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IDEAScript
Gestalt Element Link (GEL-1)
and
Gestalt Element Link 2 (GEL-2)

Definition of GESTALT:

A structure, configuration, or pattern of physical, biological, or psychological phenomena so integrated as to constitute a functional unit with properties not derivable by summation of its parts.
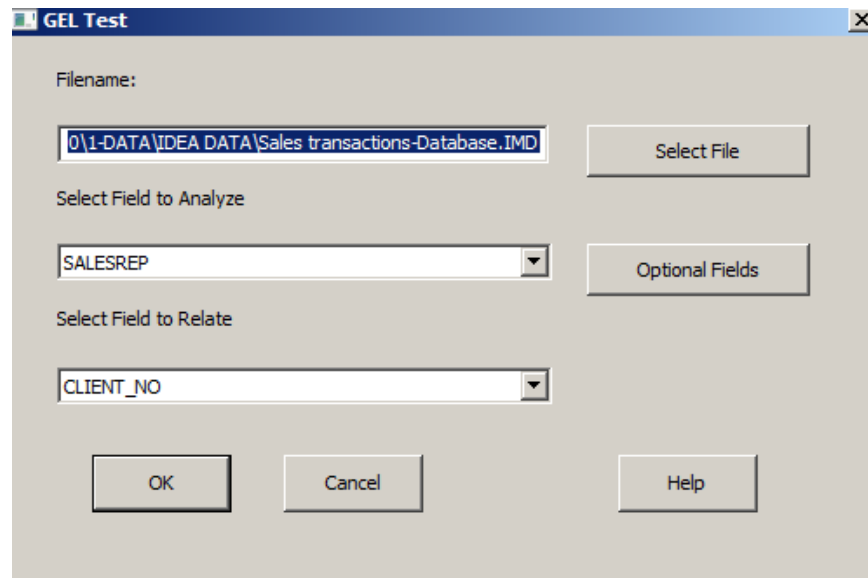
The purpose of the GEL tests (GEL-1 and GEL-2) is to detect relationships or links within a data file that serve as potential indicators of fraud.
The GEL tests establish possible links between two selected fields over the entire data set. The first field is the key field and the second field is the element factor.

An example of the usage for the GEL tests is to detect bribery or improper relationships. Since most entities do not have access to the records of the payer company, their own data can be analysed to detect improper relationship patterns.

The following GEL-1 example depicts testing of potential links between Sales Representatives and their Customers. A high GEL factor may be an indicator of an improper relationship or merely that certain Sales Representatives are assigned certain Customers. A good understanding of the business practices and procedures is necessary to properly interpret the results.

1. Select the file you wish to analyse. A listing of files in the currently set working folder will present itself.
2. Select the field to analyse (field #1).
3. Select the relationship field (field #2) that you wish to test against field #1..
4. You may also select other fields to display in the Optional Fields. In the example below possible Optional Fields to display may be the Sales Representative Name and/or Client Name if those fields are available.

The resulting file shows the number of total transactions of each Sales Representative with all their Customers in the "Total_For_Salesrep" field and the number of transactions with their most frequent customer in the "Trans_Per_Freq_Client_No" field.

The GEL-1 ratio is Trans_Per_Freq_Client_No divided by Total_For_Salesrep.

