Longitudinal Analysis of 2003-2013 LibQUAL+ Survey Results

Data Analysis using D-M Score Handout

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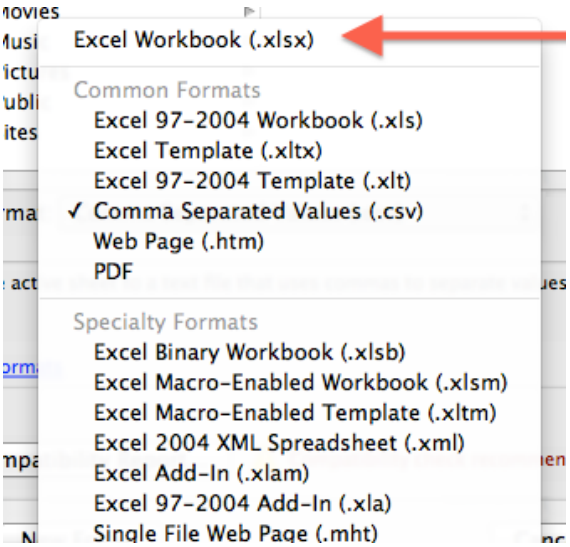
These are the steps used by the UCLA Library to apply the D-M Score method to their bi-annual LibQUAL+ survey results. Please note, that your data may not be organized exactly the same way, but the formulas should stay the same.

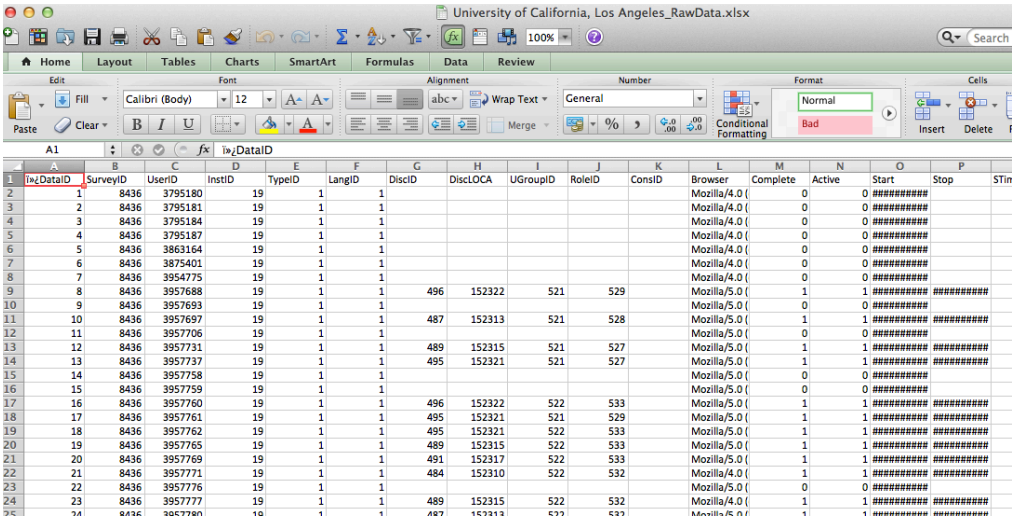
Part A. How to Calculate and Interpret Raw Data

