

## Finding matches in 2 databases based on a name

The macro is supposed to be used for finding matches between 2 databases:

- **(1) A sanction list** of subjects regularly being updated by EU and sent to our company

An excel file

Example (fictive data):

	NAMEALIAS_WHOLENAME
1	Hugo Adam Jung
2	Gustavo Schmitto
3	Jaro Thomas Karl Praline
4	Joan Mydlo

- **(2) A database of vendor** master data (suppliers) from our company's system

An export from SAP table LFA1

Example (fictive data):

	NAME1
1	Roland Berteit
2	Gustavo Schmitto
3	Jung Hugo Adam
4	Mirek Dusin

There is only 1 possible match key for identifying the identical subjects from the databases → the name.

The name in both databases can consists of several words and the words can theoretically be in different order. The sanction list database (1) can contain even a name up to 31 words, the database of vendor's names from the company's system (2) usually have up to 13 words in some names.

When preparing the macro my basic idea was to re-order the words of each name in alphabetical order (in both databases) in a new virtual field, and then to find the matches based on this new field (common key for join).

I had a problem with finding a simple way how to add a new field in both databases with a function that would reorder the words of each subject name in alphabetical order (to be able to reliably compare the databases). It is complicated by the fact, that based on the database statistics – there can be up to 31 words in the name field.

So for now I have found another way how to reorder the words in the name field and finally can compare the databases, but it is quite a lot complicated procedure. I use the following 3 macros:

### Macro 1:

1.1 Imports of the source data and creating the 2 databases (sanction list, company's vendor data).

The sanction list (test example):

	NAMEALIAS_WHOLENAME
1	Hugo Adam Jung
2	Gustavo Schmitto
3	Jaro Thomas Karl Praline
4	Joan Mydlo

The company's vendor master data (test example):

	NAME1
1	Roland Berteit
2	Gustavo Schmitto
3	Jung Hugo Adam
4	Mirek Dusin

In a dialog menu of the macro I enter a number – max. number of words that the macro will work with (in this test case 4).

In both databases the macro creates a new field that counts number of words for each name (after removing possible redundancy spaces).

Based on the number of words the macro creates new fields for each word position (word\_1, word\_2, word\_3, word\_4):

The sanction list (test example):

SL\_4words.IMD X

	NAMEALIAS_WHOLENAME	POČ_SLOV	RECNO	WORD_1	WORD_2	WORD_3	WORD_4
1	Hugo Adam Jung	3	1	Hugo	Adam	Jung	
2	Gustavo Schmitto	2	2	Gustavo	Schmitto		
3	Jaro Thomas Karl Praline	4	3	Jaro	Thomas	Karl	Praline
4	Joan Mydlo	2	4	Joan	Mydlo		

The company's vendor master data (test example):

AP\_4words.IMD X

	NAME1	RECNO	POČ_SLOV	WORD_1	WORD_2	WORD_3	WORD_4
1	Roland Berteit	1	2	Roland	Berteit		
2	Gustavo Schmitto	2	2	Gustavo	Schmitto		
3	Jung Hugo Adam	3	3	Jung	Hugo	Adam	
4	Mirek Dusin	4	2	Mirek	Dusin		

- 1.2 For each word position a separate database is created, and a new field „Word\_key“ (for re-ordering purposes later on).

The sanction list (test example):

SL\_Word\_1.IMD X    SL\_Word\_2.IMD    SL\_Word\_3.IMD    SL\_Word\_4.IMD

	NAMEALIAS_WHOLENAME	POČ_SLOV	WORD_1	RECNO	WORD_KEY
1	Hugo Adam Jung	3	Hugo	1	Hugo
2	Gustavo Schmitto	2	Gustavo	2	Gustavo
3	Jaro Thomas Karl Praline	4	Jaro	3	Jaro
4	Joan Mydlo	2	Joan	4	Joan

SL\_Word\_1.IMD    SL\_Word\_2.IMD X    SL\_Word\_3.IMD    SL\_Word\_4.IMD

	NAMEALIAS_WHOLENAME	POČ_SLOV	WORD_2	RECNO	WORD_KEY
1	Hugo Adam Jung	3	Adam	1	Adam
2	Gustavo Schmitto	2	Schmitto	2	Schmitto
3	Jaro Thomas Karl Praline	4	Thomas	3	Thomas
4	Joan Mydlo	2	Mydlo	4	Mydlo

