

# The regressx data

February 3, 2011

The data:

```
subjno timedrs phyheal menheal stress
1 1 5 8 265
2 3 4 6 415
3 0 3 4 92
4 13 2 2 241
5 15 3 6 86
6 3 5 5 247
7 2 5 6 13
8 0 4 5 12
9 7 5 4 269
10 4 3 9 391
11 15 6 3 237
12 0 3 5 13
13 2 3 10 84
14 13 6 9 144
15 2 3 2 135
16 2 3 4 291
21 1 3 1 98
22 2 7 8 233
23 5 4 6 147
24 5 7 13 308
25 3 4 12 122
26 4 2 3 307
27 2 3 4 248
28 0 5 14 122
29 13 7 10 384
30 7 8 11 433
31 2 6 9 260
32 12 9 12 313
33 2 3 8 400
34 5 7 9 328
35 4 8 4 266
36 6 8 14 422
```

37 2 6 16 101  
38 3 4 11 168  
39 14 9 12 402  
40 7 8 10 302  
45 0 6 0 83  
46 1 2 7 244  
47 3 3 6 171  
48 60 7 6 271  
49 5 2 0 53  
50 3 5 4 59  
51 0 7 6 85  
52 3 5 10 64  
53 2 2 0 338  
54 1 2 4 134  
55 1 2 1 70  
56 13 8 12 320  
57 2 2 1 91  
65 5 8 6 270  
66 12 7 12 136  
67 12 10 18 142  
68 1 2 4 259  
69 20 3 6 174  
70 0 2 3 13  
71 5 5 3 390  
72 0 3 3 242  
73 8 6 3 103  
74 9 5 5 338  
75 10 9 8 436  
76 1 4 3 120  
77 5 4 7 361  
78 5 4 4 293  
79 23 12 4 237  
80 7 8 15 244  
81 1 2 4 181  
82 39 4 7 265  
83 2 2 1 38  
84 7 5 5 157  
85 9 4 10 197  
86 0 6 11 159  
87 4 5 5 75  
88 16 10 5 207  
89 0 4 4 83  
90 16 3 11 222  
91 33 4 6 200  
95 4 6 11 251  
97 2 3 6 218

98 38 12 11 237  
99 8 4 7 139  
101 2 8 12 464  
102 2 3 5 128  
103 0 2 1 0  
104 15 8 8 334  
105 0 3 0 55  
106 1 2 2 169  
107 5 5 9 77  
108 7 4 3 112  
109 10 6 3 164  
110 22 7 8 172  
111 10 4 7 271  
112 0 3 2 69  
113 11 3 2 106  
114 9 3 1 214  
115 0 2 1 10  
116 34 10 15 321  
117 3 3 4 172  
118 1 2 8 320  
119 0 4 0 26  
120 10 8 11 194  
121 4 2 1 122  
122 27 6 13 565  
123 7 8 18 433  
124 1 3 2 314  
125 7 6 4 129  
126 3 5 10 209  
127 2 4 10 417  
128 11 6 13 427  
129 9 5 5 179  
130 11 8 15 174  
131 11 5 12 361  
132 8 6 5 107  
133 2 7 18 338  
134 4 4 8 197  
135 4 5 1 44  
136 6 5 6 345  
137 30 11 9 238  
138 7 6 11 225  
139 15 9 8 531  
140 6 11 12 206  
141 7 7 6 68  
142 2 5 3 12  
143 1 2 2 155  
144 5 5 8 220

145 1 3 16 377  
146 11 7 1 241  
148 16 8 7 165  
149 2 2 1 356  
150 14 6 5 81  
151 8 5 9 81  
152 17 8 15 169  
153 1 2 6 168  
154 0 2 2 72  
155 1 2 0 105  
156 1 3 2 41  
157 10 7 16 334  
158 7 6 13 282  
159 2 3 0 93  
160 5 4 5 227  
166 6 4 12 310  
167 1 3 1 265  
183 16 9 12 272  
184 0 6 5 207  
185 17 11 17 534  
187 0 4 1 169  
190 10 3 8 577  
192 6 8 2 236  
202 20 7 5 62  
203 1 3 3 64  
204 25 4 6 160  
205 3 5 3 130  
206 6 3 0 270  
208 0 2 0 50  
210 8 5 10 149  
212 9 9 4 312  
213 19 7 10 303  
214 2 2 0 133  
225 2 3 7 278  
226 3 2 0 441  
227 7 4 5 253  
228 2 4 16 256  
229 8 6 5 127  
230 49 10 9 113  
231 2 3 7 221  
232 1 2 6 279  
233 5 6 7 189  
234 5 3 13 282  
235 60 6 11 529  
236 10 4 2 236  
237 27 3 8 392