1. Download raw data file from the LibQUAL+ Data Repository. Download the raw data's Data Key as well.

2. Open Microsoft Excel, or other spreadsheet software, and save file as .xls or .xls.

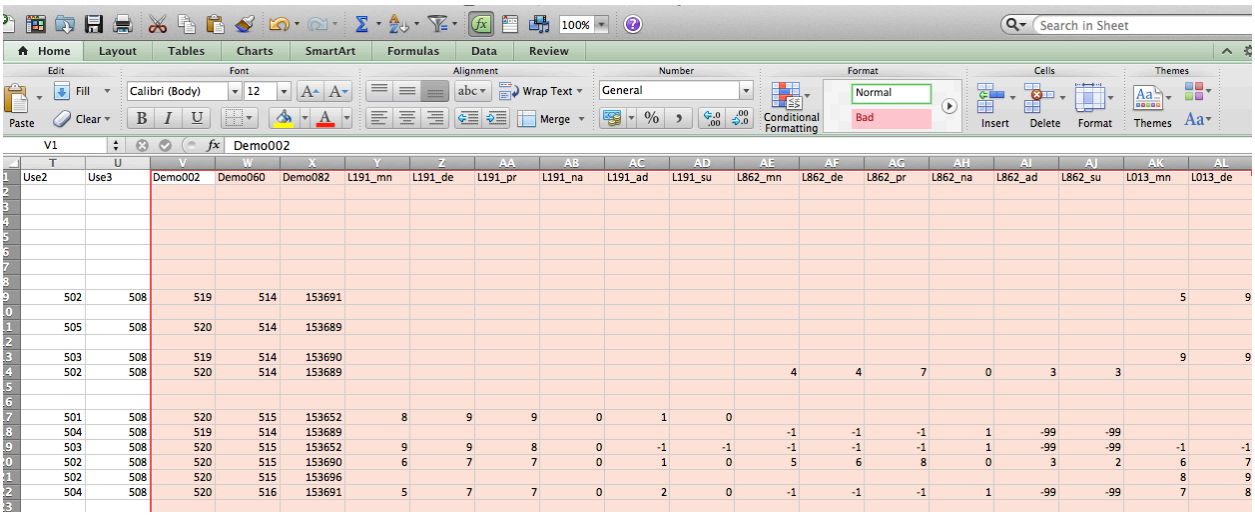


3. Delete all columns before UGroupID and all columns between UGroupID and D1AvgMin. Then delete columns D1AdqGap, D1SupGap, D2AdqGap, D2SupGap, D3AdqGap, and D3SupGap.



¡»¿DataID	SurveyID	UserID	InstID	TypeID	LangID	DiscID	DiscLOCA	UGroupID	RoleID	ConsID	Browser	Complete	Active	Start	Stop
1	8436	3795180	19	1	1						Mozilla/4.0 (	0	0	##########	
2	8436	3795181	19	1	1						Mozilla/4.0 (	0	0	##########	
3	8436	3795184	19	1	1						Mozilla/4.0 (	0	0	##########	
4	8436	3795187	19	1	1						Mozilla/4.0 (	0	0	##########	
5	8436	3863164	19	1	1						Mozilla/4.0 (	0	0	##########	
6	8436	3875401	19	1	1						Mozilla/4.0 (	0	0	##########	
7	8436	3954775	19	1	1						Mozilla/4.0 (	0	0	##########	
8	8436	3957688	19	1	1	496	152322	521	529		Mozilla/5.0 (	1	1	##########	##########
9	8436	3957693	19	1	1						Mozilla/5.0 (	0	0	##########	
10	8436	3957697	19	1	1	487	152313	521	528		Mozilla/5.0 (	1	1	##########	##########
11	8436	3957706	19	1	1						Mozilla/5.0 (	0	0	##########	
12	8436	3957731	19	1	1	489	152315	521	527		Mozilla/5.0 (	1	1	##########	##########
13	8436	3957737	19	1	1	495	152321	521	527		Mozilla/5.0 (	1	1	##########	##########
14	8436	3957758	19	1	1						Mozilla/5.0 (	0	0	##########	
15	8436	3957759	19	1	1						Mozilla/5.0 (	0	0	##########	
16	8436	3957760	19	1	1	496	152322	522	533		Mozilla/5.0 (	1	1	##########	##########
17	8436	3957761	19	1	1	495	152321	521	529		Mozilla/5.0 (	1	1	##########	##########
18	8436	3957762	19	1	1	495	152321	522	533		Mozilla/5.0 (	1	1	##########	##########
19	8436	3957765	19	1	1	489	152315	522	533		Mozilla/5.0 (	1	1	##########	##########
20	8436	3957769	19	1	1	491	152317	522	533		Mozilla/5.0 (	1	1	##########	##########
21	8436	3957771	19	1	1	484	152310	522	532		Mozilla/4.0 (	1	1	##########	##########
22	8436	3957776	19	1	1						Mozilla/5.0 (	0	0	##########	
23	8436	3957777	19	1	1	489	152315	522	532		Mozilla/4.0 (	1	1	##########	##########