SL\_Word\_1.IMD    SL\_Word\_2.IMD    SL\_Word\_3.IMD X    SL\_Word\_4.IMD

	NAMEALIAS_WHOLENAME	POČ_SLOV	WORD_3	RECNO	WORD_KEY
1	Hugo Adam Jung	3	Jung	1	Jung
2	Jaro Thomas Karl Praline	4	Karl	3	Karl

SL\_Word\_1.IMD    SL\_Word\_2.IMD    SL\_Word\_3.IMD    SL\_Word\_4.IMD X

	NAMEALIAS_WHOLENAME	POČ_SLOV	WORD_4	RECNO	WORD_KEY
1	Jaro Thomas Karl Praline	4	Praline	3	Praline

The company's vendor master data (test example):

AP_Word_1.IMD	X	AP_Word_2.IMD	AP_Word_3.IMD	AP_Word_4.IMD
NAME1	POČ_SLOV	WORD_1	RECNO	WORD_KEY
1 Roland Berteit	2	Roland	1	Roland
2 Gustavo Schmitto	2	Gustavo	2	Gustavo
3 Jung Hugo Adam	3	Jung	3	Jung
4 Mirek Dusin	2	Mirek	4	Mirek

  

AP_Word_1.IMD	AP_Word_2.IMD	X	AP_Word_3.IMD	AP_Word_4.IMD
NAME1	POČ_SLOV	WORD_2	RECNO	WORD_KEY
1 Roland Berteit	2	Berteit	1	Berteit
2 Gustavo Schmitto	2	Schmitto	2	Schmitto
3 Jung Hugo Adam	3	Hugo	3	Hugo
4 Mirek Dusin	2	Dusin	4	Dusin

  

AP_Word_1.IMD	AP_Word_2.IMD	AP_Word_3.IMD	X	AP_Word_4.IMD
NAME1	POČ_SLOV	WORD_3	RECNO	WORD_KEY
1 Jung Hugo Adam	3	Adam	3	Adam

  

AP_Word_1.IMD	AP_Word_2.IMD	AP_Word_3.IMD	AP_Word_4.IMD	X
NAME1	POČ_SLOV	WORD_4	RECNO	WORD_KEY

1.3 Append above separate database to a common database and the common field ("word\_key").

The sanction list (test example):

SL\_Common\_Word.IMD

	NAMEALIAS_WHOLENAME	RECNO	WORD_1	WORD_2	WORD_3	WORD_4	WORD_KEY
1	Hugo Adam Jung	1	Hugo				Hugo
2	Gustavo Schmitto	2	Gustavo				Gustavo
3	Jaro Thomas Karl Praline	3	Jaro				Jaro
4	Joan Mydlo	4	Joan				Joan
5	Hugo Adam Jung	1		Adam			Adam
6	Gustavo Schmitto	2		Schmitto			Schmitto
7	Jaro Thomas Karl Praline	3		Thomas			Thomas
8	Joan Mydlo	4		Mydlo			Mydlo
9	Hugo Adam Jung	1			Jung		Jung
10	Jaro Thomas Karl Praline	3			Karl		Karl
11	Jaro Thomas Karl Praline	3				Praline	Praline

The company's vendor master data (test example):

AP\_Common\_Word.IMD X

	NAME1	RECNO	WORD_1	WORD_2	WORD_3	WORD_4	WORD_KEY
1	Roland Berteit	1	Roland				Roland
2	Gustavo Schmitto	2	Gustavo				Gustavo
3	Jung Hugo Adam	3	Jung				Jung
4	Mirek Dusin	4	Mirek				Mirek
5	Roland Berteit	1		Berteit			Berteit
6	Gustavo Schmitto	2		Schmitto			Schmitto
7	Jung Hugo Adam	3		Hugo			Hugo
8	Mirek Dusin	4		Dusin			Dusin
9	Jung Hugo Adam	3			Adam		Adam

- 1.4 Sort the items in the alphabetical order based on the fields "Recno", and "Word\_key" → for each subject (recno) the items (words) are ordered alphabetically.

