null>			<null>	<null>	<null>	<null>
9	2020	11		Águeda	10125	UF TRAVASSO E OIS DA RIBEIRA	Aveiro		1744398.483	<null>	<null>			<null>	<null>	<null>	<null>
10	2020	11		Águeda	10126	UF TROFA SEGADAE LASMAS VOUGA	Aveiro		1684233.096	<null>	<null>			<null>	<null>	<null>	<null>
11	2020	11		Águeda	10127	UF PRESTIMO MACIEIRA ALCoba	Aveiro		136830.788	<null>	<null>			<null>	<null>	<null>	<null>
12	2020	11		Albergaria-a-Velha	10202	ALQUERUBIM	Aveiro		297512.707	<null>	<null>			<null>	<null>	<null>	<null>
13	2020	11		Albergaria-a-Velha	10203	ANGEJA	Aveiro		285297.371	<null>	<null>			<null>	<null>	<null>	<null>
14	2020	11		Albergaria-a-Velha	10204	BRANCA	Aveiro		1652962.031	<null>	<null>			<null>	<null>	<null>	<null>
15	2020	11		Albergaria-a-Velha	10206	RIBEIRA DE FRAGUAS	Aveiro		192192.035	<null>	<null>			<null>	<null>	<null>	<null>
16	2020	11		Albergaria-a-Velha	10209	ALBERGARIA-A-VELHA E VALMAIOR	Aveiro		12755860.874	<null>	<null>			<null>	<null>	<null>	<null>
17	2020	11		Albergaria-a-Velha	10210	SAO JOAO DE LOURE E FROSSOS	Aveiro		409621.899	<null>	<null>			<null>	<null>	<null>	<null>
18	2020	11		Anadia	10304	AVELAS DE CAMINHO	Aveiro		769163.342	<null>	<null>			<null>	<null>	<null>	<null>
19	2020	11		Anadia	10305	AVELAS DE CIMA	Aveiro		463104.336	<null>	<null>			<null>	<null>	<null>	<null>
20	2020	11		Anadia	10307	MOITA	Aveiro		308844.162	<null>	<null>			<null>	<null>	<null>	<null>
21	2020	11		Anadia	10309	SANGALHOS	Aveiro		1253245.089	<null>	<null>			<null>	<null>	<null>	<null>
22	2020	11		Anadia	10310	SAO LOURENCO DO BAIRRO	Aveiro		557712.122	<null>	<null>			<null>	<null>	<null>	<null>
23	2020	11		Anadia	10312	VILA NOVA DE MONSARROS	Aveiro		226012.006	<null>	<null>			<null>	<null>	<null>	<null>
24	2020	11		Anadia	10313	VILARINHO DO BAIRRO	Aveiro		470150.462	<null>	<null>			<null>	<null>	<null>	<null>
25	2020	11		Anadia	10316	UF A DA GANDARA BAIRRO E ANCAS	Aveiro		633762.508	<null>	<null>			<null>	<null>	<null>	<null>
26	2020	11		Anadia	10317	UF ARCOS E MOGOFORES	Aveiro		2256227.692	<null>	<null>			<null>	<null>	<null>	<null>
27	2020	11		Anadia	10318	UF TAMENGOS AGUIM OIS BAIRRO	Aveiro		4374423.25	<null>	<null>			<null>	<null>	<null>	<null>
28	2020	11		Arouca	10402	ALVARENGA	Aveiro		213637.495	<null>	<null>			<null>	<null>	<null>	<null>
29	2020	11		Arouca	10407	CHAVE	Aveiro		437035.453	<null>	<null>			<null>	<null>	<null>	<null>
30	2020	11		Arouca	10409	ESCARIZ	Aveiro		790132.425	<null>	<null>			<null>	<null>	<null>	<null>
31	2020	11		Arouca	10411	FERMEDO	Aveiro		170521.851	<null>	<null>			<null>	<null>	<null>	<null>
32	2020	11		Arouca	10413	MANSORES	Aveiro		358185.285	<null>	<null>			<null>	<null>	<null>	<null>
33	2020	11		Arouca	10414	MOLDES	Aveiro		115513.168	<null>	<null>			<null>	<null>	<null>	<null>
34	2020	11		Arouca	10415	ROSSAS	Aveiro		176678.434	<null>	<null>			<null>	<null>	<null>	<null>
35	2020	11		Arouca	10416	SANTA EULALIA	Aveiro		329304.687	<null>	<null>			<null>	<null>	<null>	<null>
36	2020	11		Arouca	10417	SAO MIGUEL DO MATO	Aveiro		81803.276	<null>	<null>			<null>	<null>	<null>	<null>
37	2020	11		Arouca	10418	TROPECO	Aveiro		234485.847	<null>	<null>			<null>	<null>	<null>	<null>
38	2020	11		Arouca	10419	URRO	Aveiro		110407.599	<null>	<null>			<null>	<null>	<null>	<null>
39	2020	11		Arouca	10420	VARZEA	Aveiro		60315.421	<null>	<null>			<null>	<null>	<null>	<null>
40	2020	11		Arouca	10421	UF AROUCA E BURGO	Aveiro		1227164.666	<null>	<null>			<null>	<null>	<null>	<null>
41	2020	11		Arouca	10422	UF CABREIROS ALBERGARIA SERRA	Aveiro		38345.124	<null>	<null>			<null>	<null>	<null>	<null>
42	2020	11		Arouca	10423	UF CANELAS E ESPIUNCA	Aveiro		188829.866	<null>	<null>			<null>	<null>	<null>	<null>
43	2020	11		Arouca	10424	UF COVELO DE PAIVO E JANARDE	Aveiro		17139.627	<null>	<null>			<null>	<null>	<null>	<null>
44	2020	11		Aveiro	10501	ARADAS	Aveiro		3532098.07	<null>	<null>			<null>	<null>	<null>	<null>

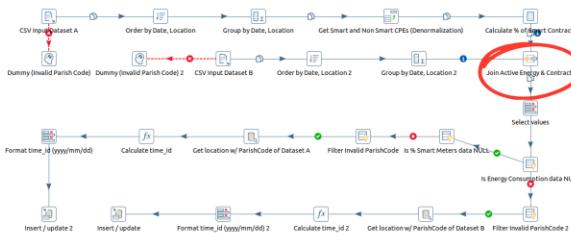


# Join Active Energy & Contracts

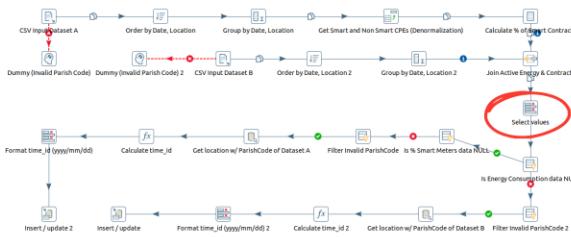
Preview (June 2022)

Rows of step: Join Active Energy Contracts (1000 rows)

	Year	Month	District	parish	Municipality	District	Active Energy (kWh)	Year_1	Month_1	DistrictM	Parish_1	Municipality_1	District_1	Number of Smar	Number of Non Sm	Percentage of Smart
1	2022	6	30924	SERZEDOLO	Póvoa de Lanhoso	Braga	92661.047	2022	6	30924	Serzedelo	Póvoa de Lanhoso	Braga	166.0	283.0	36.97%
2	2022	6	30925	SOBRADELO DA GOMA	Póvoa de Lanhoso	Braga	86038.723	2022	6	30925	Sobradelo da Goma	Póvoa de Lanhoso	Braga	197.0	297.0	39.88%
3	2022	6	30926	TAIDE	Póvoa de Lanhoso	Braga	400342.763	2022	6	30926	Taide	Póvoa de Lanhoso	Braga	608.0	374.0	61.91%
4	2022	6	30927	TRAVASSOS	Póvoa de Lanhoso	Braga	70898.394	2022	6	30927	Travassos	Póvoa de Lanhoso	Braga	137.0	215.0	38.92%
5	2022	6	30929	VILELA	Póvoa de Lanhoso	Braga	149668.152	2022	6	30929	Vilela	Póvoa de Lanhoso	Braga	204.0	153.0	57.14%
6	2022	6	30930	UF AGUAS SANTAS E MOURA	Póvoa de Lanhoso	Braga	89950.456	2022	6	30930	Águas Santas e Moura	Póvoa de Lanhoso	Braga	148.0	226.0	39.57%
7	2022	6	30931	UF CALVOS E FRADES	Póvoa de Lanhoso	Braga	126579.069	2022	6	30931	Calvos e Frades	Póvoa de Lanhoso	Braga	160.0	258.0	38.28%
8	2022	6	30932	UF CAMPOS E LOUREDO	Póvoa de Lanhoso	Braga	324058.282	2022	6	30932	Campos e Louredo	Póvoa de Lanhoso	Braga	268.0	446.0	37.54%
9	2022	6	30933	UF ESPERANCA E BRUNHAIS	Póvoa de Lanhoso	Braga	86638.366	2022	6	30933	Espérance e Brunhais	Póvoa de Lanhoso	Braga	169.0	231.0	42.25%
10	2022	6	30934	UF FONTE ARCADIA E OLIVEIRA	Póvoa de Lanhoso	Braga	422347.428	2022	6	30934	Fonte Arcada e Oliveira	Póvoa de Lanhoso	Braga	853.0	87.0	90.74%
11	2022	6	30935	UF VERIM FRIANDE AJUDA	Póvoa de Lanhoso	Braga	67987.201	2022	6	30935	Verim, Friande e Ajuda	Póvoa de Lanhoso	Braga	180.0	236.0	43.27%
12	2022	6	31001	BALANCA	Terras de Bouro	Braga	31983.603	2022	6	31001	Balança	Terras de Bouro	Braga	188.0	18.0	91.26%
13	2022	6	31003	CAMPO DO GERES	Terras de Bouro	Braga	64807.471	2022	6	31003	Campo do Gerês	Terras de Bouro	Braga	174.0	14.0	92.55%
14	2022	6	31004	CARVALHEIRA	Terras de Bouro	Braga	32658.991	2022	6	31004	Carvalheira	Terras de Bouro	Braga	257.0	5.0	98.09%
15	2022	6	31008	COVIDE	Terras de Bouro	Braga	42407.854	2022	6	31008	Covide	Terras de Bouro	Braga	56.0	175.0	24.24%
16	2022	6	31009	GONDORIZ	Terras de Bouro	Braga	41620.809	2022	6	31009	Gondoriz	Terras de Bouro	Braga	91.0	194.0	31.93%
17	2022	6	31010	MOIMENTA	Terras de Bouro	Braga	156052.553	2022	6	31010	Moimenta	Terras de Bouro	Braga	539.0	15.0	97.29%
18	2022	6	31012	RIBEIRA	Terras de Bouro	Braga	18319.898	2022	6	31012	Ribeira	Terras de Bouro	Braga	128.0	2.0	98.46%
19	2022	6	31013	RIO CALDO	Terras de Bouro	Braga	165467.419	2022	6	31013	Rio Caldo	Terras de Bouro	Braga	614.0	16.0	97.46%
20	2022	6	31014	SOUTO	Terras de Bouro	Braga	67786.675	2022	6	31014	Souto	Terras de Bouro	Braga	282.0	5.0	98.26%
21	2022	6	31015	VALDOSENDE	Terras de Bouro	Braga	118002.64	2022	6	31015	Valdosende	Terras de Bouro	Braga	415.0	21.0	95.18%
22	2022	6	31017	VILAR DA VEIGA	Terras de Bouro	Braga	416827.915	2022	6	31017	Vilar da Veiga	Terras de Bouro	Braga	902.0	26.0	97.2%
23	2022	6	31018	UF CHAMOIM E VILAR	Terras de Bouro	Braga	35637.564	2022	6	31018	Chamoim e Vilar	Terras de Bouro	Braga	297.0	11.0	96.43%
24	2022	6	31019	UF CHORENSE E MONTE	Terras de Bouro	Braga	52518.676	2022	6	31019	Chorense e Monte	Terras de Bouro	Braga	135.0	179.0	42.99%
25	2022	6	31020	UF CIBOES E BRUFE	Terras de Bouro	Braga	31445.507	2022	6	31020	Cibões e Brufe	Terras de Bouro	Braga	130.0	126.0	50.78%
26	2022	6	31105	CANTELAES	Vieira do Minho	Braga	71467.627	2022	6	31105	Cantelães	Vieira do Minho	Braga	120.0	237.0	33.61%
27	2022	6	31107	EIRA VEDRA	Vieira do Minho	Braga	65785.156	2022	6	31107	Eira Vedra	Vieira do Minho	Braga	122.0	220.0	35.67%
28	2022	6	31108	GUILHOFREI	Vieira do Minho	Braga	107117.024	2022	6	31108	Guilhofrei	Vieira do Minho	Braga	177.0	401.0	30.62%
29	2022	6	31109	LOUREDO	Vieira do Minho	Braga	83471.216	2022	6	31109	Loureiro	Vieira do Minho	Braga	122.0	216.0	36.09%
30	2022	6	31110	MOSTEIRO	Vieira do Minho	Braga	104541.555	2022	6	31110	Mosteiro	Vieira do Minho	Braga	154.0	272.0	36.15%
31	2022	6	31111	PARADA DE BOURO	Vieira do Minho	Braga	66528.737	2022	6	31111	Parada de Bouro	Vieira do Minho	Braga	101.0	197.0	33.89%
32	2022	6	31112	PINHEIRO	Vieira do Minho	Braga	42634.307	2022	6	31112	Pinheiro	Vieira do Minho	Braga	63.0	175.0	26.47%
33	2022	6	31113	ROSSAS	Vieira do Minho	Braga	163341.184	2022	6	31113	Rossas	Vieira do Minho	Braga	316.0	649.0	32.75%
34	2022	6	31115	SALAMONDE	Vieira do Minho	Braga	182263.345	2022	6	31115	Salamonde	Vieira do Minho	Braga	103.0	216.0	32.29%
35	2022	6	31118	TABUACAS	Vieira do Minho	Braga	256541.014	2022	6	31118	Tabuaças	Vieira do Minho	Braga	217.0	323.0	40.19%
36	2022	6	31120	VIEIRA DO MINHO	Vieira do Minho	Braga	556132.602	2022	6	31120	Vieira do Minho	Vieira do Minho	Braga	778.0	785.0	49.78%
37	2022	6	31122	UF ANISSO E SOUTELO	Vieira do Minho	Braga	41418.242	2022	6	31122	Aníssio e Soutelo	Vieira do Minho	Braga	52.0	210.0	19.85%
38	2022	6	31123	UF ANJOS E VILAR DO CHÃO	Vieira do Minho	Braga	53388.428	2022	6	31123	Anjos e Vilar do Chão	Vieira do Minho	Braga	94.0	240.0	28.14%
39	2022	6	31124	UF CANICADA E SOENGAS	Vieira do Minho	Braga	206927.171	2022	6	31124	Caniçada e Soengas	Vieira do Minho	Braga	132.0	318.0	29.33%
40	2022	6	31125	UF RUIVAES E CAMPOS	Vieira do Minho	Braga	1496348.067	2022	6	31125	Ruivães e Campos	Vieira do Minho	Braga	218.0	501.0	30.32%
41	2022	6	31126	UF VENTOSA E COVA	Vieira do Minho	Braga	132651.837	2022	6	31126	Ventosa e Cova	Vieira do Minho	Braga	185.0	329.0	35.99%
42	2022	6	31204	BAIRO	Vila Nova de Famalicão	Braga	1199153.788	2022	6	31204	Bairo	Vila Nova de Famalicão	Braga	702.0	808.0	46.49%
43	2022	6	31206	BRUFE	Vila Nova de Famalicão	Braga	326104.142	2022	6	31206	Brufe	Vila Nova de Famalicão	Braga	869.0	22.0	97.53%
44	2022	6	31210	CASTELOES	Vila Nova de Famalicão	Braga	305360.822	2022	6	31210	Castelões	Vila Nova de Famalicão	Braga	327.0	484.0	40.32%



# Select Values | Configuration



**Select values**

Step name **Rename Columns**

Select & Alter Rename Meta-data

Fields :

Fieldname	Rename to	Length	Precision
1 Year	Year_FromDatasetB		
2 Month	Month_FromDatasetB		
3 DistrictMunicipalityParishCode	ParishCode_FromDatasetB		
4 parish			
5 Municipality			
6 District			
7 Active Energy (kwh)			
8 Year_1	Year_FromDatasetA		
9 Month_1	Month_FromDatasetA		
10 DistrictMunicipalityParishCode_1	ParishCode_FromDatasetA		
11 Parish_1			
12 Municipality_1			
13 District_1			
14 Number of Smart Contracts			
15 Number of Non Smart Contracts			
16 Percentage of Smart Contracts			
17 Total Contracts			

