

1 Computer Assignment 1

Use SPSS to do the computations. Print the SPSS output and submit it. Use the SPSS to answer the questions.

1. At the beginning of the semester, the difficulty of counting was illustrated by counting the number of e's on a page. Spring semester STAT51 students counted the number of e's, and they reported:

188 212 1432 318 209 243 378 233 250 247 290 201
306 232 267 300 240 400 402 212 308 296 280 200
405 241 257 290 265 379 311 379 300 380 215 375
427 1512 134 333 242 378 300 382 255 327 240 312
294 238 250 234 284 261 318 229 248 416

- (a) Make a histogram.
- (b) Make a box plot.
- (c) What is the size of sample, n .
- (d) Compute the sample mean, \bar{x} .
- (e) Compute the sample median.
- (f) Compute the sample variance, s^2 .
- (g) Identify any outliers.

2. Construct Correlation Matrix

Student	IQ	Anxiety	Exam Scores
1	140	14	42
2	130	20	44
3	120	29	35
4	119	6	30
5	115	20	23
6	114	27	27
7	114	29	25
8	113	30	20
9	112	35	16
10	111	40	12

- (a) Construct the correlation matrix.
 - (b) Which variables are positively correlated and which ones are negatively correlated?
3. Find the correlation matrix for the following set of data.
 - (a) Which variables are positively correlated and which ones are negatively correlated?

Sweet	Sour	Bitter
15.02	346.22	17.23
12.48	404.41	17.55
14.28	364.06	17.95
14.67	359.25	17.66
13.68	349.13	15.96
16.69	250.51	15.00
17.28	259.72	14.48
15.58	368.54	18.16
15.93	286.62	14.75
13.79	314.14	14.57
11.78	407.80	16.87
10.97	392.60	15.18

State	1	2	3	4	5	6	7	8	9	10	11	12	13
EBI (x)	61	64	47	45	42	38	34	35	45	45	43	51	41
Eating out (y)	2.6	2.2	2.5	2.3	2.5	2.4	1.5	2.0	2.4	3.2	2.7	2.2	2.1

4. The *effective buying income* (EBI) of a family and the amount of money that a family spends on eating out according to a marketing economist are related by a linear fixed effects model. The following table of data shows the average EBI and the average expenditure on eating out for thirteen states in thousands of dollars.

- (a) Plot the data. Use EBI for the x variable and use Eating out as the y variable.
- (b) Is there something obvious in the data?

Recipes

- Variable View → VAR00001 → x and VAR00002 → y, etc.
- Graphs → Histogram → x → Variable
- Graphs → Scatter → Define → x → XAxis and y → YAxis
- Graphs → Boxplot → Simple and Summaries of Separate Variables → Define move x → Boxes Represent
- Analyze → Descriptive Statistics → Frequencies → move x, y, and z to Variables then → Statistics → check Quartiles, Mean, Median, Min, Max, STD, Variance, Range
- Analyze → Correlate → Bivariate → move x, y, and z to Variables