4. Then delete all columns including and to the right of the “Demo” columns



Use2	Use3	Demo002	Demo060	Demo082	L191_mn	L191_de	L191_pr	L191_na	L191_ad	L191_su	L862_mn	L862_de	L862_pr	L862_na	L862_ad	L862_su	L013_mn	L013_de
502	508	519	514	153691													5	9
505	508	520	514	153689														
503	508	519	514	153690													9	9
502	508	520	514	153689							4	4	7	0	3	3		
501	508	520	515	153652	8	9	9	0	1	0								
504	508	519	514	153689							-1	-1	-1	1	-99	-99		
503	508	520	515	153652	9	9	8	0	-1	-1	-1	-1	-1	1	-99	-99	-1	-1
502	508	520	515	153690	6	7	7	0	1	0	5	6	8	0	3	2	6	7
502	508	520	515	153696													8	9
504	508	520	516	153691	5	7	7	0	2	0	-1	-1	-1	1	-99	-99	7	8

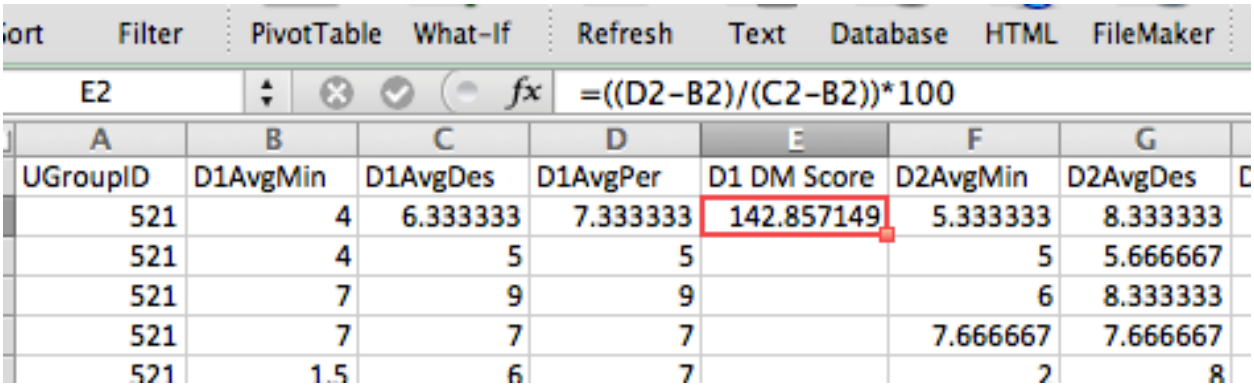
5. Sort by Column A/UGroupID

6. After deleting the unused columns, match the names of the columns with the data key (For example, change UGroupIDs to the correct name category)

7. Create columns for D-M Score (Ex: D1 D-M Score, D2 D-M Score, etc) and follow this Excel equation (replace the B, C, D with the applicable columns):

$$= ((D2-B2)/(C2-B2))*100$$

Hint: to apply equation to all columns, enter equation into the first cell and put cursor in corner until it creates a cross symbol then drag down to rest of column.



	A	B	C	D	E	F	G
	UGroupID	D1AvgMin	D1AvgDes	D1AvgPer	D1 DM Score	D2AvgMin	D2AvgDes
	521	4	6.333333	7.333333	142.857149	5.333333	8.333333
	521	4	5	5		5	5.666667
	521	7	9	9		6	8.333333
	521	7	7	7		7.666667	7.666667
	521	1.5	6	7		2	8

