

' IDEAScript : Benford First Digit.iss
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' Date : January 21, 2012
' Purpose : This test will create a file of first digit analysis based on a field and amount
' optioned through a menu.
' Modified: March 19, 2012 - Added a routine in case the FIRST_DIGIT field exists, also
' made the extraction more efficient as only extracting necessary fields

This test is based on the Benford's Law First Digits test. The test within IDEA performs the First Digits test on the entire file. This script allows you to perform the same test but based on a field within the population. As an example, if you have a vendor field, this test would perform the First Digits test on all transactions for each vendor. This should allow the auditor to look for vendors that might have payments that do not fit the First Digits test. It is recommended that you only look at vendors that have a large number of transactions as small size populations may give inconsistent results.

How to use the script.

When you start the script you will have the following dialog. In this dialog you will select the file you wish to run the analysis on, the **Client Field** which is the field you want to test, so if you are running this tests on vendor information you would select the field that contains the vendor, the **Amount Field** is the field in which you want to run the first digit test on, this would be a numeric field and usually would be the amount. The optional fields allow you to select additional fields that you may want to have added to your analysis, the **optional fields** works in the same was as when you select optional fields from within the IDEA summary function. It is recommended that you only perform this on amounts greater or equal to 10 but the script does allow you to run it on amounts greater than or equal to 1 if this item is unticked. You can also select the number of transactions per client, so if you are using this on a vendor file and you select 1000 you would only perform this analysis on vendors that have more than 1000 transactions in the file. It is recommended that you don't perform this on clients with few transactions as the results will not fit Benford's law. Finally you can run this on either positive or negative values.

The screenshot shows a Windows-style dialog box titled "Menu". At the top left is a "Select File" button, followed by the text "No file selected". Below this are two dropdown menus labeled "Client Field" and "Amount Field". To the right of these is an "Optional fields" button. Further down is a checkbox labeled "Only amounts >= 10" which is checked. Below that is a text input field labeled "Number of transaction per client" containing the value "1000". To the right of this is a group box titled "Include Values" containing two radio buttons: "Positive" (which is selected) and "Negative". At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

The following file will be created.

Multiple Benford 1st order analy...							
	VENDORNUM	FIRST_DIGIT	TOTAL_RECORDS	ACTUAL	EXPECTED	DIFFERENCE	PERC_DIF
1	2001	1	4697	1014	1,413.9379	399.94	28.29
2	2001	2	4697	638	827.0947	189.09	22.86
3	2001	3	4697	751	586.8432	-164.16	-27.97
4	2001	4	4697	651	455.1863	-195.81	-43.02
5	2001	5	4697	511	371.9085	-139.09	-37.40
6	2001	6	4697	399	314.4642	-84.54	-26.88
7	2001	7	4697	298	272.3790	-25.62	-9.41
8	2001	8	4697	269	240.2516	-28.75	-11.97
9	2001	9	4697	166	214.9347	48.93	22.77

The first field is your client field that was selected from the dialog. The second field is the first digit from the amount field which you selected. The third field is the total number of records for this vendor. The actual field is the actual number of digits for this vendor. So in the first line there are 1,014 records where the amount starts with a 1 for vendor 2001. The 5th field is the expected number of records based on Benford's law. The six field is the difference between the actual and the expected and the final field is the percentage difference between the actual and the expected.

A history entry is also written for this analysis.

Benford First Digit Multiple F... 30/07/2012 - 07:39		brian.element
Control Field:	No Control Total	
Number of Records:	188	
Date:	Monday, July 30, 2012	
Time:	07:39 AM	
Source File:	C:\data\IDEA Scripts\Accumulated Field .IMD	
Client Field:	VENDORNUM	
Amount Field:	AMOUNT	
Transactions greater tha...	Yes	
Include Values:	Positive	