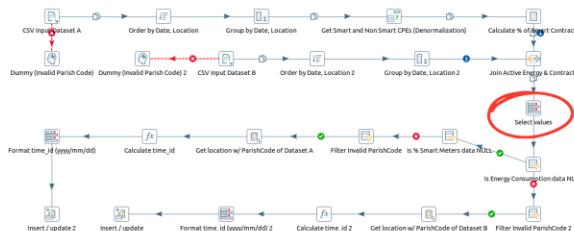
**Get fields to select**

**Edit Mapping**

Include unspecified fields, ordered by name

**OK** **Cancel**

**Help**



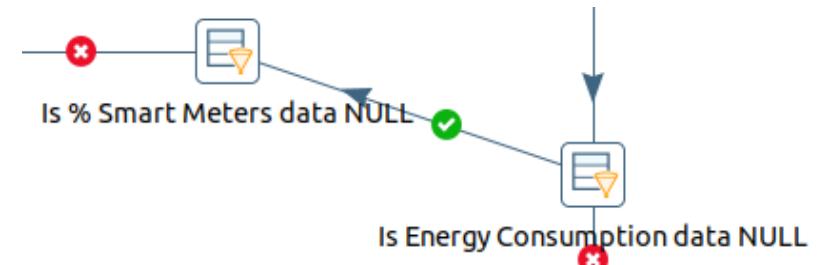
# Select Values | Preview

Rows of step: Rename Columns (1000 rows)

	Year_FromDatasetB	Month_FromDatasetB	ParishCode_FromDatasetB	parish	Municipality	District	Active Energy (kWh)	Year_FromDatasetA	Month_FromDatasetA	ParishCode_FromDatasetA
1	2020	11	10103	AGUADA DE CIMA	Águeda	Aveiro	2845325.2770000002	<null>	<null>	<null>
2	2020	11	10109	FERMENTELOS	Águeda	Aveiro	586669.115	<null>	<null>	<null>
3	2020	11	10112	MACINHATA DO VOUGA	Águeda	Aveiro	1530224.987	<null>	<null>	<null>
4	2020	11	10119	VALONGO DO VOUGA	Águeda	Aveiro	986504.078	<null>	<null>	<null>
5	2020	11	10121	UF AGUEDA E BORRALHA	Águeda	Aveiro	10043552.972000001	<null>	<null>	<null>
6	2020	11	10122	UF BARRO E AGUADA DE BAIXO	Águeda	Aveiro	3587665.522	<null>	<null>	<null>
7	2020	11	10123	UF BELAZAIMA CAST VOUGA AGADAO	Águeda	Aveiro	533631.594	<null>	<null>	<null>
8	2020	11	10124	UF RECARDAES E ESPINHEL	Águeda	Aveiro	2409798.922	<null>	<null>	<null>
9	2020	11	10125	UF TRAVASSO E OIS DA RIBEIRA	Águeda	Aveiro	1744398.483	<null>	<null>	<null>
10	2020	11	10126	UF TROFA SEGADAES LAMAS VOUGA	Águeda	Aveiro	1684233.096	<null>	<null>	<null>
11	2020	11	10127	UF PRESTIMO MACIEIRA ALCoba	Águeda	Aveiro	136830.788	<null>	<null>	<null>
12	2020	11	10202	ALQUERUBIM	Albergaria-a-Velha	Aveiro	297512.707	<null>	<null>	<null>
13	2020	11	10203	ANGEJA	Albergaria-a-Velha	Aveiro	285297.371	<null>	<null>	<null>
14	2020	11	10204	BRANCA	Albergaria-a-Velha	Aveiro	1652962.031	<null>	<null>	<null>
15	2020	11	10206	RIBEIRA DE FRAGUAS	Albergaria-a-Velha	Aveiro	192192.035	<null>	<null>	<null>
16	2020	11	10209	ALBERGARIA-A-VELHA E VALMAIOR	Albergaria-a-Velha	Aveiro	12755860.874	<null>	<null>	<null>
17	2020	11	10210	SAO JOAO DE LOURE E FROSSOS	Albergaria-a-Velha	Aveiro	409621.899	<null>	<null>	<null>
18	2020	11	10304	AVELAS DE CAMINHO	Anadia	Aveiro	769163.342	<null>	<null>	<null>
19	2020	11	10305	AVELAS DE CIMA	Anadia	Aveiro	463104.336	<null>	<null>	<null>
20	2020	11	10307	MOITA	Anadia	Aveiro	308844.162	<null>	<null>	<null>
21	2020	11	10309	SANGALHOS	Anadia	Aveiro	1253245.089	<null>	<null>	<null>
22	2020	11	10310	SAO LOURENCO DO BAIRRO	Anadia	Aveiro	557712.122	<null>	<null>	<null>
23	2020	11	10312	VILA NOVA DE MONSARROS	Anadia	Aveiro	226012.006	<null>	<null>	<null>
24	2020	11	10313	VILARINHO DO BAIRRO	Anadia	Aveiro	470150.462	<null>	<null>	<null>
25	2020	11	10316	UF A DA GANDARA BAIRRO E ANCAS	Anadia	Aveiro	633762.508	<null>	<null>	<null>
26	2020	11	10317	UF ARCOS E MOGOFORES	Anadia	Aveiro	2256227.692	<null>	<null>	<null>
27	2020	11	10318	UF TAMENGOS AGUIM OIS BAIRRO	Anadia	Aveiro	4374423.25	<null>	<null>	<null>
28	2020	11	10402	ALVARENGA	Arouca	Aveiro	213637.495	<null>	<null>	<null>
29	2020	11	10407	CHAVE	Arouca	Aveiro	437035.453	<null>	<null>	<null>
30	2020	11	10409	ESCARIZ	Arouca	Aveiro	790132.425	<null>	<null>	<null>
31	2020	11	10411	FERMEDO	Arouca	Aveiro	170521.851	<null>	<null>	<null>
32	2020	11	10413	MANSORES	Arouca	Aveiro	358185.285	<null>	<null>	<null>
33	2020	11	10414	MOLDES	Arouca	Aveiro	115513.168	<null>	<null>	<null>
34	2020	11	10415	ROSSAS	Arouca	Aveiro	176678.434	<null>	<null>	<null>
35	2020	11	10416	SANTA EULALIA	Arouca	Aveiro	329304.687	<null>	<null>	<null>
36	2020	11	10417	SAO MIGUEL DO MATO	Arouca	Aveiro	81803.276	<null>	<null>	<null>
37	2020	11	10418	TROPECO	Arouca	Aveiro	234485.847	<null>	<null>	<null>
38	2020	11	10419	URRO	Arouca	Aveiro	110407.599	<null>	<null>	<null>
39	2020	11	10420	VARZEA	Arouca	Aveiro	60315.421	<null>	<null>	<null>
40	2020	11	10421	UF AROUCA E BURGO	Arouca	Aveiro	1227164.666	<null>	<null>	<null>
41	2020	11	10422	UF CABREIROS ALBERGARIA SERRA	Arouca	Aveiro	38345.124	<null>	<null>	<null>
42	2020	11	10423	UF CANELAS E ESPIUNCA	Arouca	Aveiro	188829.866	<null>	<null>	<null>
43	2020	11	10424	UF COVELO DE PAIVO E JANARDE	Arouca	Aveiro	17139.627	<null>	<null>	<null>
44	2020	11	10501	ARADAS	Aveiro	Aveiro	3532098.07	<null>	<null>	<null>

# Considerations on Is % Smart Meters data NULL and Is Energy Consumption data NULL steps

- **Filtering steps after joining data from both Datasets**
  - The two datasets have data ranging from different dates; Dataset A contains data from 6-2022 to 9-2024, and Dataset B from 11-2020 to 7-2024
  - Because of this, there are rows where the percentage of smart meters is null, and other rows where the energy consumption data is null
  - To know which column to use when searching for the location\_id, and when creating the time\_id, we use this two filters, that redirect the flow of the rows, according to which columns are null



# Is Energy Consumption data NULL

## Configuration

Filter rows



Step name: **Is Energy Consumption data NULL**

Send 'true' data to step: **Is % Smart Meters data NULL**

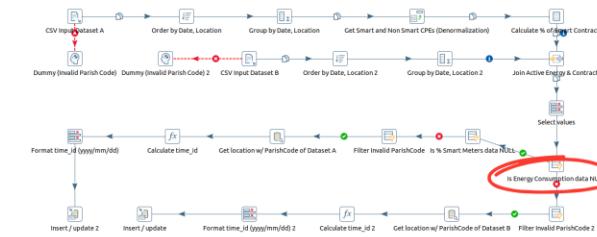
Send 'false' data to step: **Filter Invalid ParishCode 2**

The condition:

Active Energy (kwh) IS NULL - -

Help OK Cancel

Detailed description: This screenshot shows a configuration dialog for a 'Filter rows' step. The 'Step name' is 'Is Energy Consumption data NULL'. It has two outgoing paths: one to 'Is % Smart Meters data NULL' (labeled 'true') and another to 'Filter Invalid ParishCode 2' (labeled 'false'). The condition is set to check if 'Active Energy (kwh)' is NULL. The dialog includes standard buttons for Help, OK, and Cancel.

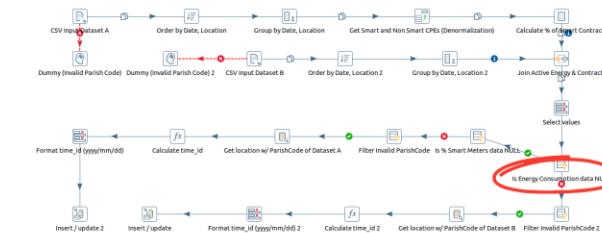


# Is Energy Consumption data NULL

## Preview

Rows of step: Is Energy Consumption data NULL (1000 rows)

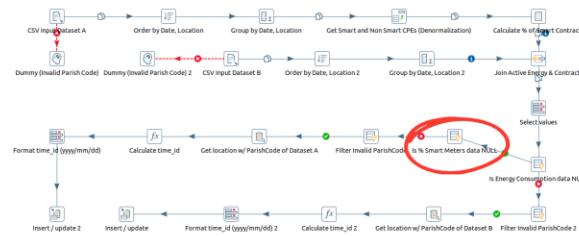
	Year_FromDatasetB	Month_FromDatasetB	ParishCode_FromDatasetB	parish	Municipality	District	Active Energy (kWh)	Year_FromDatasetA	Month_FromDatasetA	ParishCode_FromDatasetA
1	2020	11	10103	AGUADA DE CIMA	Águeda	Aveiro	2845325.2770000002	<null>	<null>	<null>
2	2020	11	10109	FERMENTELOS	Águeda	Aveiro	586669.115	<null>	<null>	<null>
3	2020	11	10112	MACINHATA DO VOUGA	Águeda	Aveiro	1530224.987	<null>	<null>	<null>
4	2020	11	10119	VALONGO DO VOUGA	Águeda	Aveiro	986504.078	<null>	<null>	<null>
5	2020	11	10121	UF AGUEDA E BORRALHA	Águeda	Aveiro	10043552.972000001	<null>	<null>	<null>
6	2020	11	10122	UF BARRO E AGUADA DE BAIXO	Águeda	Aveiro	3587665.522	<null>	<null>	<null>
7	2020	11	10123	UF BELAZAIMA CAST VOUGA AGADAO	Águeda	Aveiro	533631.594	<null>	<null>	<null>
8	2020	11	10124	UF RECARDAES E ESPINHEL	Águeda	Aveiro	2409798.922	<null>	<null>	<null>
9	2020	11	10125	UF TRAVASSO E OIS DA RIBEIRA	Águeda	Aveiro	1744398.483	<null>	<null>	<null>
10	2020	11	10126	UF TROFA SEGADAES LAMAS VOUGA	Águeda	Aveiro	1684233.096	<null>	<null>	<null>
11	2020	11	10127	UF PRESTIMO MACIEIRA ALCoba	Águeda	Aveiro	136830.788	<null>	<null>	<null>
12	2020	11	10202	ALQUERUBIM	Albergaria-a-Velha	Aveiro	297512.707	<null>	<null>	<null>
13	2020	11	10203	ANGEJA	Albergaria-a-Velha	Aveiro	285297.371	<null>	<null>	<null>
14	2020	11	10204	BRANCA	Albergaria-a-Velha	Aveiro	1652962.031	<null>	<null>	<null>
15	2020	11	10206	RIBEIRA DE FRAGUAS	Albergaria-a-Velha	Aveiro	192192.035	<null>	<null>	<null>
16	2020	11	10209	ALBERGARIA-A-VELHA E VALMAIOR	Albergaria-a-Velha	Aveiro	12755860.874	<null>	<null>	<null>
17	2020	11	10210	SAO JOAO DE LOURE E FROSSOS	Albergaria-a-Velha	Aveiro	409621.899	<null>	<null>	<null>
18	2020	11	10304	AVELAS DE CAMINHO	Anadia	Aveiro	769163.342	<null>	<null>	<null>
19	2020	11	10305	AVELAS DE CIMA	Anadia	Aveiro	463104.436	<null>	<null>	<null>
20	2020	11	10307	MOITA	Anadia	Aveiro	308844.162	<null>	<null>	<null>
21	2020	11	10309	SANGALHOS	Anadia	Aveiro	1253245.089	<null>	<null>	<null>
22	2020	11	10310	SAO LOURENCO DO BAIRRO	Anadia	Aveiro	557712.122	<null>	<null>	<null>
23	2020	11	10312	VILA NOVA DE MONSARROS	Anadia	Aveiro	226012.006	<null>	<null>	<null>
24	2020	11	10313	VILARINHO DO BAIRRO	Anadia	Aveiro	470150.462	<null>	<null>	<null>
25	2020	11	10316	UF A DA GANDARA BAIRRO E ANCAS	Anadia	Aveiro	633762.508	<null>	<null>	<null>
26	2020	11	10317	UF ARCOS E MOGOFORES	Anadia	Aveiro	2256227.692	<null>	<null>	<null>
27	2020	11	10318	UF TAMENGOS AGUIM OIS BAIRRO	Anadia	Aveiro	4374423.25	<null>	<null>	<null>
28	2020	11	10402	ALVARENGA	Arouca	Aveiro	213637.495	<null>	<null>	<null>
29	2020	11	10407	CHAVE	Arouca	Aveiro	437035.453	<null>	<null>	<null>
30	2020	11	10409	ESCARIZ	Arouca	Aveiro	790132.425	<null>	<null>	<null>
31	2020	11	10411	FERMEDO	Arouca	Aveiro	170521.851	<null>	<null>	<null>
32	2020	11	10413	MANSORES	Arouca	Aveiro	358185.285	<null>	<null>	<null>
33	2020	11	10414	MOLDES	Arouca	Aveiro	115513.168	<null>	<null>	<null>
34	2020	11	10415	ROSSAS	Arouca	Aveiro	176678.434	<null>	<null>	<null>
35	2020	11	10416	SANTA EULALIA	Arouca	Aveiro	329304.687	<null>	<null>	<null>
36	2020	11	10417	SAO MIGUEL DO MATO	Arouca	Aveiro	81803.276	<null>	<null>	<null>
37	2020	11	10418	TROPECO	Arouca	Aveiro	234485.847	<null>	<null>	<null>
38	2020	11	10419	URRO	Arouca	Aveiro	110407.599	<null>	<null>	<null>
39	2020	11	10420	VARZEA	Arouca	Aveiro	60315.421	<null>	<null>	<null>
40	2020	11	10421	UF AROUCA E BURGO	Arouca	Aveiro	1227164.666	<null>	<null>	<null>
41	2020	11	10422	UF CABREIROS ALBERGARIA SERRA	Arouca	Aveiro	38345.124	<null>	<null>	<null>
42	2020	11	10423	UF CANELAS E ESPIUNCA	Arouca	Aveiro	188829.866	<null>	<null>	<null>
43	2020	11	10424	UF COVELO DE PAIVO E JANARDE	Arouca	Aveiro	17139.627	<null>	<null>	<null>
44	2020	11	10501	ARADAS	Aveiro	Aveiro	3532098.07	<null>	<null>	<null>



Is Energy Consumption data NULL

# Is % Smart Meters data NULL

## Configuration



**Filter rows**

Step name: **Is % Smart Meters data NULL**

Send 'true' data to step: **Filter Invalid ParishCode**

Send 'false' data to step: **Format time\_id (yyyy/mm/dd)**

The condition:

Percentage of Smart Contracts IS NULL

OK Cancel

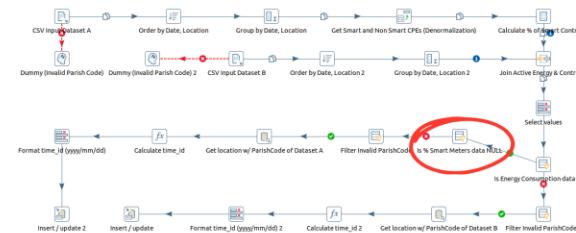
This configuration dialog shows the setup for the 'Is % Smart Meters data NULL' step. It includes fields for the step name, output paths for 'true' and 'false' conditions, and a condition builder for the filter. The condition is set to check if the 'Percentage of Smart Contracts' field is null.