The sanction list (test example):

SL\_Common\_Word\_Sorted.IMD X

	NAMEALIAS_WHOLENAME	RECNO	WORD_1	WORD_2	WORD_3	WORD_4	WORD_KEY
1	Hugo Adam Jung	1		Adam			Adam
2	Hugo Adam Jung	1	Hugo				Hugo
3	Hugo Adam Jung	1			Jung		Jung
4	Gustavo Schmitto	2	Gustavo				Gustavo
5	Gustavo Schmitto	2		Schmitto			Schmitto
6	Jaro Thomas Karl Praline	3	Jaro				Jaro
7	Jaro Thomas Karl Praline	3			Karl		Karl
8	Jaro Thomas Karl Praline	3				Praline	Praline
9	Jaro Thomas Karl Praline	3		Thomas			Thomas
10	Joan Mydlo	4	Joan				Joan
11	Joan Mydlo	4		Mydlo			Mydlo

The company's vendor master data (test example):

AP\_Common\_Word\_Sorted.IMD X

	NAME1	RECNO	WORD_1	WORD_2	WORD_3	WORD_4	WORD_KEY
1	Roland Berteit	1		Berteit			Berteit
2	Roland Berteit	1	Roland				Roland
3	Gustavo Schmitto	2	Gustavo				Gustavo
4	Gustavo Schmitto	2		Schmitto			Schmitto
5	Jung Hugo Adam	3			Adam		Adam
6	Jung Hugo Adam	3		Hugo			Hugo
7	Jung Hugo Adam	3	Jung				Jung
8	Mirek Dusin	4		Dusin			Dusin
9	Mirek Dusin	4	Mirek				Mirek

## Macro 2:

- 1.1 "Auto generate number" downloaded from your web.

The macro creates a new field "Auto\_number\_field" and for each subject (recno) it adds numbering from the beginning. E.g. in the sanction list the recno 1 is the first subject, and the auto\_number\_field 1,2,3 is the order of words in the name of the subject 1 (alphabetically ordered).

### The sanction list (test example):

SL\_Common\_Word\_Sorted.IMD X

	NAMEALIAS_WHOLENAME	RECNO	WORD_1	WORD_2	WORD_3	WORD_4	WORD_KEY	AUTO_NUMBER_FIELD
1	Hugo Adam Jung	1		Adam			Adam	1
2	Hugo Adam Jung	1	Hugo				Hugo	2
3	Hugo Adam Jung	1			Jung		Jung	3
4	Gustavo Schmitto	2	Gustavo				Gustavo	1
5	Gustavo Schmitto	2		Schmitto			Schmitto	2
6	Jaro Thomas Karl Praline	3	Jaro				Jaro	1
7	Jaro Thomas Karl Praline	3			Karl		Karl	2
8	Jaro Thomas Karl Praline	3				Praline	Praline	3
9	Jaro Thomas Karl Praline	3		Thomas			Thomas	4
10	Joan Mydlo	4	Joan				Joan	1
11	Joan Mydlo	4		Mydlo			Mydlo	2

### The company's vendor master data (test example):

AP\_Common\_Word\_Sorted.IMD X

	NAME1	RECNO	WORD_1	WORD_2	WORD_3	WORD_4	WORD_KEY	AUTO_NUMBER_FIELD
1	Roland Berteit	1		Berteit			Berteit	1
2	Roland Berteit	1	Roland				Roland	2
3	Gustavo Schmitto	2	Gustavo				Gustavo	1
4	Gustavo Schmitto	2		Schmitto			Schmitto	2
5	Jung Hugo Adam	3			Adam		Adam	1
6	Jung Hugo Adam	3		Hugo			Hugo	2
7	Jung Hugo Adam	3	Jung				Jung	3
8	Mirek Dusin	4		Dusin			Dusin	1
9	Mirek Dusin	4	Mirek				Mirek	2

### Macro 3:

- 3.1 It creates separate databases for each „auto\_number\_field“ value (alfabetically re-ordered words for each subject), and new field „order\_word\_value“. Later on alfabetically re-ordered items will be gradually joined to a final database.