For instance, Salerep 105 had 160 sales transactions with 120 (0.7500) of them from Client_No 30608. The balance of 40 transactions was with other customers.
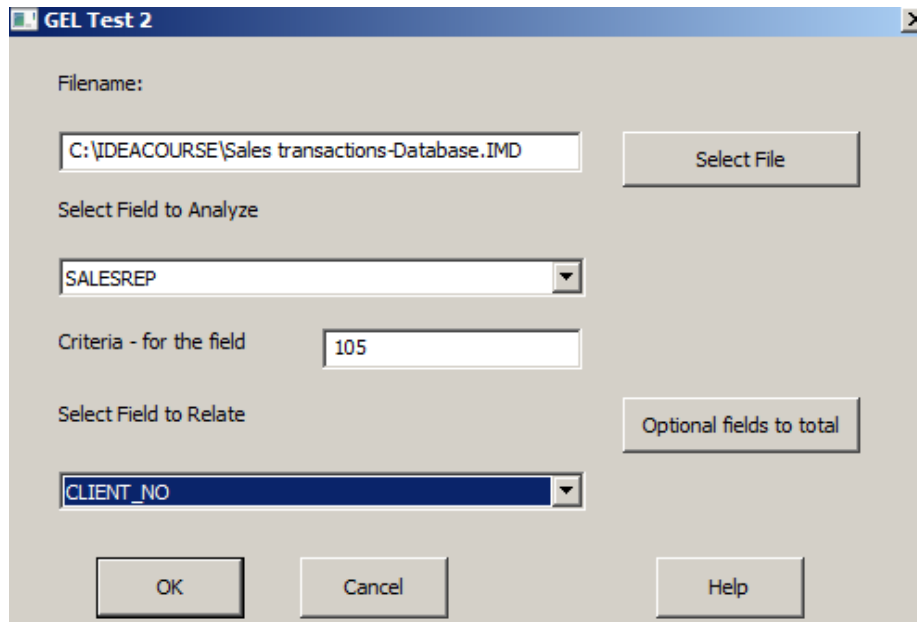
The GEL-1 test provides an overview of the link between the Sales Representative and Customers.

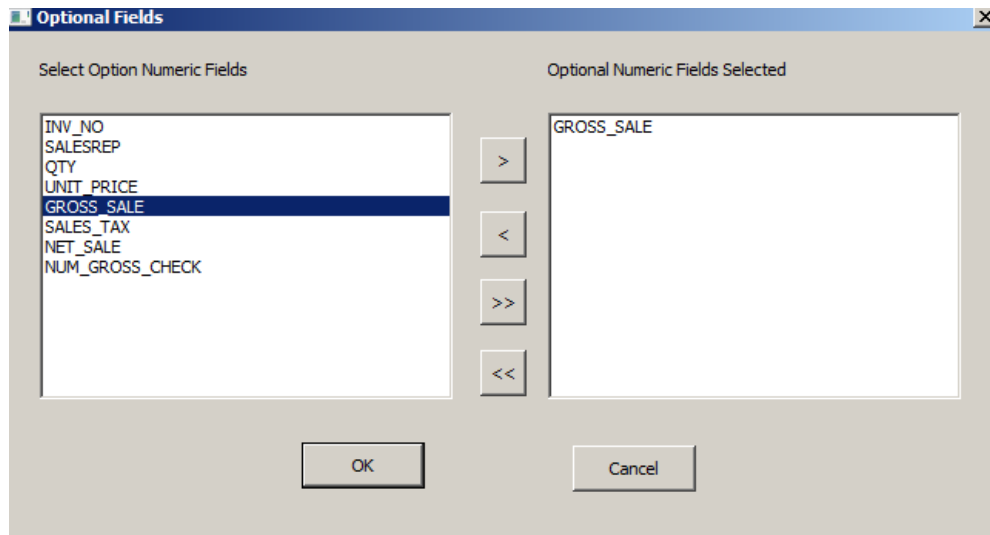|	SALESREP	TRAN_PER_FREQ_CLIENT_NO	CLIENT_NO	TOTAL_FOR_SALESREP	GEL ▼
1	119	93	92241	96	0.9688
2	117	93	92326	99	0.9394
3	110	143	92431	167	0.8563
4	108	132	40730	164	0.8049
5	105	120	30608	160	0.7500
6	115	57	92323	95	0.6000
7	113	54	60300	106	0.5094
8	118	48	60300	111	0.4324
9	122	30	40712	84	0.3571
10	120	39	92100	114	0.3421
11	107	36	40312	120	0.3000
12	128	15	20914	51	0.2941
13	127	27	20954	105	0.2571
14	121	21	61503	93	0.2258
15	125	27	11600	138	0.1957
16	104	28	10201	164	0.1707
17	124	12	12203	72	0.1667
18	126	21	21139	153	0.1373
19	123	12	20005	93	0.1290
20	101	4	21256	57	0.0702
21	114	3	20696	72	0.0417
22	103	4	10204	117	0.0342
23	102	4	21425	124	0.0323
24	109	4	20254	128	0.0313
25	112	3	42300	111	0.0270

Further analysis may be done on specific Sales Representatives by using the GEL-2 IDEAScript.