# Is % Smart Meters data NULL

## Preview (1/2)

Rows of step: Is % Smart Meters data NULL (1000 rows)

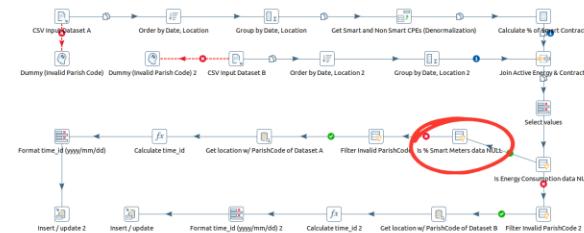
#	Year_FromDatasetB	Month_Frc	ParishCode_FromDatasetB	parish	Munic	District	Active Energy (kWh)	Year_FromDatasetA	Month_FromDatasetA	ParishCode_FromDatasetA	Parish_1	Municipality_1
1	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10103	Aguada de Cima	Águeda
2	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10109	Fermentelos	Águeda
3	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10112	Macinhata do Vouga	Águeda
4	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10119	Valongo do Vouga	Águeda
5	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10121	Águeda e Borrinha	Águeda
6	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10122	Barrô e Aguada de Baixo	Águeda
7	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10123	Belazaima do Chão, Castanheira do Vouga e Agadão	Águeda
8	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10124	Recordães e Espinhel	Águeda
9	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10125	Travassô e Óis da Ribeira	Águeda
10	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10126	Trofa, Segadães e Lamas do Vouga	Águeda
11	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10127	Préstimo e Macieira de Alcoba	Águeda
12	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10202	Alquerubim	Albergaria-a-Velha
13	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10203	Angeja	Albergaria-a-Velha
14	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10204	Branca	Albergaria-a-Velha
15	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10206	Ribeira de Frágua	Albergaria-a-Velha
16	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10209	Albergaria-a-Velha e Valmائر	Albergaria-a-Velha
17	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10210	São João de Loure e Frossos	Albergaria-a-Velha
18	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10304	Avelãs de Caminho	Anadia
19	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10305	Avelãs de Cima	Anadia
20	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10307	Moita	Anadia
21	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10309	Sangalhos	Anadia
22	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10310	São Lourenço do Bairro	Anadia
23	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10312	Vila Nova de Monsarros	Anadia
24	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10313	Vilarinho do Bairro	Anadia
25	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10316	Amoreira da Gândara, Paredes do Bairro e Anças	Anadia
26	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10317	Arcos e Mogofores	Anadia
27	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10318	Tamengos, Aguiã e Óis do Bairro	Anadia
28	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10402	Alvarenga	Arouca
29	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10407	Chave	Arouca
30	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10409	Escariz	Arouca
31	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10411	Fermedo	Arouca
32	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10413	Mansores	Arouca
33	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10414	Moldes	Arouca
34	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10415	Rossas	Arouca
35	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10416	Santa Eulália	Arouca
36	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10417	São Miguel do Mato	Arouca
37	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10418	Tropeço	Arouca
38	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10419	Urrô	Arouca
39	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10420	Várzea	Arouca
40	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10421	Arouca e Burgo	Arouca
41	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10422	Cabreiros e Albergaria da Serra	Arouca
42	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10423	Canelas e Espiúca	Arouca
43	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10424	Covelo de Paivô e Janarde	Arouca
44	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2024	8	10501	Aradas	Aveiro



# Is % Smart Meters data NULL

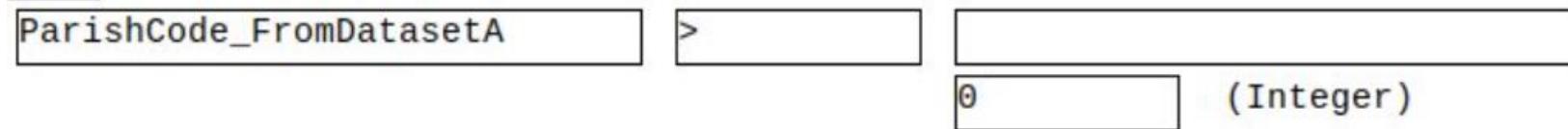
## Preview (2/2)

Municipality_1	District_1	Number of Smart Contracts	Number of Non Smart Contracts	Percentage of Smart Contracts	Total Contracts
Águeda	Aveiro	2180.0	16.0	99.27%	2196
Águeda	Aveiro	1805.0	11.0	99.39%	1816
Águeda	Aveiro	1847.0	16.0	99.14%	1863
Águeda	Aveiro	171.0	4.0	97.71%	175
Águeda	Aveiro	8109.0	28.0	99.66%	8137
Águeda	Aveiro	1623.0	18.0	98.9%	1641
Águeda	Aveiro	894.0	12.0	98.68%	906
Águeda	Aveiro	3065.0	19.0	99.38%	3084
Águeda	Aveiro	1172.0	11.0	99.07%	1183
Águeda	Aveiro	2416.0	21.0	99.14%	2437
Águeda	Aveiro	608.0	4.0	99.35%	612
Albergaria-a-Velha	Aveiro	1095.0	33.0	97.07%	1128
Albergaria-a-Velha	Aveiro	994.0	18.0	98.22%	1012
Albergaria-a-Velha	Aveiro	2784.0	52.0	98.17%	2836
Albergaria-a-Velha	Aveiro	748.0	45.0	94.33%	793
Albergaria-a-Velha	Aveiro	6642.0	55.0	99.18%	6697
Albergaria-a-Velha	Aveiro	1371.0	91.0	93.78%	1462
Anadia	Aveiro	505.0	4.0	99.21%	509
Anadia	Aveiro	1029.0	67.0	93.89%	1096
Anadia	Aveiro	1232.0	15.0	98.8%	1247
Anadia	Aveiro	2263.0	18.0	99.21%	2281
Anadia	Aveiro	1174.0	205.0	85.13%	1379
Anadia	Aveiro	881.0	12.0	98.66%	893
Anadia	Aveiro	1380.0	478.0	74.27%	1858
Anadia	Aveiro	1264.0	333.0	79.15%	1597
Anadia	Aveiro	3869.0	75.0	98.1%	3944
Anadia	Aveiro	1905.0	178.0	91.45%	2083
Arouca	Aveiro	861.0	74.0	92.09%	935
Arouca	Aveiro	574.0	123.0	82.35%	697
Arouca	Aveiro	877.0	179.0	83.05%	1056
Arouca	Aveiro	609.0	106.0	85.17%	715
Arouca	Aveiro	452.0	105.0	81.15%	557
Arouca	Aveiro	559.0	41.0	93.17%	600
Arouca	Aveiro	734.0	11.0	98.52%	745
Arouca	Aveiro	1085.0	24.0	97.84%	1109
Arouca	Aveiro	300.0	26.0	92.02%	326
Arouca	Aveiro	566.0	14.0	97.59%	580
Arouca	Aveiro	471.0	24.0	95.15%	495
Arouca	Aveiro	236.0	9.0	96.33%	245
Arouca	Aveiro	3281.0	14.0	99.58%	3295
Arouca	Aveiro	183.0	11.0	94.33%	194
Arouca	Aveiro	636.0	11.0	98.3%	647
Arouca	Aveiro	146.0	16.0	90.12%	162
Aveiro	Aveiro	5762.0	5.0	99.91%	5767

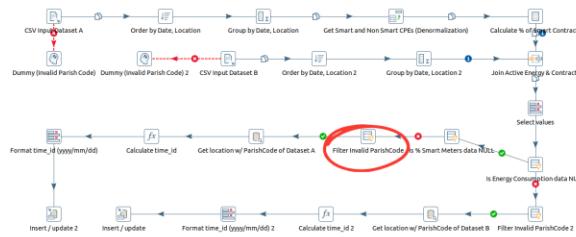


# Note about next step (Filter Invalid ParishCode)

- In the next step, we exclude rows where the Parish Code is less than zero
- This is due to some invalid entries having a Parish Code equal to -1, causing errors



# Filter Invalid ParishCode | Configuration



**Filter rows**

Step name: **Filter Invalid ParishCode**

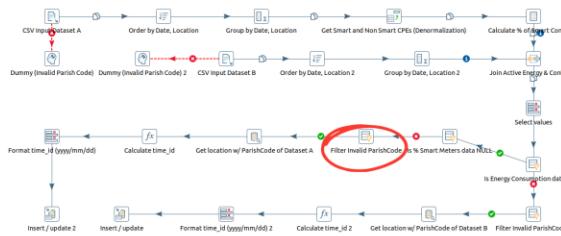
Send 'true' data to step: **Get location w/ ParishCode of Dataset A**

Send 'false' data to step:

The condition:

ParishCode\_FromDatasetA >  0 (Integer)

**Help** **OK** **Cancel**



# Filter Invalid ParishCode | Preview

Rows of step: Filter Invalid ParishCode (1000 rows)

District	Active Energy (kWh)	Year_FromDatasetA	Month_FromDatasetA	ParishCode	Parish_1	Municipality_1	District_1	Number of Smart Contract	Number of Non Smart Contracts	Percentage of Smart Contracts
"	<null>	2024	8	10103	Aguada de Cima	Águeda	Aveiro	2180.0	16.0	99.27%
"	<null>	2024	8	10109	Fermentelos	Águeda	Aveiro	1805.0	11.0	99.39%
"	<null>	2024	8	10112	Macinhata do Vouga	Águeda	Aveiro	1847.0	16.0	99.14%
"	<null>	2024	8	10119	Valongo do Vouga	Águeda	Aveiro	171.0	4.0	97.71%
"	<null>	2024	8	10121	Águeda e Borralha	Águeda	Aveiro	8109.0	28.0	99.66%
"	<null>	2024	8	10122	Barrô e Aguada de Baixo	Águeda	Aveiro	1623.0	18.0	98.9%
"	<null>	2024	8	10123	Belazaima do Chão, Castanheira do Vouga	Águeda	Aveiro	894.0	12.0	98.68%
"	<null>	2024	8	10124	Recordães e Espinhel	Águeda	Aveiro	3065.0	19.0	99.38%
"	<null>	2024	8	10125	Travassô e Óis da Ribeira	Águeda	Aveiro	1172.0	11.0	99.07%
"	<null>	2024	8	10126	Trofa, Segadães e Lamas do Vouga	Águeda	Aveiro	2416.0	21.0	99.14%
"	<null>	2024	8	10127	Préstimo e Macieira de Alcobaça	Águeda	Aveiro	608.0	4.0	99.35%
"	<null>	2024	8	10202	Alquerubim	Albergaria-a-Velha	Aveiro	1095.0	33.0	97.07%
"	<null>	2024	8	10203	Angeja	Albergaria-a-Velha	Aveiro	994.0	18.0	98.22%
"	<null>	2024	8	10204	Branca	Albergaria-a-Velha	Aveiro	2784.0	52.0	98.17%
"	<null>	2024	8	10206	Ribeira de Frágua	Albergaria-a-Velha	Aveiro	748.0	45.0	94.33%
"	<null>	2024	8	10209	Albergaria-a-Velha e Valmaior	Albergaria-a-Velha	Aveiro	6642.0	55.0	99.18%
"	<null>	2024	8	10210	São João de Loure e Frossos	Albergaria-a-Velha	Aveiro	1371.0	91.0	93.78%
"	<null>	2024	8	10304	Avelãs de Caminho	Anadia	Aveiro	505.0	4.0	99.21%
"	<null>	2024	8	10305	Avelãs de Cima	Anadia	Aveiro	1029.0	67.0	93.89%
"	<null>	2024	8	10307	Moita	Anadia	Aveiro	1232.0	15.0	98.8%
"	<null>	2024	8	10309	Sangalhos	Anadia	Aveiro	2263.0	18.0	99.21%
"	<null>	2024	8	10310	São Lourenço do Bairro	Anadia	Aveiro	1174.0	205.0	85.13%
"	<null>	2024	8	10312	Vila Nova de Monsarros	Anadia	Aveiro	881.0	12.0	98.66%
"	<null>	2024	8	10313	Vilarinho do Bairro	Anadia	Aveiro	1380.0	478.0	74.27%
"	<null>	2024	8	10316	Amoreira da Gândara, Paredes do Bairro	Anadia	Aveiro	1264.0	333.0	79.15%
"	<null>	2024	8	10317	Arcos e Mogofores	Anadia	Aveiro	3869.0	75.0	98.1%
"	<null>	2024	8	10318	Tamengos, Aguium e Óis do Bairro	Anadia	Aveiro	1905.0	178.0	91.45%
"	<null>	2024	8	10402	Alvarenga	Arouca	Aveiro	861.0	74.0	92.09%
"	<null>	2024	8	10407	Chave	Arouca	Aveiro	574.0	123.0	82.35%
"	<null>	2024	8	10409	Escariz	Arouca	Aveiro	877.0	179.0	83.05%
"	<null>	2024	8	10411	Fermedo	Arouca	Aveiro	609.0	106.0	85.17%
"	<null>	2024	8	10413	Mansores	Arouca	Aveiro	452.0	105.0	81.15%
"	<null>	2024	8	10414	Moldes	Arouca	Aveiro	559.0	41.0	93.17%
"	<null>	2024	8	10415	Rossas	Arouca	Aveiro	734.0	11.0	98.52%
"	<null>	2024	8	10416	Santa Eulália	Arouca	Aveiro	1085.0	24.0	97.84%
"	<null>	2024	8	10417	São Miguel do Mato	Arouca	Aveiro	300.0	26.0	92.02%
"	<null>	2024	8	10418	Tropeço	Arouca	Aveiro	566.0	14.0	97.59%
"	<null>	2024	8	10419	Urrô	Arouca	Aveiro	471.0	24.0	95.15%
"	<null>	2024	8	10420	Várzea	Arouca	Aveiro	236.0	9.0	96.33%
"	<null>	2024	8	10421	Arouca e Burgo	Arouca	Aveiro	3281.0	14.0	99.58%
"	<null>	2024	8	10422	Cabreiros e Albergaria da Serra	Arouca	Aveiro	183.0	11.0	94.33%
"	<null>	2024	8	10423	Canelas e Espiunca	Arouca	Aveiro	636.0	11.0	98.3%
"	<null>	2024	8	10424	Covelo de Paivó e Janarde	Arouca	Aveiro	146.0	16.0	90.12%
"	<null>	2024	8	10501	Aradas	Aveiro	Aveiro	5762.0	5.0	99.91%

# Get location w/ ParishCode of Dataset A

## Configuration

Database lookup

Step name: Get location w/ ParishCode of Dataset A

Connection: energy\_dw

Lookup schema: energy\_dw

Lookup table: dim\_location

Enable cache?

Cache size in rows (0=cache everything): 0

Load all data from table

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

	Table field	Comparator	Field1	Field2
1	parish_code	=	ParishCode_FromDatasetA	

Values to return from the lookup table :

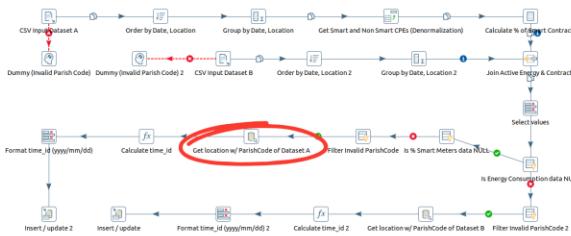
	Field	New name	Default	Type
1	location_id			None

Do not pass the row if the lookup fails

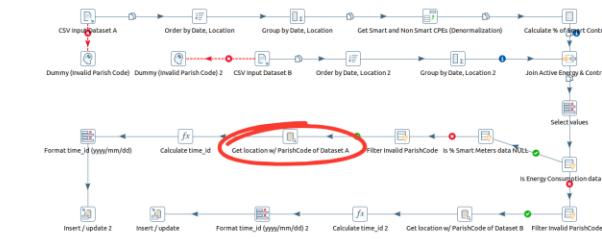
Fail on multiple results?

