POSING QUESTIONS

Words with Friends

My friend Jeff likes to play Words with Friends against his computer. He keeps track of many variables for each game that he plays, and he records the results in a spreadsheet. The following image shows the first ten rows (from a total of 1,306 rows) in his spreadsheet:

	A	B	C	D	E	F	G	H	I	J	K
1	Points	OppPoints	Diff	Result	Start	Blanks	Ss	J?	Q?	X?	Z?
2	357	302	55	win	first	0	4	yes	no	yes	yes
3	386	311	75	win	first	0	2	no	no	no	no
4	434	364	70	win	pass	0	2	yes	no	no	no
5	418	357	61	win	first	1	1	yes	no	yes	yes
6	411	356	55	win	first	1	3	no	yes	no	yes
7	373	261	112	win	first	2	1	no	no	yes	no
8	367	343	24	win	first	0	2	no	yes	yes	yes
9	294	254	40	win	pass	0	5	no	yes	no	no
10	383	331	52	win	pass	1	0	no	no	yes	yes

a) What are the observational units? Do these appear in rows or columns of the spreadsheet? How many observational units are in the spreadsheet?

b) How many variables are shown here? Do these appear in rows or columns of the spreadsheet? How many are categorical, and how many are numerical?

c) Pose some statistical questions that could be investigated with these data, involving:

i. one categorical variable

ii. one numerical variable

iii. two categorical variables

Acknowledgment: Material from Dr. Allan Rossman

iv. one categorical and one numerical variable

v. two numerical variables

d) Pose a statistical question about these data for which comparative boxplots would be an appropriate graph.

e) Pose a statistical question about these data for which calculating multiple proportions would be appropriate.

f) Pose a statistical question about these data for which one-way ANOVA would be appropriate but a two-sample *t*-test would not be appropriate.

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