238 7 6 8 216  
239 8 5 8 13  
240 12 5 0 245  
241 2 3 1 194  
242 2 3 3 74  
243 4 4 2 306  
244 6 7 9 235  
245 27 12 12 304  
246 0 2 5 352  
247 9 10 8 98  
248 3 2 5 75  
249 0 4 4 128  
250 2 3 4 171  
251 3 3 4 82  
252 5 4 1 268  
253 5 6 9 100  
254 1 4 6 271  
255 7 6 4 112  
258 4 6 5 301  
259 3 5 4 174  
260 7 6 7 336  
261 1 2 6 63  
262 52 6 6 225  
263 6 6 6 421  
264 18 8 7 597  
265 14 5 2 13  
266 0 3 6 71  
267 8 8 17 88  
268 16 5 1 20  
269 2 4 3 94  
270 12 6 5 174  
271 3 6 1 214  
272 24 8 8 147  
273 0 3 2 80  
274 0 4 1 69  
276 57 11 4 268  
277 11 8 13 138  
278 1 4 6 196  
279 18 9 10 546  
280 1 2 1 112  
289 11 4 7 265  
290 0 4 2 254  
291 52 6 2 156  
292 12 7 8 257  
293 6 5 6 170  
294 0 2 7 160

295 2 3 2 426  
299 2 5 12 159  
300 13 5 13 104  
301 2 3 0 59  
302 3 5 1 63  
303 2 5 3 185  
304 2 6 10 211  
305 1 8 11 358  
306 2 2 0 69  
307 3 5 1 488  
308 1 3 4 89  
309 5 4 6 330  
310 6 6 9 67  
311 1 4 3 76  
312 2 3 3 391  
313 3 4 1 202  
314 7 6 13 126  
315 7 6 5 82  
316 0 2 1 164  
317 7 5 13 81  
318 8 9 1 143  
319 9 7 4 204  
320 8 2 5 97  
321 1 3 7 152  
322 14 7 13 160  
323 2 4 4 79  
324 4 3 6 102  
325 8 3 11 520  
326 3 4 5 88  
327 10 5 9 162  
328 21 9 16 191  
329 6 6 7 380  
330 58 5 6 328  
335 12 9 7 215  
336 5 3 4 183  
337 2 3 4 444  
338 2 6 11 122  
339 4 7 10 197  
340 2 4 4 153  
341 5 6 9 178  
342 0 2 0 0  
343 3 2 5 177  
344 7 5 3 371  
345 1 6 10 308  
346 2 2 5 33  
347 1 3 7 278

348 4 3 7 356  
349 4 5 4 191  
355 4 2 6 234  
357 2 3 6 101  
358 0 3 10 186  
359 13 5 3 275  
361 3 7 9 139  
362 1 3 7 37  
363 4 5 8 364  
365 1 3 0 25  
367 3 4 3 226  
369 1 4 6 180  
370 57 6 13 85  
372 1 2 4 49  
374 17 15 10 258  
378 11 8 5 99  
379 43 4 9 567  
380 6 7 1 13  
381 6 6 5 282  
382 1 3 1 171  
383 0 3 6 114  
384 10 11 7 266  
385 3 6 1 159  
386 37 4 14 263  
387 6 3 1 236  
392 11 6 2 129  
397 4 3 0 98  
398 75 9 12 244  
399 7 6 12 547  
400 3 6 15 347  
401 3 6 13 309  
402 3 5 9 264  
403 4 4 5 66  
404 5 5 7 330  
405 2 5 0 90  
406 4 6 3 462  
407 2 2 4 77  
413 11 7 15 432  
414 0 3 8 212  
417 2 7 6 228  
418 4 4 2 326  
420 6 8 10 594  
421 0 5 4 87  
424 2 4 5 440  
425 5 7 7 77  
434 2 5 8 63

435 10 7 12 389  
436 29 9 14 333  
437 3 7 9 99  
438 0 3 7 241  
439 21 3 8 476  
440 0 3 6 41  
441 3 3 4 17  
442 1 3 6 122  
443 9 4 3 337  
444 3 4 10 188  
445 3 3 3 228  
446 5 11 7 263  
447 6 4 2 139  
448 4 5 4 208  
451 16 5 5 101  
452 3 5 2 278  
453 13 8 8 331  
454 3 3 5 151  
455 2 4 4 135  
456 2 4 1 0  
457 3 5 1 208  
458 7 3 2 181  
459 2 3 0 104  
460 2 3 1 76  
461 2 2 0 211  
462 2 3 3 39  
463 5 5 1 150  
464 3 4 3 210  
465 2 3 0 15  
466 4 6 4 131  
467 1 2 0 0  
469 3 3 0 205  
472 6 4 2 163  
473 4 5 2 201  
474 30 6 1 224  
476 0 2 0 69  
479 25 2 2 62  
480 0 5 1 62  
481 5 3 3 204  
482 3 4 5 162  
483 2 2 5 221  
484 2 2 2 221  
485 9 12 6 348  
486 2 3 0 341  
487 13 3 3 336  
488 1 3 6 343