Order by

Buttons: Help, OK, Cancel, Get Fields, Get lookup fields



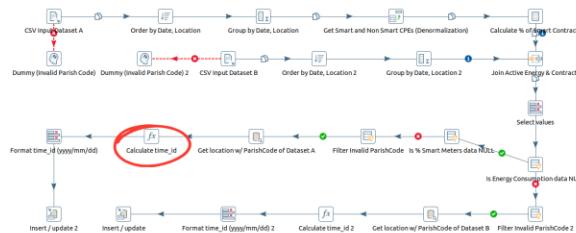
# Get location w/ ParishCode of Dataset A



## Preview

Rows of step: Get location w/ ParishCode of Dataset A (1000 rows)

Active Energy (kWh)	Year_Foi	Mon	Parish	Parish_1	Municipality_1	District_1	Number of Smart Contracts	Number of Non Smart Contracts	Percentage of Smart Contracts	Total Contracts	location_id
<null>	2024	8	10103	Aguada de Cima	Águeda	Aveiro	2180.0	16.0	99.27%	2196	133
<null>	2024	8	10109	Fermentelos	Águeda	Aveiro	1805.0	11.0	99.39%	1816	134
<null>	2024	8	10112	Macinhata do Vouga	Águeda	Aveiro	1847.0	16.0	99.14%	1863	135
<null>	2024	8	10119	Valongo do Vouga	Águeda	Aveiro	171.0	4.0	97.71%	175	143
<null>	2024	8	10121	Águeda e Borralha	Águeda	Aveiro	8109.0	28.0	99.66%	8137	136
<null>	2024	8	10122	Barrô e Aguada de Baixo	Águeda	Aveiro	1623.0	18.0	98.9%	1641	137
<null>	2024	8	10123	Belazaima do Chão, Castanheira do Vouga e A	Águeda	Aveiro	894.0	12.0	98.68%	906	138
<null>	2024	8	10124	Recardães e Espinhel	Águeda	Aveiro	3065.0	19.0	99.38%	3084	140
<null>	2024	8	10125	Travassô e Óis da Ribeira	Águeda	Aveiro	1172.0	11.0	99.07%	1183	141
<null>	2024	8	10126	Trofa, Segadães e Lamas do Vouga	Águeda	Aveiro	2416.0	21.0	99.14%	2437	142
<null>	2024	8	10127	Préstimo e Macieira de Alcoba	Águeda	Aveiro	608.0	4.0	99.35%	612	139
<null>	2024	8	10202	Alquerubim	Albergaria-a-Velha	Aveiro	1095.0	33.0	97.07%	1128	2
<null>	2024	8	10203	Angeja	Albergaria-a-Velha	Aveiro	994.0	18.0	98.22%	1012	3
<null>	2024	8	10204	Brâncas	Albergaria-a-Velha	Aveiro	2784.0	52.0	98.17%	2836	4
<null>	2024	8	10206	Ribeira de Frágua	Albergaria-a-Velha	Aveiro	748.0	45.0	94.33%	793	5
<null>	2024	8	10209	Albergaria-a-Velha e Valmaior	Albergaria-a-Velha	Aveiro	6642.0	55.0	99.18%	6697	1
<null>	2024	8	10210	São João de Loure e Frossos	Albergaria-a-Velha	Aveiro	1371.0	91.0	93.78%	1462	6
<null>	2024	8	10304	Avelãs de Caminho	Anadia	Aveiro	505.0	4.0	99.21%	509	7
<null>	2024	8	10305	Avelãs de Cima	Anadia	Aveiro	1029.0	67.0	93.89%	1096	8
<null>	2024	8	10307	Moita	Anadia	Aveiro	1232.0	15.0	98.8%	1247	9
<null>	2024	8	10309	Sangalhos	Anadia	Aveiro	2263.0	18.0	99.21%	2281	10
<null>	2024	8	10310	São Lourenço do Bairro	Anadia	Aveiro	1174.0	205.0	85.13%	1379	11
<null>	2024	8	10312	Vila Nova de Monsarros	Anadia	Aveiro	881.0	12.0	98.66%	893	15
<null>	2024	8	10313	Vilarinho do Bairro	Anadia	Aveiro	1380.0	478.0	74.27%	1858	16
<null>	2024	8	10316	Amoreira da Gândara, Paredes do Bairro e An	Anadia	Aveiro	1264.0	333.0	79.15%	1597	12
<null>	2024	8	10317	Arcos e Mogofores	Anadia	Aveiro	3869.0	75.0	98.1%	3944	13
<null>	2024	8	10318	Tamengos, Aguium e Óis do Bairro	Anadia	Aveiro	1905.0	178.0	91.45%	2083	14
<null>	2024	8	10402	Alvarenga	Arouca	Aveiro	861.0	74.0	92.09%	935	17
<null>	2024	8	10407	Chave	Arouca	Aveiro	574.0	123.0	82.35%	697	18
<null>	2024	8	10409	Escariz	Arouca	Aveiro	877.0	179.0	83.05%	1056	19
<null>	2024	8	10411	Fermedo	Arouca	Aveiro	609.0	106.0	85.17%	715	20
<null>	2024	8	10413	Mansores	Arouca	Aveiro	452.0	105.0	81.15%	557	21
<null>	2024	8	10414	Moldes	Arouca	Aveiro	559.0	41.0	93.17%	600	22
<null>	2024	8	10415	Rossas	Arouca	Aveiro	734.0	11.0	98.52%	745	23
<null>	2024	8	10416	Santa Eulália	Arouca	Aveiro	1085.0	24.0	97.84%	1109	24
<null>	2024	8	10417	São Miguel do Mato	Arouca	Aveiro	300.0	26.0	92.02%	326	25
<null>	2024	8	10418	Tropéco	Arouca	Aveiro	566.0	14.0	97.59%	580	26
<null>	2024	8	10419	Urrô	Arouca	Aveiro	471.0	24.0	95.15%	495	31
<null>	2024	8	10420	Várzea	Arouca	Aveiro	236.0	9.0	96.33%	245	32
<null>	2024	8	10421	Arouca e Burgo	Arouca	Aveiro	3281.0	14.0	99.58%	3295	27
<null>	2024	8	10422	Cabreiros e Albergaria da Serra	Arouca	Aveiro	183.0	11.0	94.33%	194	28
<null>	2024	8	10423	Canelas e Espiunca	Arouca	Aveiro	636.0	11.0	98.3%	647	29
<null>	2024	8	10424	Covelo de Paivô e Janarde	Arouca	Aveiro	146.0	16.0	90.12%	162	30
<null>	2024	8	10501	Aradas	Aveiro	Aveiro	5762.0	5.0	99.91%	5767	33



# Calculate time\_id | Configuration

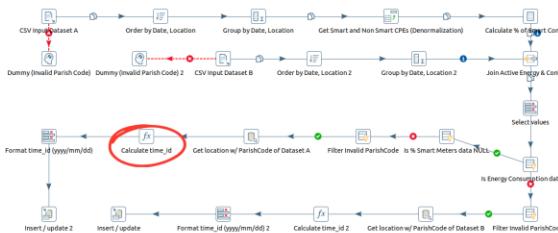
**Formula**

Step name **Calculate time\_id**

Fields:

New field	Formula	Value type	Length	Precision	Replace value
1 time_id_unparsed	DATE([Year_FromDatasetA];[Month_FromDatasetA];1)	Date			

# Calculate time\_id | Preview



Rows of step: Calculate time\_id (1000 rows)

Year_Fri	Month	Parish	Parish_1	Municipality_1	District_1	Number of Smart Contracts	Number of Non Smart Contracts	Percentage of Smart Cont	Total Contracts	location_id	time_id_unparsed
<null>	2024	8	10103	Aguada de Cima	Águeda	Aveiro	2180.0	16.0	99.27%	2196	133 2024/08/01 00:00:00.000
<null>	2024	8	10109	Fermentelos	Águeda	Aveiro	1805.0	11.0	99.39%	1816	134 2024/08/01 00:00:00.000
<null>	2024	8	10112	Macinhata do Vouga	Águeda	Aveiro	1847.0	16.0	99.14%	1863	135 2024/08/01 00:00:00.000
<null>	2024	8	10119	Valongo do Vouga	Águeda	Aveiro	171.0	4.0	97.71%	175	143 2024/08/01 00:00:00.000
<null>	2024	8	10121	Águeda e Borralha	Águeda	Aveiro	8109.0	28.0	99.66%	8137	136 2024/08/01 00:00:00.000
<null>	2024	8	10122	Barrô e Aguada de Baixo	Águeda	Aveiro	1623.0	18.0	98.9%	1641	137 2024/08/01 00:00:00.000
<null>	2024	8	10123	Belazaima do Chão, Castanheira do Vouga e Ag.	Águeda	Aveiro	894.0	12.0	98.68%	906	138 2024/08/01 00:00:00.000
<null>	2024	8	10124	Recardães e Espinhel	Águeda	Aveiro	3065.0	19.0	99.38%	3084	140 2024/08/01 00:00:00.000
<null>	2024	8	10125	Travassô e Óis da Ribeira	Águeda	Aveiro	1172.0	11.0	99.07%	1183	141 2024/08/01 00:00:00.000
<null>	2024	8	10126	Trofa, Segadães e Lamas do Vouga	Águeda	Aveiro	2416.0	21.0	99.14%	2437	142 2024/08/01 00:00:00.000
<null>	2024	8	10127	Préstimo e Macieira de Alcoba	Águeda	Aveiro	608.0	4.0	99.35%	612	139 2024/08/01 00:00:00.000
<null>	2024	8	10202	Alquerubim	Albergaria-a-Velha	Aveiro	1095.0	33.0	97.07%	1128	2 2024/08/01 00:00:00.000
<null>	2024	8	10203	Angeja	Albergaria-a-Velha	Aveiro	994.0	18.0	98.22%	1012	3 2024/08/01 00:00:00.000
<null>	2024	8	10204	Branca	Albergaria-a-Velha	Aveiro	2784.0	52.0	98.17%	2836	4 2024/08/01 00:00:00.000
<null>	2024	8	10206	Ribeira de Frágua	Albergaria-a-Velha	Aveiro	748.0	45.0	94.33%	793	5 2024/08/01 00:00:00.000
<null>	2024	8	10209	Albergaria-a-Velha e Valmaior	Albergaria-a-Velha	Aveiro	6642.0	55.0	99.18%	6697	1 2024/08/01 00:00:00.000
<null>	2024	8	10210	São João de Loure e Frossos	Albergaria-a-Velha	Aveiro	1371.0	91.0	93.78%	1462	6 2024/08/01 00:00:00.000
<null>	2024	8	10304	Avelãs de Caminho	Anadia	Aveiro	505.0	4.0	99.21%	509	7 2024/08/01 00:00:00.000
<null>	2024	8	10305	Avelãs de Cima	Anadia	Aveiro	1029.0	67.0	93.89%	1096	8 2024/08/01 00:00:00.000
<null>	2024	8	10307	Moita	Anadia	Aveiro	1232.0	15.0	98.8%	1247	9 2024/08/01 00:00:00.000
<null>	2024	8	10309	Sangalhos	Anadia	Aveiro	2263.0	18.0	99.21%	2281	10 2024/08/01 00:00:00.000
<null>	2024	8	10310	São Lourenço do Bairro	Anadia	Aveiro	1174.0	205.0	85.13%	1379	11 2024/08/01 00:00:00.000
<null>	2024	8	10312	Vila Nova de Monsarros	Anadia	Aveiro	881.0	12.0	98.66%	893	15 2024/08/01 00:00:00.000
<null>	2024	8	10313	Vilarinho do Bairro	Anadia	Aveiro	1380.0	478.0	74.27%	1858	16 2024/08/01 00:00:00.000
<null>	2024	8	10316	Amoreira da Gândara, Paredes do Bairro e Ançã	Anadia	Aveiro	1264.0	333.0	79.15%	1597	12 2024/08/01 00:00:00.000
<null>	2024	8	10317	Arcos e Mogofores	Anadia	Aveiro	3869.0	75.0	98.1%	3944	13 2024/08/01 00:00:00.000
<null>	2024	8	10318	Tamengos, Aguiã e Óis do Bairro	Anadia	Aveiro	1905.0	178.0	91.45%	2083	14 2024/08/01 00:00:00.000
<null>	2024	8	10402	Alvarenga	Arouca	Aveiro	861.0	74.0	92.09%	935	17 2024/08/01 00:00:00.000
<null>	2024	8	10407	Chave	Arouca	Aveiro	574.0	123.0	82.35%	697	18 2024/08/01 00:00:00.000
<null>	2024	8	10409	Escariz	Arouca	Aveiro	877.0	179.0	83.05%	1056	19 2024/08/01 00:00:00.000
<null>	2024	8	10411	Fermedo	Arouca	Aveiro	609.0	106.0	85.17%	715	20 2024/08/01 00:00:00.000
<null>	2024	8	10413	Mansores	Arouca	Aveiro	452.0	105.0	81.15%	557	21 2024/08/01 00:00:00.000
<null>	2024	8	10414	Moldes	Arouca	Aveiro	559.0	41.0	93.17%	600	22 2024/08/01 00:00:00.000
<null>	2024	8	10415	Rossas	Arouca	Aveiro	734.0	11.0	98.52%	745	23 2024/08/01 00:00:00.000
<null>	2024	8	10416	Santa Eulália	Arouca	Aveiro	1085.0	24.0	97.84%	1109	24 2024/08/01 00:00:00.000
<null>	2024	8	10417	São Miguel do Mato	Arouca	Aveiro	300.0	26.0	92.02%	326	25 2024/08/01 00:00:00.000
<null>	2024	8	10418	Tropeço	Arouca	Aveiro	566.0	14.0	97.59%	580	26 2024/08/01 00:00:00.000
<null>	2024	8	10419	Urrô	Arouca	Aveiro	471.0	24.0	95.15%	495	31 2024/08/01 00:00:00.000
<null>	2024	8	10420	Várzea	Arouca	Aveiro	236.0	9.0	96.33%	245	32 2024/08/01 00:00:00.000
<null>	2024	8	10421	Arouca e Burgo	Arouca	Aveiro	3281.0	14.0	99.58%	3295	27 2024/08/01 00:00:00.000
<null>	2024	8	10422	Cabreiros e Albergaria da Serra	Arouca	Aveiro	183.0	11.0	94.33%	194	28 2024/08/01 00:00:00.000
<null>	2024	8	10423	Canelas e Espiunca	Arouca	Aveiro	636.0	11.0	98.3%	647	29 2024/08/01 00:00:00.000
<null>	2024	8	10424	Covelo de Paivô e Janarde	Arouca	Aveiro	146.0	16.0	90.12%	162	30 2024/08/01 00:00:00.000
<null>	2024	8	10501	Aradas	Aveiro	Aveiro	5762.0	5.0	99.91%	5767	33 2024/08/01 00:00:00.000

# Format time\_id (yyyy/mm/dd)

## Configuration

Select values

Step name **Format time\_id (yyyy/mm/dd)**

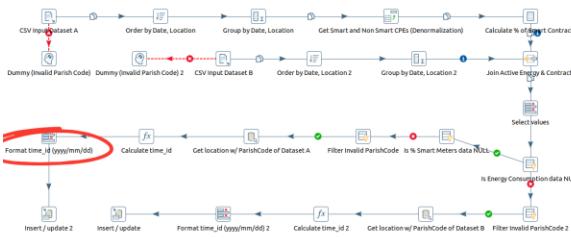
Select & Alter Remove Meta-data

Fields to alter the meta-data for :

Fieldname	Rename to	Type	Length	Precision	Binary to Normal?	Forr
1 time_id_unparsed	time_id	Date			N	yyyy

**Get fields to change**

OK Cancel

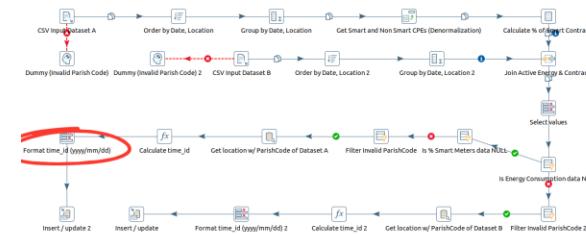


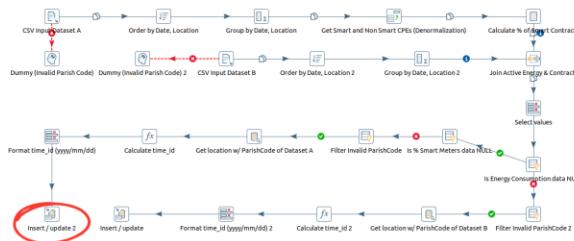
# Format time\_id (yyyy/mm/dd)

## Preview

Rows of step: Format time\_id (yyyy/mm/dd) (1000 rows)