### The sanction list (test example):

SL\_Sorted\_Word=1.IMD X    SL\_Sorted\_Word=2.IMD    SL\_Sorted\_Word=3.IMD    SL\_Sorted\_Word=4.IMD

	NAMEALIAS_WHOLENAME	RECNO	AUTO_NUMBER_FIELD	WORD_KEY	ORDER_WORD_1
1	Hugo Adam Jung	1	1	Adam	Adam
2	Gustavo Schmitto	2	1	Gustavo	Gustavo
3	Jaro Thomas Karl Praline	3	1	Jaro	Jaro
4	Joan Mydlo	4	1	Joan	Joan

SL\_Sorted\_Word=1.IMD    SL\_Sorted\_Word=2.IMD X    SL\_Sorted\_Word=3.IMD    SL\_Sorted\_Word=4.IMD

	NAMEALIAS_WHOLENAME	RECNO	AUTO_NUMBER_FIELD	WORD_KEY	ORDER_WORD_2
1	Hugo Adam Jung	1	2	Hugo	Hugo
2	Gustavo Schmitto	2	2	Schmitto	Schmitto
3	Jaro Thomas Karl Praline	3	2	Karl	Karl
4	Joan Mydlo	4	2	Mydlo	Mydlo

SL\_Sorted\_Word=1.IMD    SL\_Sorted\_Word=2.IMD    SL\_Sorted\_Word=3.IMD X    SL\_Sorted\_Word=4.IMD

	NAMEALIAS_WHOLENAME	RECNO	AUTO_NUMBER_FIELD	WORD_KEY	ORDER_WORD_3
1	Hugo Adam Jung	1	3	Jung	Jung
2	Jaro Thomas Karl Praline	3	3	Praline	Praline

SL\_Sorted\_Word=1.IMD    SL\_Sorted\_Word=2.IMD    SL\_Sorted\_Word=3.IMD    SL\_Sorted\_Word=4.IMD X

	NAMEALIAS_WHOLENAME	RECNO	AUTO_NUMBER_FIELD	WORD_KEY	ORDER_WORD_4
1	Jaro Thomas Karl Praline	3	4	Thomas	Thomas

The company's vendor master data (test example):

AP_Sorted_Word=1.IMD ✕					
AP_Sorted_Word=2.IMD					
AP_Sorted_Word=3.IMD					
	NAME1	RECNO	AUTO_NUMBER_FIELD	WORD_KEY	ORDER_WORD_1
1	Roland Berteit	1	1	Berteit	Berteit
2	Gustavo Schmitto	2	1	Gustavo	Gustavo
3	Jung Hugo Adam	3	1	Adam	Adam
4	Mirek Dusin	4	1	Dusin	Dusin
AP_Sorted_Word=1.IMD					
AP_Sorted_Word=2.IMD ✕					
AP_Sorted_Word=3.IMD					
	NAME1	RECNO	AUTO_NUMBER_FIELD	WORD_KEY	ORDER_WORD_2
1	Roland Berteit	1	2	Roland	Roland
2	Gustavo Schmitto	2	2	Schmitto	Schmitto
3	Jung Hugo Adam	3	2	Hugo	Hugo
4	Mirek Dusin	4	2	Mirek	Mirek
AP_Sorted_Word=1.IMD					
AP_Sorted_Word=2.IMD					
AP_Sorted_Word=3.IMD ✕					
	NAME1	RECNO	AUTO_NUMBER_FIELD	WORD_KEY	ORDER_WORD_3
1	Jung Hugo Adam	3	3	Jung	Jung

- 3.2 Gradually joining the separate databases with alphabetically ordered words to the final database. In the final database created a new field „Order\_name\_key“ which merge all alphabetically ordered words (fields) together. → This will be the match key (field) for searching matches between the sanction database and company's vendor database.

The sanction list (test example):

SL_Reorder_Base.IMD		SL_Reorder_1.IMD		SL_Reorder_2.IMD		SL_Reorder_3.IMD		SL_Reorder_4.IMD	
RECNO	NAMEALIAS_WHOLENAME								
1	1	Hugo Adam Jung							
2	2	Gustavo Schmitto							
3	3	Jaro Thomas Karl Praline							
4	4	Joan Mydlo							

SL_Reorder_Base.IMD		SL_Reorder_1.IMD		SL_Reorder_2.IMD		SL_Reorder_3.IMD		SL_Reorder_4.IMD		
RECNO	NAMEALIAS_WHOLENAME		ORDER_WORD_1							
1	1	Hugo Adam Jung		Adam						
2	2	Gustavo Schmitto		Gustavo						
3	3	Jaro Thomas Karl Praline		Jaro						
4	4	Joan Mydlo		Joan						