1. Select the file you wish to analyse. A listing of files in the currently set working folder will present itself.
2. Select the field to analyse (field #1).
3. Enter the criteria to analyse for field #1.
4. Select the relationship field (field #2) that you wish to test against field #1.
5. By selecting the Optional Field to Total button, an optional numeric field may be selected to be totaled and displayed in the output.

In the GEL-1 results for the above example, the user decided to further analyse all GEL factors of .6000 and greater. Salesrep 105 falls into this criteria with a GEL factor of .7500 and is used in the GEL-2 test. The user is also interest in determining the total Gross_Sale amount for each of the customers that dealt with Salesrep 105. Gross_Sale is then selected as the Optional field to total which will be displayed in the resulting file.

Salesrep = 105 will be extracted and compared to all Client_No that dealt with this Salesrep. The number of transactions for each Client_No with this Salesrep will be displayed (No_Of_Recs). In addition, the total number of transactions with all Salesreps for each Client is shown (Total_No_Of_Recs).

By selecting Gross_Sale as the Optional field to total, the sum amount spent by each Client will be displayed for Salesrep 105.

The resulting file shows that Salesrep 105 had dealt with Client_No 30608, 120 times (value of $824,092.78 as the Optional field to total) out of 131 while the client purchased from all other Salesreps only 11 times. In addition, this Salesrep sold to Client_No 30501, 40 times while the same client purchased from all other Salesreps only 14 times.

Details can be reviewed by clicking on the blue underlined action field in the No_Of_Recs field and in the Total_No_Of_Recs field (An interim filed named "... - step 1" is created to allow this).

The GEL-2 ratio is obtained by dividing No_Of_Recs by Total_No_Of_Recs. This ratio provides specific links between the Sales Representative and his/her Customers.

	CLIENT_NO	NO_OF_RECS	GROSS_SALE_SUM	TOTAL_NO_OF_RECS	GEL2	CRITERIA
1	30501	40	189,638.76	54	0.7407	105
2	30608	120	824,092.78	131	0.9160	105

Tabs: Sales transactions-Database.IMD | Sales transactions-Database - step 1... | GEL2 - Sales transactions-Datab...

Running the 2 GEL tests against an Accounts Payable file and analysing the "Cheque Authorized By" field and the "Vendor" field as the one to relate to, may indicate favourable status given to some vendors by the authorizing personnel. It may also provide an indication of a money laundering or a disbursement scheme.

Applying the GEL - 1 test to corporate credit cards file may reveal some red flags when the following fields are selected.

1. Employee ID vs. General Ledger Account Number
2. Employee ID vs. Vendor ID (Business Name)
3. Employee ID vs. Vendor Location (City, Province or Country). Low GEL ratios should be reviewed.
4. Vendor ID vs. Employee ID

The GEL – 2 test can then be run against selected results of the above analysis.

Using the GEL – 1 test on a Sales file from a Point of Sale System, with the EmployeeID (or ServerID) field as the analysis field (field #1) and the Order Date field as the relationship field (field #2) may indicate suppression of sales invoices relating to certain employees. A low GEL ratio where the number of transactions are low compared to total transactions for the day should be analysed by employing GEL – 2 on specific EmployeeIDs. However, before any conclusions can be formulated, the user should always consider whether or not any of the anomalies can be explained. One may need to investigate whether or not the employee was on a short shift, did not serve many tables etc..