Energy (kWh)	Year_FromDatasetA	Month	Parish	Parish_1	Municipality_1	District	Number of Smart Contracts	Number of Non Smart Contracts	Percentage of Smart Contracts	Total Contracts	location_id	time_id
<null>	2024	8	10103	Aguada de Cima	Águeda	Aveiro	2180.0	16.0	99.27%	2196	133	2024/08/01
<null>	2024	8	10109	Fermentelos	Águeda	Aveiro	1805.0	11.0	99.39%	1816	134	2024/08/01
<null>	2024	8	10112	Macinhata do Vouga	Águeda	Aveiro	1847.0	16.0	99.14%	1863	135	2024/08/01
<null>	2024	8	10119	Valongo do Vouga	Águeda	Aveiro	171.0	4.0	97.71%	175	143	2024/08/01
<null>	2024	8	10121	Águeda e Borralha	Águeda	Aveiro	8109.0	28.0	99.66%	8137	136	2024/08/01
<null>	2024	8	10122	Barro e Aguada de Baixo	Águeda	Aveiro	1623.0	18.0	98.9%	1641	137	2024/08/01
<null>	2024	8	10123	Belazaima do Chão, Castanheira do Vouga	Águeda	Aveiro	894.0	12.0	98.68%	906	138	2024/08/01
<null>	2024	8	10124	Recordães e Espinhel	Águeda	Aveiro	3065.0	19.0	99.38%	3084	140	2024/08/01
<null>	2024	8	10125	Travassô e Óis da Ribeira	Águeda	Aveiro	1172.0	11.0	99.07%	1183	141	2024/08/01
<null>	2024	8	10126	Trofa, Segadães e Lamas do Vouga	Águeda	Aveiro	2416.0	21.0	99.14%	2437	142	2024/08/01
<null>	2024	8	10127	Préstimo e Macieira de Alcoba	Águeda	Aveiro	608.0	4.0	99.35%	612	139	2024/08/01
<null>	2024	8	10202	Alquerubim	Albergaria-a-Velha	Aveiro	1095.0	33.0	97.07%	1128	2	2024/08/01
<null>	2024	8	10203	Angeja	Albergaria-a-Velha	Aveiro	994.0	18.0	98.22%	1012	3	2024/08/01
<null>	2024	8	10204	Branca	Albergaria-a-Velha	Aveiro	2784.0	52.0	98.17%	2836	4	2024/08/01
<null>	2024	8	10206	Ribeira de Frágua	Albergaria-a-Velha	Aveiro	748.0	45.0	94.33%	793	5	2024/08/01
<null>	2024	8	10209	Albergaria-a-Velha e Valmaior	Albergaria-a-Velha	Aveiro	6642.0	55.0	99.18%	6697	1	2024/08/01
<null>	2024	8	10210	São João de Loure e Frossos	Albergaria-a-Velha	Aveiro	1371.0	91.0	93.78%	1462	6	2024/08/01
<null>	2024	8	10304	Avelãs de Caminho	Anadia	Aveiro	505.0	4.0	99.21%	509	7	2024/08/01
<null>	2024	8	10305	Avelãs de Cima	Anadia	Aveiro	1029.0	67.0	93.89%	1096	8	2024/08/01
<null>	2024	8	10307	Moita	Anadia	Aveiro	1232.0	15.0	98.8%	1247	9	2024/08/01
<null>	2024	8	10309	Sangalhos	Anadia	Aveiro	2263.0	18.0	99.21%	2281	10	2024/08/01
<null>	2024	8	10310	São Lourenço do Bairro	Anadia	Aveiro	1174.0	205.0	85.13%	1379	11	2024/08/01
<null>	2024	8	10312	Vila Nova de Monsarros	Anadia	Aveiro	881.0	12.0	98.66%	893	15	2024/08/01
<null>	2024	8	10313	Vilarinho do Bairro	Anadia	Aveiro	1380.0	478.0	74.27%	1858	16	2024/08/01
<null>	2024	8	10316	Amoreira da Gândara, Paredes do Bairro e	Anadia	Aveiro	1264.0	333.0	79.15%	1597	12	2024/08/01
<null>	2024	8	10317	Arcos e Mogofores	Anadia	Aveiro	3869.0	75.0	98.1%	3944	13	2024/08/01
<null>	2024	8	10318	Tamengos, Aguiã e Óis do Bairro	Anadia	Aveiro	1905.0	178.0	91.45%	2083	14	2024/08/01
<null>	2024	8	10402	Alvarenga	Arouca	Aveiro	861.0	74.0	92.09%	935	17	2024/08/01
<null>	2024	8	10407	Chave	Arouca	Aveiro	574.0	123.0	82.35%	697	18	2024/08/01
<null>	2024	8	10409	Escariz	Arouca	Aveiro	877.0	179.0	83.05%	1056	19	2024/08/01
<null>	2024	8	10411	Fermedo	Arouca	Aveiro	609.0	106.0	85.17%	715	20	2024/08/01
<null>	2024	8	10413	Mansores	Arouca	Aveiro	452.0	105.0	81.15%	557	21	2024/08/01
<null>	2024	8	10414	Moldes	Arouca	Aveiro	559.0	41.0	93.17%	600	22	2024/08/01
<null>	2024	8	10415	Rossas	Arouca	Aveiro	734.0	11.0	98.52%	745	23	2024/08/01
<null>	2024	8	10416	Santa Eulália	Arouca	Aveiro	1085.0	24.0	97.84%	1109	24	2024/08/01
<null>	2024	8	10417	São Miguel do Mato	Arouca	Aveiro	300.0	26.0	92.02%	326	25	2024/08/01
<null>	2024	8	10418	Tropeço	Arouca	Aveiro	566.0	14.0	97.59%	580	26	2024/08/01
<null>	2024	8	10419	Urrô	Arouca	Aveiro	471.0	24.0	95.15%	495	31	2024/08/01
<null>	2024	8	10420	Várzea	Arouca	Aveiro	236.0	9.0	96.33%	245	32	2024/08/01
<null>	2024	8	10421	Arouca e Burgo	Arouca	Aveiro	3281.0	14.0	99.58%	3295	27	2024/08/01
<null>	2024	8	10422	Cabreiros e Albergaria da Serra	Arouca	Aveiro	183.0	11.0	94.33%	194	28	2024/08/01
<null>	2024	8	10423	Canelas e Espiunca	Arouca	Aveiro	636.0	11.0	98.3%	647	29	2024/08/01
<null>	2024	8	10424	Covelo de Paivô e Janarde	Arouca	Aveiro	146.0	16.0	90.12%	162	30	2024/08/01
<null>	2024	8	10501	Aradas	Aveiro	Aveiro	5762.0	5.0	99.91%	5767	33	2024/08/01





# Insert / update 2 | Configuration

**Insert / update**

Step name **Insert / update 2**

Connection **energy\_dw**

Target schema **energy\_dw**

Target table **fact\_energy\_stats**

Commit size **100**

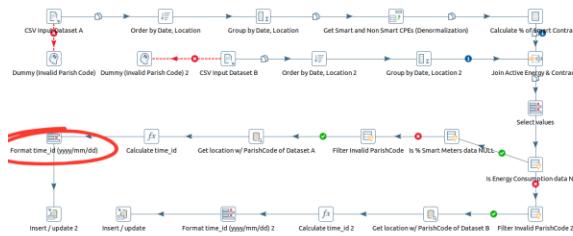
Don't perform any updates:

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

Table field	Comparator	Stream field1	Stream field2	<input type="button" value="Get fields"/>
1 time_id	=	time_id		
2 location_id	=	location_id		

Update fields:

Table field	Stream field	Update	<input type="button" value="Get update fields"/>	<input type="button" value="Edit mapping"/>
1 time_id	time_id	Y		
2 location_id	location_id	Y		
3 energy_consumption	Active Energy (kWh)	Y		
4 percentage_smart_meters	Percentage of Smart Contracts	Y		



# Insert / update 2 | Preview

Rows of step: Insert / update 2 (1000 rows)

Month	Parish	Parish_1	Municipality_1	District_1	Number of Smart Contracts	Number of Non Smart Contracts	Percentage of Smart Contracts	Total Contracts	location_id	time_id
2024	8	10103 Aguada de Cima	Águeda	Aveiro	2180.0	16.0	99.27%	2196	133	2024/08/01
2024	8	10109 Fermentelos	Águeda	Aveiro	1805.0	11.0	99.39%	1816	134	2024/08/01
2024	8	10112 Macinhata do Vouga	Águeda	Aveiro	1847.0	16.0	99.14%	1863	135	2024/08/01
2024	8	10119 Valongo do Vouga	Águeda	Aveiro	171.0	4.0	97.71%	175	143	2024/08/01
2024	8	10121 Águeda e Borralha	Águeda	Aveiro	8109.0	28.0	99.66%	8137	136	2024/08/01
2024	8	10122 Barrô e Aguada de Baixo	Águeda	Aveiro	1623.0	18.0	98.9%	1641	137	2024/08/01
2024	8	10123 Belazaima do Chão, Castanheira do Vouga e A	Águeda	Aveiro	894.0	12.0	98.68%	906	138	2024/08/01
2024	8	10124 Recordães e Espinhel	Águeda	Aveiro	3065.0	19.0	99.38%	3084	140	2024/08/01
2024	8	10125 Travassô e Óis da Ribeira	Águeda	Aveiro	1172.0	11.0	99.07%	1183	141	2024/08/01
2024	8	10126 Trofa, Segadães e Lamas do Vouga	Águeda	Aveiro	2416.0	21.0	99.14%	2437	142	2024/08/01
2024	8	10127 Préstimo e Macieira de Alcoba	Águeda	Aveiro	608.0	4.0	99.35%	612	139	2024/08/01
2024	8	10202 Alquerubim	Albergaria-a-Velha	Aveiro	1095.0	33.0	97.07%	1128	2	2024/08/01
2024	8	10203 Angeja	Albergaria-a-Velha	Aveiro	994.0	18.0	98.22%	1012	3	2024/08/01
2024	8	10204 Branca	Albergaria-a-Velha	Aveiro	2784.0	52.0	98.17%	2836	4	2024/08/01
2024	8	10206 Ribeira de Frágua	Albergaria-a-Velha	Aveiro	748.0	45.0	94.33%	793	5	2024/08/01
2024	8	10209 Albergaria-a-Velha e Valmaior	Albergaria-a-Velha	Aveiro	6642.0	55.0	99.18%	6697	1	2024/08/01
2024	8	10210 São João de Loure e Frossos	Albergaria-a-Velha	Aveiro	1371.0	91.0	93.78%	1462	6	2024/08/01
2024	8	10304 Avelãs de Caminho	Anadia	Aveiro	505.0	4.0	99.21%	509	7	2024/08/01
2024	8	10305 Avelãs de Cima	Anadia	Aveiro	1029.0	67.0	93.89%	1096	8	2024/08/01
2024	8	10307 Moita	Anadia	Aveiro	1232.0	15.0	98.8%	1247	9	2024/08/01
2024	8	10309 Sangalhos	Anadia	Aveiro	2263.0	18.0	99.21%	2281	10	2024/08/01
2024	8	10310 São Lourenço do Bairro	Anadia	Aveiro	1174.0	205.0	85.13%	1379	11	2024/08/01
2024	8	10312 Vila Nova de Monsarros	Anadia	Aveiro	881.0	12.0	98.66%	893	15	2024/08/01
2024	8	10313 Vilarinho do Bairro	Anadia	Aveiro	1380.0	478.0	74.27%	1858	16	2024/08/01
2024	8	10316 Amoreira da Gândara, Paredes do Bairro e An	Anadia	Aveiro	1264.0	333.0	79.15%	1597	12	2024/08/01
2024	8	10317 Arcos e Mogofores	Anadia	Aveiro	3869.0	75.0	98.1%	3944	13	2024/08/01
2024	8	10318 Tamengos, Aguim e Óis do Bairro	Anadia	Aveiro	1905.0	178.0	91.45%	2083	14	2024/08/01
2024	8	10402 Alvarenga	Arouca	Aveiro	861.0	74.0	92.09%	935	17	2024/08/01
2024	8	10407 Chave	Arouca	Aveiro	574.0	123.0	82.35%	697	18	2024/08/01
2024	8	10409 Escariz	Arouca	Aveiro	877.0	179.0	83.05%	1056	19	2024/08/01
2024	8	10411 Fermedo	Arouca	Aveiro	609.0	106.0	85.17%	715	20	2024/08/01
2024	8	10413 Mansores	Arouca	Aveiro	452.0	105.0	81.15%	557	21	2024/08/01
2024	8	10414 Moldes	Arouca	Aveiro	559.0	41.0	93.17%	600	22	2024/08/01
2024	8	10415 Rossas	Arouca	Aveiro	734.0	11.0	98.52%	745	23	2024/08/01
2024	8	10416 Santa Eulália	Arouca	Aveiro	1085.0	24.0	97.84%	1109	24	2024/08/01
2024	8	10417 São Miguel do Mato	Arouca	Aveiro	300.0	26.0	92.02%	326	25	2024/08/01
2024	8	10418 Tropéco	Arouca	Aveiro	566.0	14.0	97.59%	580	26	2024/08/01
2024	8	10419 Urrô	Arouca	Aveiro	471.0	24.0	95.15%	495	31	2024/08/01
2024	8	10420 Várzea	Arouca	Aveiro	236.0	9.0	96.33%	245	32	2024/08/01
2024	8	10421 Arouca e Burgo	Arouca	Aveiro	3281.0	14.0	99.58%	3295	27	2024/08/01
2024	8	10422 Cabreiros e Albergaria da Serra	Arouca	Aveiro	183.0	11.0	94.33%	194	28	2024/08/01
2024	8	10423 Canelas e Espiunca	Arouca	Aveiro	636.0	11.0	98.3%	647	29	2024/08/01
2024	8	10424 Covelo de Paivô e Janarde	Arouca	Aveiro	146.0	16.0	90.12%	162	30	2024/08/01
2024	8	10501 Aradas	Aveiro	Aveiro	5762.0	5.0	99.91%	5767	33	2024/08/01

# Filter invalid ParishCode 2

## Configuration

**Filter rows**

Step name: **Filter Invalid ParishCode 2**

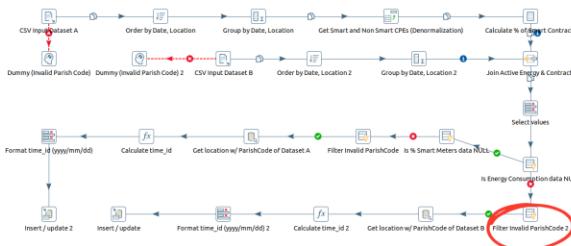
Send 'true' data to step: **Get location w/ ParishCode of Dataset B**

Send 'false' data to step:

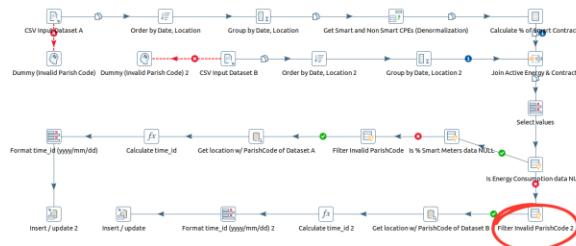
The condition:

ParishCode\_FromDatasetB >  0 (Integer)

**Help** **OK** **Cancel**



# Filter invalid ParishCode 2



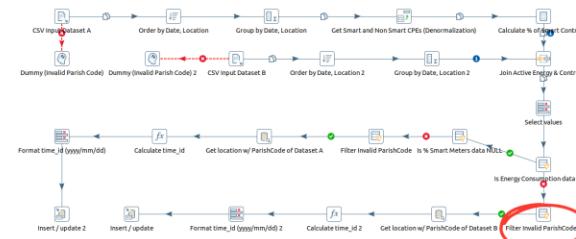
## Preview (November 2020)

Rows of step: Filter Invalid ParishCode 2 (1000 rows)

	Year_FromDatasetB	Month_FromDatasetB	ParishCode_FromDatasetB	parish	Municipality	District	Active Energy (kWh)	Year_FromDatasetA	Month_FromDatasetA	ParishCode_FromDatasetA
1	2020	11	10103	AGUADA DE CIMA	Águeda	Aveiro	2845325.2770000002	<null>	<null>	<null>
2	2020	11	10109	FERMENTELOS	Águeda	Aveiro	586669.115	<null>	<null>	<null>
3	2020	11	10112	MACINHATA DO VOUGA	Águeda	Aveiro	1530224.987	<null>	<null>	<null>
4	2020	11	10119	VALONGO DO VOUGA	Águeda	Aveiro	986504.078	<null>	<null>	<null>
5	2020	11	10121	UF AGUEDA E BORRALHA	Águeda	Aveiro	10043552.972000001	<null>	<null>	<null>
6	2020	11	10122	UF BARRO E AGUADA DE BAIXO	Águeda	Aveiro	3587665.522	<null>	<null>	<null>
7	2020	11	10123	UF BELAZAIMA CAST VOUGA AGADAO	Águeda	Aveiro	533631.594	<null>	<null>	<null>
8	2020	11	10124	UF RECARDAES E ESPINHEL	Águeda	Aveiro	2409798.922	<null>	<null>	<null>
9	2020	11	10125	UF TRAVASSO E OIS DA RIBEIRA	Águeda	Aveiro	1744398.483	<null>	<null>	<null>
10	2020	11	10126	UF TROFA SEGADAEIS LAMAS VOUGA	Águeda	Aveiro	1684233.096	<null>	<null>	<null>
11	2020	11	10127	UF PRESTIMO MACIEIRA ALCoba	Águeda	Aveiro	136830.788	<null>	<null>	<null>
12	2020	11	10202	ALQUERUBIM	Albergaria-a-Velha	Aveiro	297512.707	<null>	<null>	<null>
13	2020	11	10203	ANGEJA	Albergaria-a-Velha	Aveiro	285297.371	<null>	<null>	<null>
14	2020	11	10204	BRANCA	Albergaria-a-Velha	Aveiro	1652962.031	<null>	<null>	<null>
15	2020	11	10206	RIBEIRA DE FRAGUAS	Albergaria-a-Velha	Aveiro	192192.035	<null>	<null>	<null>
16	2020	11	10209	ALBERGARIA-A-VELHA E VALMAIOR	Albergaria-a-Velha	Aveiro	12755860.874	<null>	<null>	<null>
17	2020	11	10210	SAO JOAO DE LOURE E FROSSOS	Albergaria-a-Velha	Aveiro	409621.899	<null>	<null>	<null>
18	2020	11	10304	AVELAS DE CAMINHO	Anadia	Aveiro	769163.342	<null>	<null>	<null>
19	2020	11	10305	AVELAS DE CIMA	Anadia	Aveiro	463104.336	<null>	<null>	<null>
20	2020	11	10307	MOITA	Anadia	Aveiro	308844.162	<null>	<null>	<null>
21	2020	11	10309	SANGALHOS	Anadia	Aveiro	1253245.089	<null>	<null>	<null>
22	2020	11	10310	SAO LOURENCO DO BAIRRO	Anadia	Aveiro	557712.122	<null>	<null>	<null>
23	2020	11	10312	VILA NOVA DE MONSARROS	Anadia	Aveiro	226012.006	<null>	<null>	<null>
24	2020	11	10313	VILARINHO DO BAIRRO	Anadia	Aveiro	470150.462	<null>	<null>	<null>
25	2020	11	10316	UF A DA GANDARA BAIRRO E ANCAS	Anadia	Aveiro	633762.508	<null>	<null>	<null>
26	2020	11	10317	UF ARCOS E MOGOFORES	Anadia	Aveiro	2256227.692	<null>	<null>	<null>
27	2020	11	10318	UF TAMENGOS AGUIM OIS BAIRRO	Anadia	Aveiro	4374423.25	<null>	<null>	<null>
28	2020	11	10402	ALVARENGA	Arouca	Aveiro	213637.495	<null>	<null>	<null>
29	2020	11	10407	CHAVE	Arouca	Aveiro	437035.453	<null>	<null>	<null>
30	2020	11	10409	ESCARIZ	Arouca	Aveiro	790132.425	<null>	<null>	<null>
31	2020	11	10411	FERMEDO	Arouca	Aveiro	170521.851	<null>	<null>	<null>
32	2020	11	10413	MANSORES	Arouca	Aveiro	358185.285	<null>	<null>	<null>
33	2020	11	10414	MOLDES	Arouca	Aveiro	115513.168	<null>	<null>	<null>
34	2020	11	10415	ROSSAS	Arouca	Aveiro	176678.434	<null>	<null>	<null>
35	2020	11	10416	SANTA EULALIA	Arouca	Aveiro	329304.687	<null>	<null>	<null>
36	2020	11	10417	SAO MIGUEL DO MATO	Arouca	Aveiro	81803.276	<null>	<null>	<null>
37	2020	11	10418	TROPECO	Arouca	Aveiro	234485.847	<null>	<null>	<null>
38	2020	11	10419	URRO	Arouca	Aveiro	110407.599	<null>	<null>	<null>
39	2020	11	10420	VARZEA	Arouca	Aveiro	60315.421	<null>	<null>	<null>
40	2020	11	10421	UF AROUCA E BURGO	Arouca	Aveiro	1227164.666	<null>	<null>	<null>
41	2020	11	10422	UF CABREIROS ALBERGARIA SERRA	Arouca	Aveiro	38345.124	<null>	<null>	<null>
42	2020	11	10423	UF CANELAS E ESPIUNCA	Arouca	Aveiro	188829.866	<null>	<null>	<null>
43	2020	11	10424	UF COVELO DE PAIVO E JANARDE	Arouca	Aveiro	17139.627	<null>	<null>	<null>
44	2020	11	10501	ARADAS	Aveiro	Aveiro	3532098.07	" "	" "	" "