SL_Reorder_Base.IMD		SL_Reorder_1.IMD		SL_Reorder_2.IMD		SL_Reorder_3.IMD		SL_Reorder_4.IMD		
RECNO	NAMEALIAS_WHOLENAME		ORDER_WORD_1		ORDER_WORD_2					
1	1	Hugo Adam Jung		Adam		Hugo				
2	2	Gustavo Schmitto		Gustavo		Schmitto				
3	3	Jaro Thomas Karl Praline		Jaro		Karl				
4	4	Joan Mydlo		Joan		Mydlo				

SL_Reorder_Base.IMD		SL_Reorder_1.IMD		SL_Reorder_2.IMD		SL_Reorder_3.IMD		SL_Reorder_4.IMD		
RECNO	NAMEALIAS_WHOLENAME		ORDER_WORD_1		ORDER_WORD_2		ORDER_WORD_3			
1	1	Hugo Adam Jung		Adam		Hugo		Jung		
2	2	Gustavo Schmitto		Gustavo		Schmitto				
3	3	Jaro Thomas Karl Praline		Jaro		Karl		Praline		
4	4	Joan Mydlo		Joan		Mydlo				

SL_Reorder_Base.IMD		SL_Reorder_1.IMD		SL_Reorder_2.IMD		SL_Reorder_3.IMD		SL_Reorder_4.IMD			
RECNO	NAMEALIAS_WHOLENAME		ORDER_WORD_1		ORDER_WORD_2		ORDER_WORD_3		ORDER_WORD_4		
1	1	Hugo Adam Jung		Adam		Hugo		Jung		AdamHugoJung	
2	2	Gustavo Schmitto		Gustavo		Schmitto				GustavoSchmitto	
3	3	Jaro Thomas Karl Praline		Jaro		Karl		Praline		JaroKarlPralineThomas	
4	4	Joan Mydlo		Joan		Mydlo				JoanMydlo	

The company's vendor master data (test example):

AP_Reorder_Base.IMD		AP_Reorder_1.IMD		AP_Reorder_2.IMD		AP_Reorder_3.IMD	
RECNO	NAME1						
1	1 Roland Berteit						
2	2 Gustavo Schmitto						
3	3 Jung Hugo Adam						
4	4 Mirek Dusin						

AP_Reorder_Base.IMD		AP_Reorder_1.IMD		AP_Reorder_2.IMD		AP_Reorder_3.IMD	
RECNO	NAME1		ORDER_WORD_1				
1	1	Roland Berteit	Berteit				
2	2	Gustavo Schmitto	Gustavo				
3	3	Jung Hugo Adam	Adam				
4	4	Mirek Dusin	Dusin				

AP_Reorder_Base.IMD		AP_Reorder_1.IMD		AP_Reorder_2.IMD		AP_Reorder_3.IMD	
RECNO	NAME1		ORDER_WORD_1		ORDER_WORD_2		
1	1	Roland Berteit	Berteit		Roland		
2	2	Gustavo Schmitto	Gustavo		Schmitto		
3	3	Jung Hugo Adam	Adam		Hugo		
4	4	Mirek Dusin	Dusin		Mirek		

AP_Reorder_Base.IMD		AP_Reorder_1.IMD		AP_Reorder_2.IMD		AP_Reorder_3.IMD		
RECNO	NAME1		ORDER_WORD_1		ORDER_WORD_2		ORDER_WORD_3	ORDER_NAME_KEY
1	1	Roland Berteit	Berteit		Roland			BerteitRoland
2	2	Gustavo Schmitto	Gustavo		Schmitto			GustavoSchmitto
3	3	Jung Hugo Adam	Adam		Hugo		Jung	AdamHugoJung
4	4	Mirek Dusin	Dusin		Mirek			DusinMirek

3.3 Searching for matches between the Sanction database and Company's vendor database based on the key „Order\_name\_key“.

SL_AP_test.IMD					
Sanction list			Company vendor list		
RECNO	NAMEALIAS_WHOLENAME	ORDER_NAME_KEY	RECNO1	NAME1	ORDER_NAME_KEY1
1	1 Hugo Adam Jung	AdamHugoJung	3	Jung Hugo Adam	AdamHugoJung
2	2 Gustavo Schmitto	GustavoSchmitto	2	Gustavo Schmitto	GustavoSchmitto
Matches					