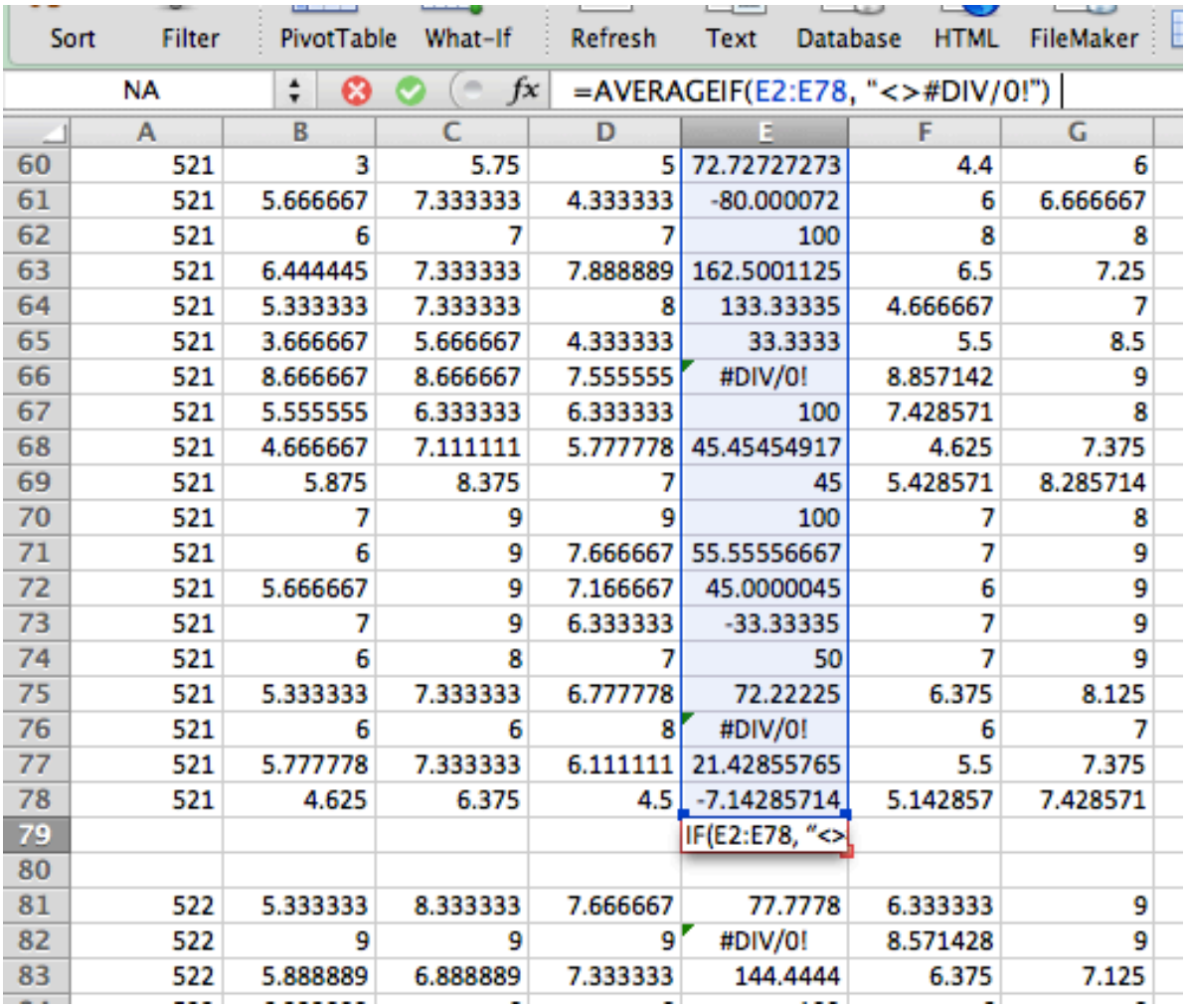
8. Split rows between user groups. Insert two blank rows.

67	521	5.555555	6.333333	6.333333	100	7.428571	8	8.142858
68	521	4.666667	7.111111	5.777778	45.45454917	4.625	7.375	6
69	521	5.875	8.375	7	45	5.428571	8.285714	6.857143
70	521	7	9	9	100	7	8	7.666667
71	521	6	9	7.666667	55.55556667	7	9	7.333333
72	521	5.666667	9	7.166667	45.0000045	6	9	7.75
73	521	7	9	6.333333	-33.33335	7	9	6.666667
74	521	6	8	7	50	7	9	8
75	521	5.333333	7.333333	6.777778	72.22225	6.375	8.125	7.625
76	521	6	6	8	#DIV/0!	6	7	7
77	521	5.777778	7.333333	6.111111	21.42855765	5.5	7.375	6
78	521	4.625	6.375	4.5	-7.14285714	5.142857	7.428571	5.428571
79								
80								
81	522	5.333333	8.333333	7.666667	77.7778	6.333333	9	7.333333
82	522	9	9	9	#DIV/0!	8.571428	9	5.857143
83	522	5.888889	6.888889	7.333333	144.4444	6.375	7.125	7.375
84	522	6.333333	8	8	100	6	8	7.666667
85	522	6.444445	8	7.888889	92.85714745	5.625	7.75	7.25
86	522	6.571429	7.285714	7.857143	180.00014	6	7.333333	8.166667
87	522	5.666667	6.666667	8.333333	266.6666	6.666667	7.666667	8
88	522	8	9	8	0	9	9	9
89	522	6.333333	9	8.333333	74.99999063	7.5	9	8
90	522	6	7	3.5	-250	6.714286	7.571429	6.714286
91	522	5.444445	7.444445	8.111111	133.3333	5.875	8.125	8.25
92	522	6.555555	8.888889	7.555555	42.85713061	8.75	9	8.25
93	522	8	9	9	100	7.333333	9	9
94	522	9	9	9	#DIV/0!	7	7	7
95	522				#DIV/0!	5	9	7

9. For the average D-M score, enter this formula at the bottom of the column

=AVERAGEIF(E2:E616, “<>#DIV/0!”)