# Filter invalid ParishCode 2

Preview (June 2022)



Rows of step: Filter Invalid ParishCode 2 (1000 rows)

	Year_FromDi	Month_Fron	Parish	parish	Municipality	District	Active Energy (kWh)	Year_FromDatasetA	Month_Fron	Parish	Parish_1	District_1	Number of Sm	Number o	Percentage of Smart Contracts
1	2022	6	30925	SOBRADELO DA GOMA	Póvoa de Lanhoso	Braga	86038.723	2022	6	30925	Sobradelo da Goma	Braga	197.0	297.0	39.88%
2	2022	6	30926	TAIDE	Póvoa de Lanhoso	Braga	400342.763	2022	6	30926	Taide	Braga	608.0	374.0	61.91%
3	2022	6	30927	TRAVASSOS	Póvoa de Lanhoso	Braga	70898.394	2022	6	30927	Travassos	Braga	137.0	215.0	38.92%
4	2022	6	30929	VILELA	Póvoa de Lanhoso	Braga	149668.152	2022	6	30929	Vilela	Braga	204.0	153.0	57.14%
5	2022	6	30930	UF AGUAS SANTAS E MOURE	Póvoa de Lanhoso	Braga	89950.456	2022	6	30930	Águas Santas e Moure	Braga	148.0	226.0	39.57%
6	2022	6	30931	UF CALVOS E FRADES	Póvoa de Lanhoso	Braga	126579.069	2022	6	30931	Calvos e Frades	Braga	160.0	258.0	38.28%
7	2022	6	30932	UF CAMPOS E LOUREDO	Póvoa de Lanhoso	Braga	324058.282	2022	6	30932	Campos e Louredo	Braga	268.0	446.0	37.54%
8	2022	6	30933	UF ESPERANCA E BRUNHAIS	Póvoa de Lanhoso	Braga	86638.366	2022	6	30933	Espérance e Brunhais	Braga	169.0	231.0	42.25%
9	2022	6	30934	UF FONTE ARCADADA E OLIVEIRA	Póvoa de Lanhoso	Braga	422347.428	2022	6	30934	Fonte Arcada e Oliveira	Braga	853.0	87.0	90.74%
10	2022	6	30935	UF VERIM FRIANDE E AJUDE	Póvoa de Lanhoso	Braga	67987.201	2022	6	30935	Verim, Friande e Ajude	Braga	180.0	236.0	43.27%
11	2022	6	31001	BALANCA	Terras de Bouro	Braga	31983.603	2022	6	31001	Balança	Braga	188.0	18.0	91.26%
12	2022	6	31003	CAMPO DO GERES	Terras de Bouro	Braga	64807.471	2022	6	31003	Campo do Gerês	Braga	174.0	14.0	92.55%
13	2022	6	31004	CARVALHEIRA	Terras de Bouro	Braga	32658.991	2022	6	31004	Carvalheira	Braga	257.0	5.0	98.09%
14	2022	6	31008	COVIDE	Terras de Bouro	Braga	42407.854	2022	6	31008	Covide	Braga	56.0	175.0	24.24%
15	2022	6	31009	GONDORIZ	Terras de Bouro	Braga	41620.809	2022	6	31009	Gondoriz	Braga	91.0	194.0	31.93%
16	2022	6	31010	MOIMENTA	Terras de Bouro	Braga	156052.553	2022	6	31010	Moimenta	Braga	539.0	15.0	97.29%
17	2022	6	31012	RIBEIRA	Terras de Bouro	Braga	18319.898	2022	6	31012	Ribeira	Braga	128.0	2.0	98.46%
18	2022	6	31013	RIO CALDO	Terras de Bouro	Braga	165467.419	2022	6	31013	Rio Caldo	Braga	614.0	16.0	97.46%
19	2022	6	31014	SOUTO	Terras de Bouro	Braga	67786.675	2022	6	31014	Souto	Braga	282.0	5.0	98.26%
20	2022	6	31015	VALDOSENDE	Terras de Bouro	Braga	118002.64	2022	6	31015	Valdosende	Braga	415.0	21.0	95.18%
21	2022	6	31017	VILAR DA VEIGA	Terras de Bouro	Braga	416827.915	2022	6	31017	Vilar da Veiga	Braga	902.0	26.0	97.2%
22	2022	6	31018	UF CHAMOIM E VILAR	Terras de Bouro	Braga	35637.564	2022	6	31018	Chamoim e Vilar	Braga	297.0	11.0	96.43%
23	2022	6	31019	UF CHORENSE E MONTE	Terras de Bouro	Braga	52518.676	2022	6	31019	Chorense e Monte	Braga	135.0	179.0	42.99%
24	2022	6	31020	UF CIBOES E BRUFE	Terras de Bouro	Braga	31445.507	2022	6	31020	Cibões e Brufe	Braga	130.0	126.0	50.78%
25	2022	6	31105	CANTELAES	Vieira do Minho	Braga	71467.627	2022	6	31105	Cantelães	Braga	120.0	237.0	33.61%
26	2022	6	31107	EIRA VEDRA	Vieira do Minho	Braga	65785.156	2022	6	31107	Eira Vedra	Braga	122.0	220.0	35.67%
27	2022	6	31108	GUILHOFREI	Vieira do Minho	Braga	107117.024	2022	6	31108	Guilhofrei	Braga	177.0	401.0	30.62%
28	2022	6	31109	LOUREDO	Vieira do Minho	Braga	83471.216	2022	6	31109	Loureiro	Braga	122.0	216.0	36.09%
29	2022	6	31110	MOSTEIRO	Vieira do Minho	Braga	104541.555	2022	6	31110	Mosteiro	Braga	154.0	272.0	36.15%
30	2022	6	31111	PARADA DE BOURO	Vieira do Minho	Braga	66528.737	2022	6	31111	Parada de Bouro	Braga	101.0	197.0	33.89%
31	2022	6	31112	PINHEIRO	Vieira do Minho	Braga	42634.307	2022	6	31112	Pinheiro	Braga	63.0	175.0	26.47%
32	2022	6	31113	ROSSAS	Vieira do Minho	Braga	163341.184	2022	6	31113	Rossas	Braga	316.0	649.0	32.75%
33	2022	6	31115	SALAMONDE	Vieira do Minho	Braga	182263.345	2022	6	31115	Salamonde	Braga	103.0	216.0	32.29%
34	2022	6	31118	TABUACAS	Vieira do Minho	Braga	256541.014	2022	6	31118	Tabuaças	Braga	217.0	323.0	40.19%
35	2022	6	31120	VIEIRA DO MINHO	Vieira do Minho	Braga	556132.602	2022	6	31120	Vieira do Minho	Braga	778.0	785.0	49.78%
36	2022	6	31122	UF ANISSÓ E SOUTELO	Vieira do Minho	Braga	41418.242	2022	6	31122	Anissó e Soutelo	Braga	52.0	210.0	19.85%
37	2022	6	31123	UF ANJOS E VILAR DO CHAO	Vieira do Minho	Braga	53388.428	2022	6	31123	Anjos e Vilar do Chão	Braga	94.0	240.0	28.14%
38	2022	6	31124	UF CANICADA E SOENGAS	Vieira do Minho	Braga	206927.171	2022	6	31124	Caniçada e Soengas	Braga	132.0	318.0	29.33%
39	2022	6	31125	UF RUIVAES E CAMPOS	Vieira do Minho	Braga	1496348.067	2022	6	31125	Ruiães e Campos	Braga	218.0	501.0	30.32%
40	2022	6	31126	UF VENTOSA E COVA	Vieira do Minho	Braga	132651.837	2022	6	31126	Ventosa e Cova	Braga	185.0	329.0	35.99%
41	2022	6	31204	BAIRRO	Vila Nova de Famalica	Braga	1199153.788	2022	6	31204	Bairro	Braga	702.0	808.0	46.49%
42	2022	6	31206	BRUFE	Vila Nova de Famalica	Braga	326104.142	2022	6	31206	Brufe	Braga	869.0	22.0	97.53%
43	2022	6	31210	CASTELOES	Vila Nova de Famalica	Braga	305360.822	2022	6	31210	Castelões	Braga	327.0	484.0	40.32%
44	2022	6	31212	CRUZ	Vila Nova de Famalica	Braga	428694.083	2022	6	31212	Cruz	Braga	472.0	201.0	70.13%

# Get location w/ ParishCode of Dataset A

## Configuration

Database lookup

Step name **Get location w/ ParishCode of Dataset B**

Connection **energy\_dw**

Lookup schema **energy\_dw**

Lookup table **dim\_location**

Enable cache?

Cache size in rows (0=cache everything) **0**

Load all data from table

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

Table field	Comparator	Field1	Field2
1 parish_code	=	ParishCode_FromDatasetB	

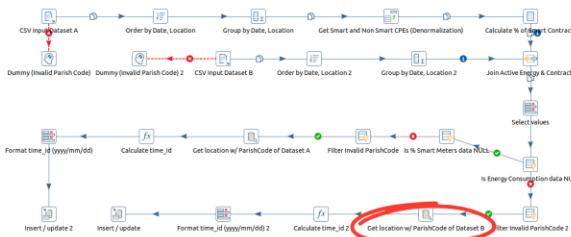
Values to return from the lookup table :

Field	New name	Default	Type
1 location_id			None

Do not pass the row if the lookup fails

Fail on multiple results?

Order by

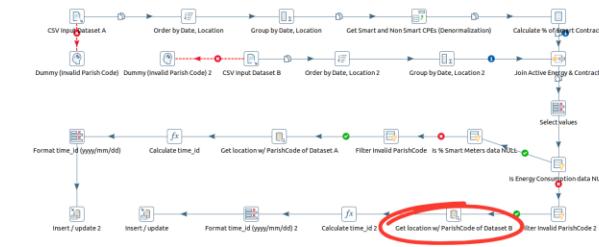


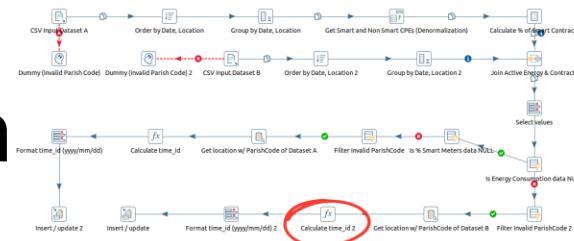
# Get location w/ ParishCode of Dataset A

## Preview

Rows of step: Get location w/ ParishCode of Dataset B (1000 rows)

#	Year_F	Mi	ParishCo	parish	Municipality	District	Active Energy (kWh)	Par	Parish_1	Municipality_1	District_1	Number of Smart Contracts	Percentage of Smart Contracts	Total Contracts	location_id
1	2020	11	10103	AGUADA DE CIMA	Águeda	Aveiro	2845325.2770000002	ull>	<null>	<null>	<null>	<null>	<null>	<null>	133
2	2020	11	10109	FERMENTELOS	Águeda	Aveiro	586669.115	ull>	<null>	<null>	<null>	<null>	<null>	<null>	134
3	2020	11	10112	MACINHATA DO VOUGA	Águeda	Aveiro	1530249.987	ull>	<null>	<null>	<null>	<null>	<null>	<null>	135
4	2020	11	10119	VALONGO DO VOUGA	Águeda	Aveiro	986504.078	ull>	<null>	<null>	<null>	<null>	<null>	<null>	143
5	2020	11	10121	UF AGUEDA E BORRALHA	Águeda	Aveiro	10043552.972000001	ull>	<null>	<null>	<null>	<null>	<null>	<null>	136
6	2020	11	10122	UF BARRO E AGUADA DE BAIXO	Águeda	Aveiro	3587665.522	ull>	<null>	<null>	<null>	<null>	<null>	<null>	137
7	2020	11	10123	UF BELAZAIMA CAST VOUGA AG	Águeda	Aveiro	533631.594	ull>	<null>	<null>	<null>	<null>	<null>	<null>	138
8	2020	11	10124	UF RECARDAES E ESPINHEL	Águeda	Aveiro	2409798.922	ull>	<null>	<null>	<null>	<null>	<null>	<null>	140
9	2020	11	10125	UF TRAVASSO E OIS DA RIBEIRA	Águeda	Aveiro	1744398.483	ull>	<null>	<null>	<null>	<null>	<null>	<null>	141
10	2020	11	10126	UF TROFA SEGADAES LAMAS VOI	Águeda	Aveiro	1684233.096	ull>	<null>	<null>	<null>	<null>	<null>	<null>	142
11	2020	11	10127	UF PRESTIMO MACIEIRA ALCOBIA	Águeda	Aveiro	136830.788	ull>	<null>	<null>	<null>	<null>	<null>	<null>	139
12	2020	11	10202	ALQUERUBIM	Albergaria-a-Velha	Aveiro	297512.707	ull>	<null>	<null>	<null>	<null>	<null>	<null>	2
13	2020	11	10203	ANGEJA	Albergaria-a-Velha	Aveiro	285297.371	ull>	<null>	<null>	<null>	<null>	<null>	<null>	3
14	2020	11	10204	BRANCA	Albergaria-a-Velha	Aveiro	1652962.031	ull>	<null>	<null>	<null>	<null>	<null>	<null>	4
15	2020	11	10206	RIBEIRA DE FRAGUAS	Albergaria-a-Velha	Aveiro	192192.035	ull>	<null>	<null>	<null>	<null>	<null>	<null>	5
16	2020	11	10209	ALBERGARIA-A-VELHA E VALMAI	Albergaria-a-Velha	Aveiro	12755860.874	ull>	<null>	<null>	<null>	<null>	<null>	<null>	1
17	2020	11	10210	SAO JOAO DE LOURE E FROSSOS	Albergaria-a-Velha	Aveiro	409621.899	ull>	<null>	<null>	<null>	<null>	<null>	<null>	6
18	2020	11	10304	AVELAS DE CAMINHO	Anadia	Aveiro	769163.342	ull>	<null>	<null>	<null>	<null>	<null>	<null>	7
19	2020	11	10305	AVELAS DE CIMA	Anadia	Aveiro	463104.436	ull>	<null>	<null>	<null>	<null>	<null>	<null>	8
20	2020	11	10307	MOITA	Anadia	Aveiro	308844.162	ull>	<null>	<null>	<null>	<null>	<null>	<null>	9
21	2020	11	10309	SANGALHOS	Anadia	Aveiro	1253245.089	ull>	<null>	<null>	<null>	<null>	<null>	<null>	10
22	2020	11	10310	SAO LOURENCO DO BAIRRO	Anadia	Aveiro	557712.122	ull>	<null>	<null>	<null>	<null>	<null>	<null>	11
23	2020	11	10312	VILA NOVA DE MONSARROS	Anadia	Aveiro	226012.006	ull>	<null>	<null>	<null>	<null>	<null>	<null>	15
24	2020	11	10313	VILARINHO DO BAIRRO	Anadia	Aveiro	470150.462	ull>	<null>	<null>	<null>	<null>	<null>	<null>	16
25	2020	11	10316	UF A DA GANDARA BAIRRO E AN	Anadia	Aveiro	633762.508	ull>	<null>	<null>	<null>	<null>	<null>	<null>	12
26	2020	11	10317	UF ARCOS E MOGOFORES	Anadia	Aveiro	2256227.692	ull>	<null>	<null>	<null>	<null>	<null>	<null>	13
27	2020	11	10318	UF TAMENGOS AGUIM OIS BAIRR	Anadia	Aveiro	4374423.25	ull>	<null>	<null>	<null>	<null>	<null>	<null>	14
28	2020	11	10402	ALVARENGA	Arouca	Aveiro	213637.495	ull>	<null>	<null>	<null>	<null>	<null>	<null>	17
29	2020	11	10407	CHAVE	Arouca	Aveiro	437035.453	ull>	<null>	<null>	<null>	<null>	<null>	<null>	18
30	2020	11	10409	ESCARIZ	Arouca	Aveiro	790132.425	ull>	<null>	<null>	<null>	<null>	<null>	<null>	19
31	2020	11	10411	FERMEDO	Arouca	Aveiro	170521.851	ull>	<null>	<null>	<null>	<null>	<null>	<null>	20
32	2020	11	10413	MANSORES	Arouca	Aveiro	358185.285	ull>	<null>	<null>	<null>	<null>	<null>	<null>	21
33	2020	11	10414	MOLDES	Arouca	Aveiro	115513.168	ull>	<null>	<null>	<null>	<null>	<null>	<null>	22
34	2020	11	10415	ROSSAS	Arouca	Aveiro	176678.434	ull>	<null>	<null>	<null>	<null>	<null>	<null>	23
35	2020	11	10416	SANTA EULALIA	Arouca	Aveiro	329304.687	ull>	<null>	<null>	<null>	<null>	<null>	<null>	24
36	2020	11	10417	SAO MIGUEL DO MATO	Arouca	Aveiro	81803.276	ull>	<null>	<null>	<null>	<null>	<null>	<null>	25
37	2020	11	10418	TROPECO	Arouca	Aveiro	234485.847	ull>	<null>	<null>	<null>	<null>	<null>	<null>	26
38	2020	11	10419	URRO	Arouca	Aveiro	110407.599	ull>	<null>	<null>	<null>	<null>	<null>	<null>	31
39	2020	11	10420	VARZEA	Arouca	Aveiro	60315.421	ull>	<null>	<null>	<null>	<null>	<null>	<null>	32
40	2020	11	10421	UF AROUCA E BURGO	Arouca	Aveiro	1227164.666	ull>	<null>	<null>	<null>	<null>	<null>	<null>	27
41	2020	11	10422	UF CABREIROS ALBERGARIA SERI	Arouca	Aveiro	38345.124	ull>	<null>	<null>	<null>	<null>	<null>	<null>	28
42	2020	11	10423	UF CANELAS E ESPIUNCA	Arouca	Aveiro	188829.866	ull>	<null>	<null>	<null>	<null>	<null>	<null>	29
43	2020	11	10424	UF COVELO DE PAIVO E JANARDE	Arouca	Aveiro	17139.627	ull>	<null>	<null>	<null>	<null>	<null>	<null>	30
44	2020	11	10501	ARADAS	Aveiro	Aveiro	3532098.07	ull>	<null>	<null>	<null>	<null>	<null>	<null>	33
45	2020	11	10502	CACIA	Aveiro	Aveiro	34994094.618999995	ull>	<null>	<null>	<null>	<null>	<null>	<null>	34





# Caculate time\_id 2 | Configuration

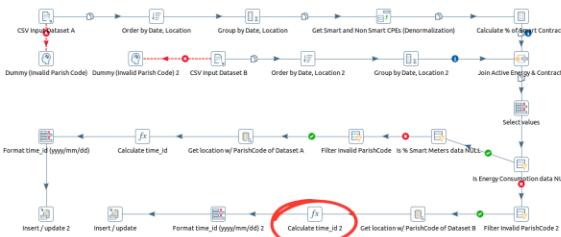
**Formula**

Step name **Calculate time\_id 2**

Fields:

New field	Formula	Value type	Length	Precision	Replace value
1 time_id_unparsed	DATE([Year_FromDatasetB];[Month_FromDatasetB];1)	Date			

# Caculate time\_id 2 | Preview



Rows of step: Calculate time\_id 2 (1000 rows)

# Format time\_id (yyyy/mm/dd) 2

## Configuration

Select values

Step name **Format time\_id (yyyy/mm/dd) 2**

Select & Alter Remove Meta-data

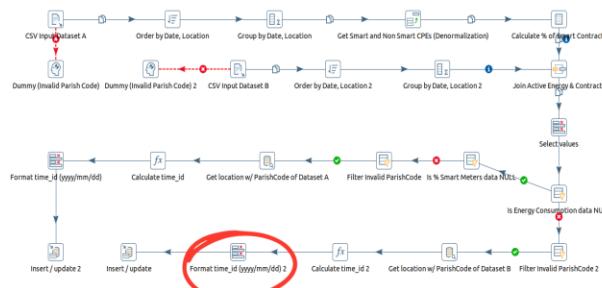
Fields to alter the meta-data for :

Fieldname	Rename to	Type	Length	Precision	Binary to Normal?	For
1 time_id_unparsed	time_id	Date		N		yyyy

**Get fields to change**

OK Cancel

Help

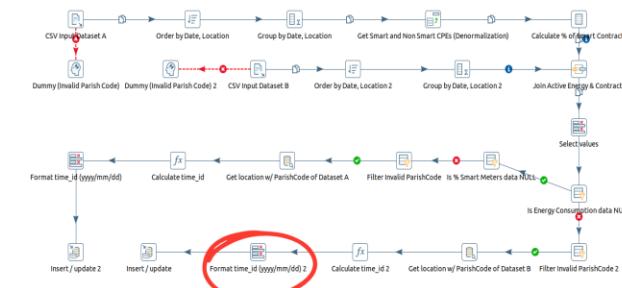


# Format time\_id (yyyy/mm/dd) 2

## Preview

Rows of step: Format time\_id (yyyy/mm/dd) 2 (1000 rows)

mDatasetA	Month_FromDatasetA	ParishCode_FromDatasetA	Parish_1	Municipality_1	District_1	Number of Smart Contracts	Number of Non Smart Contracts	Percentage of Smart Contracts	Total Contracts	location_id	time_id
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	133	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	134	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	135	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	143	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	136	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	137	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	138	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	140	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	141	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	142	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	139	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	3	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	4	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	5	2020/11/01
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<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	6	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	7	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	8	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	9	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	10	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	11	2020/11/01
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<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	20	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	21	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	22	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	23	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	24	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	25	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	26	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	31	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	32	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	27	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	28	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	29	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	30	2020/11/01
<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	33	2020/11/01



# Insert / update | Configuration

Insert / update

Step name **Insert / update**

Connection **energy\_dw**

Target schema **energy\_dw**

Target table **fact\_energy\_stats**

Commit size **100**

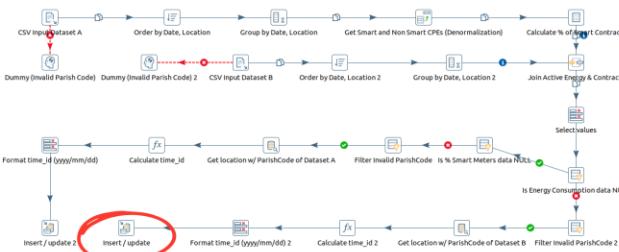
Don't perform any updates:

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

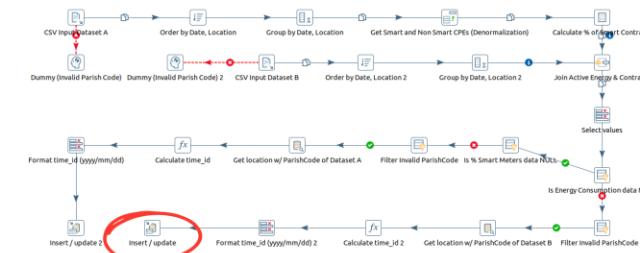
	Table field	Comparator	Stream field1	Stream field2	<input type="button" value="Get fields"/>
1	time_id	=	time_id		
2	location_id	=	location_id		

Update fields:

	Table field	Stream field	Update	<input type="button" value="Get update fields"/>	<input type="button" value="Edit mapping"/>
1	time_id	time_id	Y		
2	location_id	location_id	Y		
3	energy_consumption	Active Energy (kWh)	Y		
4	percentage_smart_meters	Percentage of Smart Contracts	Y		



# Insert / update | Preview



Rows of step: Insert / update (1000 rows)

	Year_Mo	Parish	parish	Municipality	District	Active Energy (I)	Year_Fro	Month_Fro	ParishCode	Parish_1	Municipality_1	District_1	Number of	Number of No	Percentage	Total Contracts	location_id	time_id
1	2020	11	10103	AGUADA DE CIMA	Águeda	Aveiro	325.2770000002	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	133	2020/11/01
2	2020	11	10109	FERMENTELOS	Águeda	Aveiro	586669.115	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	134	2020/11/01
3	2020	11	10112	MACINHATA DO VOUGA	Águeda	Aveiro	1530224.987	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	135	2020/11/01
4	2020	11	10119	VALONGO DO VOUGA	Águeda	Aveiro	986504.078	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	143	2020/11/01
5	2020	11	10121	UF AGUEDA E BORRALH	Águeda	Aveiro	3552.972000001	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	136	2020/11/01
6	2020	11	10122	UF BARRO E AGUEDA D	Águeda	Aveiro	3587665.522	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	137	2020/11/01
7	2020	11	10123	UF BELAZAIMA CAST V	Águeda	Aveiro	533631.594	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	138	2020/11/01
8	2020	11	10124	UF RECARDAES E ESPIN	Águeda	Aveiro	2409798.922	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	140	2020/11/01
9	2020	11	10125	UF TRAVASSO E OIS DA	Águeda	Aveiro	1744398.483	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	141	2020/11/01
10	2020	11	10126	UF TROFA SEGADAES L	Águeda	Aveiro	1684233.096	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	142	2020/11/01
11	2020	11	10127	UF PRESTIMO MACIEIRA	Águeda	Aveiro	136830.788	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	139	2020/11/01
12	2020	11	10202	ALQUERUBIM	Albergaria-a-Vel	Aveiro	297512.707	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	2	2020/11/01
13	2020	11	10203	ANGEJA	Albergaria-a-Vel	Aveiro	285297.371	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	3	2020/11/01
14	2020	11	10204	BRANCA	Albergaria-a-Vel	Aveiro	1652962.031	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	4	2020/11/01
15	2020	11	10206	RIBEIRA DE FRAGUAS	Albergaria-a-Vel	Aveiro	192192.035	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	5	2020/11/01
16	2020	11	10209	ALBERGARIA-A-VELHA I	Albergaria-a-Vel	Aveiro	12755860.874	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	1	2020/11/01
17	2020	11	10210	SAO JOAO DE LOURE E I	Albergaria-a-Vel	Aveiro	409621.899	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	6	2020/11/01
18	2020	11	10304	AVELAS DE CAMINHO	Anadia	Aveiro	769163.342	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	7	2020/11/01
19	2020	11	10305	AVELAS DE CIMA	Anadia	Aveiro	463104.336	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	8	2020/11/01
20	2020	11	10307	MOITA	Anadia	Aveiro	308844.162	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	9	2020/11/01
21	2020	11	10309	SANGALHOS	Anadia	Aveiro	1253245.089	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	10	2020/11/01
22	2020	11	10310	SAO LOURENCO DO BAII	Anadia	Aveiro	557712.122	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	11	2020/11/01
23	2020	11	10312	VILA NOVA DE MONSAR	Anadia	Aveiro	226012.006	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	15	2020/11/01
24	2020	11	10313	VILARINHO DO BAIRRO	Anadia	Aveiro	470150.462	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	16	2020/11/01
25	2020	11	10316	UF A DA GANDARA BAII	Anadia	Aveiro	633762.508	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	12	2020/11/01
26	2020	11	10317	UF ARCOS E MOGOROFI	Anadia	Aveiro	2256227.692	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	13	2020/11/01
27	2020	11	10318	UF TAMENGOS AGUIM C	Anadia	Aveiro	4374423.25	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	14	2020/11/01
28	2020	11	10402	ALVARENGA	Arouca	Aveiro	213637.495	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	17	2020/11/01
29	2020	11	10407	CHAVE	Arouca	Aveiro	437035.453	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	18	2020/11/01
30	2020	11	10409	ESCARIZ	Arouca	Aveiro	790132.425	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	19	2020/11/01
31	2020	11	10411	FERMEDO	Arouca	Aveiro	170521.851	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	20	2020/11/01
32	2020	11	10413	MANSORES	Arouca	Aveiro	358185.285	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	21	2020/11/01
33	2020	11	10414	MOLDES	Arouca	Aveiro	115513.168	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	22	2020/11/01
34	2020	11	10415	ROSSAS	Arouca	Aveiro	176678.434	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	23	2020/11/01
35	2020	11	10416	SANTA EULALIA	Arouca	Aveiro	329304.687	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	24	2020/11/01
36	2020	11	10417	SAO MIGUEL DO MATO	Arouca	Aveiro	81803.276	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	25	2020/11/01
37	2020	11	10418	TROPECO	Arouca	Aveiro	234485.847	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	26	2020/11/01
38	2020	11	10419	URRO	Arouca	Aveiro	110407.599	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	31	2020/11/01
39	2020	11	10420	VARZEA	Arouca	Aveiro	60315.421	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	32	2020/11/01
40	2020	11	10421	UF AROUCA E BURGO	Arouca	Aveiro	1227164.666	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	27	2020/11/01
41	2020	11	10422	UF CABREIROS ALBERG	Arouca	Aveiro	38345.124	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	28	2020/11/01
42	2020	11	10423	UF CANELAS E ESPIUNC	Arouca	Aveiro	188829.866	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	29	2020/11/01
43	2020	11	10424	UF COVELO DE PAIVO E	Arouca	Aveiro	17139.627	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	30	2020/11/01
44	2020	11	10501	ARADAS	Aveiro	Aveiro	3532098.07	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	33	2020/11/01
45	2020	11	10502	CACIA	Aveiro	Aveiro	4094.618999995	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	<null>	34	2020/11/01

# Output Table 1/3 (2021)

```
mysql> SELECT * FROM fact_energy_stats WHERE YEAR(time_id) = 2021 LIMIT 100
+-----+-----+-----+-----+
| time_id | location_id | energy_consumption | percentage_smart_meters |
+-----+-----+-----+-----+
| 2021-01-01 | 1 | 12668128.93 | NULL |
| 2021-01-01 | 2 | 372977.42 | NULL |
| 2021-01-01 | 3 | 341288.97 | NULL |
| 2021-01-01 | 4 | 1898678.30 | NULL |
| 2021-01-01 | 5 | 239295.03 | NULL |
| 2021-01-01 | 6 | 485261.62 | NULL |
| 2021-01-01 | 7 | 786161.35 | NULL |
| 2021-01-01 | 8 | 534238.89 | NULL |
| 2021-01-01 | 9 | 355840.26 | NULL |
| 2021-01-01 | 10 | 1348083.91 | NULL |
| 2021-01-01 | 11 | 604776.43 | NULL |
| 2021-01-01 | 12 | 755388.44 | NULL |
| 2021-01-01 | 13 | 2440104.23 | NULL |
| 2021-01-01 | 14 | 4476010.47 | NULL |
| 2021-01-01 | 15 | 248733.30 | NULL |
| 2021-01-01 | 16 | 521130.50 | NULL |
| 2021-01-01 | 17 | 238691.07 | NULL |
| 2021-01-01 | 18 | 479930.92 | NULL |
| 2021-01-01 | 19 | 867705.94 | NULL |
| 2021-01-01 | 20 | 187210.21 | NULL |
| 2021-01-01 | 21 | 385076.19 | NULL |
| 2021-01-01 | 22 | 131104.11 | NULL |
| 2021-01-01 | 23 | 191113.33 | NULL |
| 2021-01-01 | 24 | 360478.67 | NULL |
| 2021-01-01 | 25 | 83697.35 | NULL |
| 2021-01-01 | 26 | 249236.80 | NULL |
| 2021-01-01 | 27 | 1524927.57 | NULL |
| 2021-01-01 | 28 | 43136.66 | NULL |
| 2021-01-01 | 29 | 197163.02 | NULL |
| 2021-01-01 | 30 | 17252.67 | NULL |
| 2021-01-01 | 31 | 118050.38 | NULL |
| 2021-01-01 | 32 | 66320.49 | NULL |
| 2021-01-01 | 33 | 3996265.90 | NULL |
| 2021-01-01 | 34 | 36684696.06 | NULL |
| 2021-01-01 | 35 | 1913489.34 | NULL |
| 2021-01-01 | 36 | 9425231.33 | NULL |
| 2021-01-01 | 37 | 1586786.34 | NULL |
| 2021-01-01 | 38 | 1937040.29 | NULL |
| 2021-01-01 | 39 | 1565601.96 | NULL |
| 2021-01-01 | 40 | 1091718.45 | NULL |
| 2021-01-01 | 41 | 292817.48 | NULL |
| 2021-01-01 | 42 | 10636131.10 | NULL |
| 2021-01-01 | 43 | 167215.22 | NULL |
| 2021-01-01 | 44 | 183303.21 | NULL |
| 2021-01-01 | 45 | 348175.59 | NULL |
| 2021-01-01 | 46 | 254738.89 | NULL |
| 2021-01-01 | 47 | 1019715.69 | NULL |
| 2021-01-01 | 48 | 1917250.49 | NULL |
| 2021-01-01 | 49 | 3620041.15 | NULL |
| 2021-01-01 | 50 | 836090.65 | NULL |
| 2021-01-01 | 51 | 1511022.04 | NULL |
| 2021-01-01 | 52 | 2796100.57 | NULL |
| 2021-01-01 | 53 | 3130725.34 | NULL |
| 2021-01-01 | 54 | 1361487.76 | NULL |
| 2021-01-01 | 55 | 2689983.12 | NULL |
| 2021-01-01 | 56 | 49338123.24 | NULL |
| 2021-01-01 | 57 | 1511022.04 | NULL |
```