Hint: Then for D2 D-M score, apply D-M formula, use same steps but make sure to change to correct columns.



	A	B	C	D	E	F	G
60	521	3	5.75	5	72.72727273	4.4	6
61	521	5.666667	7.333333	4.333333	-80.000072	6	6.666667
62	521	6	7	7	100	8	8
63	521	6.444445	7.333333	7.888889	162.5001125	6.5	7.25
64	521	5.333333	7.333333	8	133.33335	4.666667	7
65	521	3.666667	5.666667	4.333333	33.3333	5.5	8.5
66	521	8.666667	8.666667	7.555555	#DIV/0!	8.857142	9
67	521	5.555555	6.333333	6.333333	100	7.428571	8
68	521	4.666667	7.111111	5.777778	45.45454917	4.625	7.375
69	521	5.875	8.375	7	45	5.428571	8.285714
70	521	7	9	9	100	7	8
71	521	6	9	7.666667	55.55556667	7	9
72	521	5.666667	9	7.166667	45.0000045	6	9
73	521	7	9	6.333333	-33.33335	7	9
74	521	6	8	7	50	7	9
75	521	5.333333	7.333333	6.777778	72.22225	6.375	8.125
76	521	6	6	8	#DIV/0!	6	7
77	521	5.777778	7.333333	6.111111	21.42855765	5.5	7.375
78	521	4.625	6.375	4.5	-7.14285714	5.142857	7.428571
79					IF(E2:E78, "<>		
80							
81	522	5.333333	8.333333	7.666667	77.7778	6.333333	9
82	522	9	9	9	#DIV/0!	8.571428	9
83	522	5.888889	6.888889	7.333333	144.4444	6.375	7.125

10. To get results for OUT and SAT average first row and last row for each user group

11. To get results for USE, manually count each time the number of usage term appears. For example, count the number of “daily, weekly, monthly, quarterly, and never” appears for all undergraduates.

12. Enter the data into a separate spreadsheet to create graphs.

Part B. How to Create Graphs

The data from each year has to be extracted and compiled onto one spreadsheet in order to make a graph. There are different instructions to compile the D-M score data, the “OUT/SAT” data, and the “USE” data.

D-M Score Graphs
1. Create a spreadsheet where the columns are the user groups and the rows are survey years.

2. Make a separate table for each D-M score topic (affect of service, library as place, and information control).

3. Enter in data from annual LibQUAL+ data. If there is a value that is not available, do not put "N/A." Use the Excel equation =NA(). When creating the graphs, this means this data point is skipped instead of being interpreted as a zero.

4. Highlight the table and choose a graph format (line or scatter is preferred).

5. Format the graph with axis labels and a title.

OUT/SAT Graphs
1. Create a spreadsheet where the columns are the user groups and the rows are survey years.

2. Make a separate table for each OUT or SAT question asked.

3. Enter in data from annual LibQUAL+ data. If there is a value that is not available, do not put "N/A." Use the Excel equation =NA(). When creating the graphs, this means this data point is skipped instead of being interpreted as a zero.

4. Highlight the table and choose a graph format (line or scatter is preferred).

5. Format the graph with axis labels and a title.

USE Graphs
1. Create a spreadsheet where the columns are the survey years and the rows are the question responses (daily, weekly, monthly, quarterly, or never).

2. Make a separate table for each user group (undergraduate, graduate, faculty, library staff, and staff).

3. Enter in data from annual LibQUAL+ data. If there is a value that is not available, do not put "N/A." Use the Excel equation =NA(). When creating the graphs, this means this data point is skipped instead of being interpreted as a zero.

4. Highlight the table and choose "Column" graph, stacked column.

5. Format the graph with axis labels and a title.

C. How to update graphs for LibQUAL+ Data

1. Open the applicable excel file and add a column for the new year (for example 2015). Enter in the new data.

2. Right click on the graph you want to update and choose “Select Data” and expand the data range to include the new year’s data. The graph should automatically update and redraw any trend lines.