# Output Table 2/3 (2023)

time_id	location_id	energy_consumption	percentage_smart_meters
2023-01-01	1	12613645.56	0.6251
2023-01-01	2	349391.15	0.3294
2023-01-01	3	319899.17	0.5101
2023-01-01	4	2021921.19	0.3672
2023-01-01	5	236332.76	0.2564
2023-01-01	6	470941.82	0.2828
2023-01-01	7	683980.65	0.3248
2023-01-01	8	746948.38	0.5165
2023-01-01	9	345168.47	0.4462
2023-01-01	10	1390598.67	0.3323
2023-01-01	11	653918.78	0.3050
2023-01-01	12	741675.05	0.3690
2023-01-01	13	2468064.94	0.4313
2023-01-01	14	4474842.14	0.4347
2023-01-01	15	253873.49	0.3484
2023-01-01	16	526154.50	0.3382
2023-01-01	17	255886.72	0.2722
2023-01-01	18	476731.67	0.2661
2023-01-01	19	924657.60	0.3267
2023-01-01	20	194916.11	0.2550
2023-01-01	21	386534.49	0.2587
2023-01-01	22	128393.04	0.4452
2023-01-01	23	202298.00	0.2622
2023-01-01	24	357968.31	0.2835
2023-01-01	25	89876.23	0.2569
2023-01-01	26	238461.47	0.2635
2023-01-01	27	1524384.96	0.9746
2023-01-01	28	32240.42	0.2581
2023-01-01	29	178429.30	0.3228
2023-01-01	30	19297.59	0.2075
2023-01-01	31	125879.53	0.3014
2023-01-01	32	74838.25	0.9306
2023-01-01	33	3815440.55	0.9944
2023-01-01	34	36429599.83	0.3546
2023-01-01	35	1948400.69	0.6314
2023-01-01	36	9302994.60	0.9906
2023-01-01	37	1422748.15	0.4114
2023-01-01	38	1825900.20	0.9383
2023-01-01	39	1332315.08	0.9907
2023-01-01	40	990576.00	0.9556
2023-01-01	41	276121.38	0.9616
2023-01-01	42	11453215.25	0.9928
2023-01-01	43	164026.13	0.3779
2023-01-01	44	186709.41	0.4487
2023-01-01	45	319984.10	0.2773
2023-01-01	46	249717.67	0.3908
2023-01-01	47	1220104.69	0.5584
2023-01-01	48	2011349.03	0.9779
2023-01-01	49	3622601.44	0.9866
2023-01-01	50	785102.41	0.9609
2023-01-01	51	1576436.75	0.9676
2023-01-01	52	2697232.77	0.9000
2023-01-01	53	4027556.17	0.4962
2023-01-01	54	684264.72	0.6322

# Output Table 3/3 (8/2024)

time_id	location_id	energy_consumption	percentage_smart_meters
2024-08-01	1	NULL	0.9918
2024-08-01	2	NULL	0.9707
2024-08-01	3	NULL	0.9822
2024-08-01	4	NULL	0.9817
2024-08-01	5	NULL	0.9433
2024-08-01	6	NULL	0.9378
2024-08-01	7	NULL	0.9921
2024-08-01	8	NULL	0.9389
2024-08-01	9	NULL	0.9880
2024-08-01	10	NULL	0.9921
2024-08-01	11	NULL	0.8513
2024-08-01	12	NULL	0.7915
2024-08-01	13	NULL	0.9810
2024-08-01	14	NULL	0.9145
2024-08-01	15	NULL	0.9866
2024-08-01	16	NULL	0.7427
2024-08-01	17	NULL	0.9209
2024-08-01	18	NULL	0.8235
2024-08-01	19	NULL	0.8305
2024-08-01	20	NULL	0.8517
2024-08-01	21	NULL	0.8115
2024-08-01	22	NULL	0.9317
2024-08-01	23	NULL	0.9852
2024-08-01	24	NULL	0.9784
2024-08-01	25	NULL	0.9202
2024-08-01	26	NULL	0.9759
2024-08-01	27	NULL	0.9958
2024-08-01	28	NULL	0.9433
2024-08-01	29	NULL	0.9830
2024-08-01	30	NULL	0.9012
2024-08-01	31	NULL	0.9515
2024-08-01	32	NULL	0.9633
2024-08-01	33	NULL	0.9991
2024-08-01	34	NULL	0.9956
2024-08-01	35	NULL	0.9952
2024-08-01	36	NULL	0.9996
2024-08-01	37	NULL	0.9897
2024-08-01	38	NULL	0.9953
2024-08-01	39	NULL	0.9990
2024-08-01	40	NULL	0.9993
2024-08-01	41	NULL	0.9970
2024-08-01	42	NULL	0.9995
2024-08-01	43	NULL	0.9951
2024-08-01	44	NULL	0.9953
2024-08-01	45	NULL	0.9929
2024-08-01	47	NULL	0.9857
2024-08-01	48	NULL	0.9970
2024-08-01	49	NULL	0.9961
2024-08-01	50	NULL	0.9899
2024-08-01	51	NULL	0.9934
2024-08-01	52	NULL	0.9913
2024-08-01	53	NULL	0.9866
2024-08-01	54	NULL	0.9916
2024-08-01	55	NULL	0.9892
2024-08-01	56	NULL	0.9977
2024-08-01	57	NULL	0.9999
2024-08-01	58	NULL	0.9999
2024-08-01	59	NULL	0.9999
2024-08-01	60	NULL	0.9999
2024-08-01	61	NULL	0.9999
2024-08-01	62	NULL	0.9999
2024-08-01	63	NULL	0.9999
2024-08-01	64	NULL	0.9999
2024-08-01	65	NULL	0.9999
2024-08-01	66	NULL	0.9999
2024-08-01	67	NULL	0.9999
2024-08-01	68	NULL	0.9999
2024-08-01	69	NULL	0.9999
2024-08-01	70	NULL	0.9999
2024-08-01	71	NULL	0.9999
2024-08-01	72	NULL	0.9999
2024-08-01	73	NULL	0.9999
2024-08-01	74	NULL	0.9999
2024-08-01	75	NULL	0.9999
2024-08-01	76	NULL	0.9999
2024-08-01	77	NULL	0.9999
2024-08-01	78	NULL	0.9999
2024-08-01	79	NULL	0.9999
2024-08-01	80	NULL	0.9999

# **Task 7**

File Edit View Options Windows Help

Schema - energy\_dw (energy\_dw.xml)

Schema

- Stats
  - Table: fact\_energy\_stats
- Location
  - Location Hierarchy
    - Region
    - Municipality
    - Parish
    - Parish\_code
  - Table: dim\_location
- Time
  - Time Hierarchy
    - Year
    - Month
    - Season
  - Table: dim\_time
- energy consumption
- percentage smart meters

Open ▾

energy\_dw.xml  
~/adi-project/delivery

```
<Schema name="energy_dw">
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    <Table name="fact_energy_stats">
      </Table>
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          </Level>
        <Level name="Parish_code" visible="true" column="parish_code" type="Integer" uniqueMembers="false" levelType="Regular" hideMemberIf="Never">
          </Level>
      </Hierarchy>
    </Dimension>
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          </Level>
        <Level name="Season" visible="true" column="season_name" ordinalColumn="season_id" type="String" uniqueMembers="false" levelType="TimeQuarters" hideMemberIf="Never">
          </Level>
      </Hierarchy>
    </Dimension>
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    </Measure>
    <Measure name="percentage smart meters" column="percentage_smart_meters" datatype="Numeric" formatString="#.00%" aggregator="avg" visible="true">
    </Measure>
  </Cube>
</Schema>
```

# OLAP PSW & XML FILE

# **Task 8**

a)

```

1 WITH
2 SET [~COLUMNS] AS
3 {[Location.Location Hierarchy].[Region].Members}
4
5 SET [~ROWS] AS
6 FILTER(
7     [Time.Time Hierarchy].[Year].Members,
8     [Time.Time Hierarchy].CurrentMember.Children.Count = 12

```

17, 15

Info: 17:23 / 19 x 5 / 0.08s

	Aveiro	Beja	Braga	Bragança	Castelo Branco	Coimbra	Faro	Guarda	Leiria	Lisboa	Portalegre	Porto	Santarém	Setúbal	Viana do Castelo	Vila Real	Viseu	Évora
Year	energy consumption																	
2021	4367352595.44	828476755.16	3300100549.05	358139367.22	747607177.51	2674834749.29	2164336718.35	442452585.82	2511326564.58	8267234804.78	466188276.81	7292763049.79	2154737805.74	4755342531.31	1064134539.22	525114239.67	1357480511.82	711381275.28
2022	4337472779.24	856061810.16	3356899749.83	367408361.85	789762041.24	2599203519.30	2365214549.27	456722691.10	2543213253.09	8667253996.65	480830253.28	7367861038.52	2151726845.22	4832681420.88	1078587444.75	555993083.26	1363062460.10	778852721.32
2023	4292152471.40	882702236.35	3356445728.72	367806610.95	801977114.81	2363932271.35	2468145516.39	455208564.22	2521706028.24	8806757469.07	479234516.91	7475393792.37	2115869277.62	4989468775.65	1074754005.33	558146201.23	1348394525.82	788929934.40

For the years with complete 12-month data, districts such as Aveiro, Coimbra, and Leiria have experienced a **decrease in energy consumption**. In contrast, the majority of districts, including Beja, Castelo Branco, and Lisboa, have shown a **significant increase in energy consumption**.

```

4
5 SET [~ROWS] AS
6 FILTER(
7     [Time.Time Hierarchy].[Year].Members,
8     [Time.Time Hierarchy].CurrentMember.Children.Count = 12
9
10
11 SELECT

```

14, 24

Info: 17:26 / 19 x 4 / 0.07s

	Aveiro	Beja	Braga	Bragança	Castelo Branco	Coimbra	Faro	Guarda	Leiria	Lisboa	Portalegre	Porto	Santarém	Setúbal	Viana do Castelo	Vila Real	Viseu	Évora
Year	percentage smart meters																	
2022	49.03%	50.61%	52.42%	49.30%	49.54%	44.13%	50.62%	42.56%	62.73%	66.39%	73.04%	43.79%	46.08%	72.40%	35.74%	46.69%	43.48%	69.02%
2023	65.40%	69.17%	63.43%	63.32%	61.22%	55.51%	62.15%	59.66%	77.33%	80.22%	81.78%	57.83%	59.75%	82.21%	61.78%	57.26%	59.18%	75.53%

On the other hand, the **percentage of smart meters** has **consistently risen** across all districts during both 2022 and 2023, indicating widespread adoption of smart metering technology.

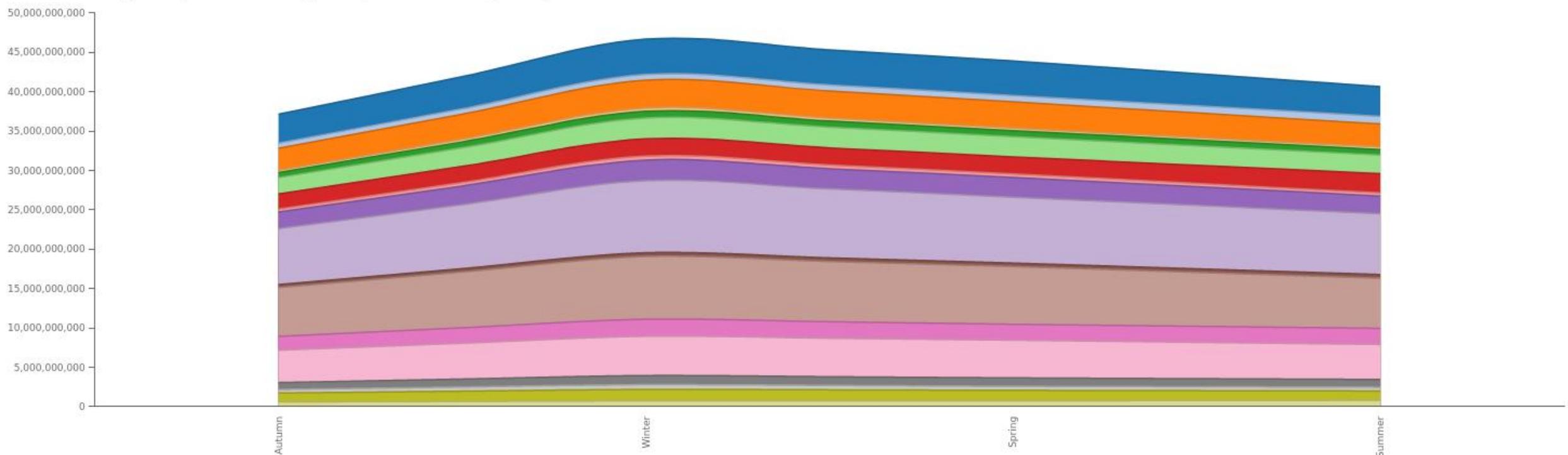
**b)**

```
1 WITH
2     SET [~COLUMNS] AS
3         {[Location.Location Hierarchy].[Region].Members}
4
5     SET [ValidYears] AS
6         FILTER(
7             [Time.Time Hierarchy].[Year].Members,
8             COUNT(
```

1, 4

Info: 17:37 / 19 x 47 / 0.16s

■ Aveiro ~ energy consumption ■ Beja ~ energy consumption ■ Braga ~ energy consumption ■ Bragança ~ energy consumption ■ Castelo Branco ~ energy consumption ■ Coimbra ~ energy consumption ■ Faro ~ energy consumption ■ Guarda ~ energy consumption  
■ Leiria ~ energy consumption ■ Lisboa ~ energy consumption ■ Portalegre ~ energy consumption ■ Porto ~ energy consumption ■ Santarém ~ energy consumption ■ Setúbal ~ energy consumption ■ Viana do Castelo ~ energy consumption  
■ Vila Real ~ energy consumption ■ Viseu ~ energy consumption ■ Évora ~ energy consumption



The graph from the query results highlights that **seasonal changes significantly influence energy consumption patterns** across the districts. Notably, **winter months exhibit a peak in energy usage**, which can be attributed to increased heating demands and longer periods of low sunlight affecting heating systems.

c)

Saiku Analytics (2) X

Cubes

Measures Add

Dimensions ▼

Location ▼

  Location Hierarchy (All)

    Region Municipality

      Parish Parish\_code

Time ▼

  Time Hierarchy (All)

    Year Month

      Season

Measures ▼

  energy consumption percentage smart meters

Code Editor

```

1 WITH
2 SET [-COLUMNS] AS
3 {[Location.Location Hierarchy].[Region].Members}
4 SET [-ROWS] AS
5 FILTER(
6   [Time.Time Hierarchy].[Year].Members,
7   COUNT([Time.Time Hierarchy].CurrentMember.Children) = 12
8 )
    
```

7,50 Info: 17:55 / 37x5 / 0.07s

Aveiro		Beja		Braga		Bragança		Castelo Branco		Coimbra		Faro		Guarda		Leiria		Lisboa	
Year	energy consumption	percentage smart meters																	
2021	4367352595.44	-	828476755.16	-	3300100549.05	-	358139367.22	-	747607177.51	-	2674834749.29	-	2164336718.35	-	442452585.82	-	2511326564.58	-	8267234804.78
2022	4337472779.24	49.03%	856061810.16	50.61%	3356899749.83	52.42%	367408361.85	49.30%	789762041.24	49.54%	2599203519.30	44.13%	2365214549.27	50.62%	456722691.10	42.56%	2543213253.09	62.73%	8667253996.65
2023	4292152471.40	65.40%	882702236.35	69.17%	3356445728.72	63.43%	367806610.95	63.32%	801977114.81	61.22%	2363932271.35	55.51%	2466145516.39	62.15%	455208564.22	59.66%	2521706028.24	77.33%	8806757469.07

There is a clear relationship between the **percentage of smart meters** and **energy consumption** across districts. Areas with higher smart meter adoption, such as Lisboa and Beja, demonstrate more efficient energy usage. This suggests that increased smart meter implementation may lead to better energy management and reduced consumption.