489 4 6 6 177  
490 4 3 8 274  
491 3 4 4 290  
492 7 10 2 174  
493 7 5 5 111  
494 14 3 2 246  
495 4 4 7 181  
496 15 6 10 336  
497 37 7 5 55  
498 2 4 8 178  
499 4 3 6 98  
500 6 5 12 85  
501 10 5 1 66  
502 56 8 2 316  
503 3 4 4 139  
504 0 2 2 28  
505 18 10 15 421  
506 3 4 5 237  
507 18 14 16 494  
508 7 4 8 66  
509 29 9 3 93  
510 0 2 7 90  
511 5 6 8 227  
512 4 5 6 273  
513 3 5 11 171  
514 6 6 8 76  
515 21 13 12 404  
516 1 2 5 12  
517 3 2 8 380  
518 3 3 3 101  
519 0 2 2 68  
520 13 7 12 282  
521 5 3 5 0  
522 5 4 5 277  
523 37 9 15 392  
524 2 4 1 49  
525 11 13 16 372  
526 13 6 12 482  
527 2 2 1 81  
528 4 5 5 76  
529 21 7 11 329  
530 2 4 6 12  
533 4 4 10 158  
534 3 4 5 15  
535 3 8 5 105  
536 12 5 7 266

538 1 2 2 0  
539 4 3 2 396  
540 13 9 7 920  
547 2 3 4 153  
548 81 5 7 731  
549 12 4 3 364  
550 2 2 3 33  
551 16 6 8 386  
552 27 9 6 79  
553 2 6 10 320  
554 2 4 1 178  
555 8 6 5 108  
556 2 3 1 157  
557 4 4 6 12  
558 3 3 3 25  
559 19 6 6 104  
560 4 3 3 91  
567 1 2 4 291  
568 3 2 8 85  
569 15 7 4 25  
570 4 5 6 130  
571 4 3 3 147  
572 13 10 12 155  
573 6 3 4 108  
574 1 5 9 523  
575 3 7 8 53  
576 3 5 6 306  
577 0 5 6 171  
578 22 7 5 158  
579 4 3 3 25  
580 14 6 4 398  
581 6 6 13 252  
582 16 5 14 538  
583 6 5 7 124  
584 0 3 7 75  
585 8 5 15 237  
586 0 3 4 118  
587 4 5 7 302  
588 5 8 10 170  
589 2 2 1 171  
590 6 4 7 73  
591 11 4 10 176  
592 1 4 3 176  
593 23 8 11 643  
683 4 4 12 179  
685 4 6 2 0

```

686 16 8 14 132
687 6 4 3 159
688 1 2 4 110
689 2 3 6 75
690 6 9 10 272
691 6 6 5 152
706 3 4 12 119
707 1 2 0 52
708 15 6 12 252
709 3 4 9 234
710 7 7 4 214
711 9 4 1 183
717 18 6 10 166
724 14 8 9 331
754 3 3 6 73
755 4 4 0 66
756 15 9 6 142
757 4 6 4 87
758 3 5 2 149

```

The SAS code and output:

```

options linesize=70;

data regr;
  infile "regressx.dat" firstobs=2;
  input subject timedrs phyheal menheal stress;

proc reg;
  model timedrs = phyheal menheal stress;
  output out=z1 p=pred1 r=res1;
  model timedrs = menheal;

proc plot vpercent=50 data=z1;
  plot res1 * pred1;

proc univariate plot;
  var res1;

data reg2;
  infile "regressx.dat" firstobs=2;
  input subject timedrs phyheal menheal stress;
  lgtime=log(timedrs+1);

proc reg;
  model lgtime=phyheal menheal stress;

```

```

test menheal=0, phyheal=0;
test menheal=0.02, phyheal=0.2;
output out=z2 p=pred2 r=res2;

proc plot vpercent=50;
plot res2*pred2;

```

The REG Procedure

Model: MODEL1

Dependent Variable: timedrs

Number of Observations Read 465

Number of Observations Used 465

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	12168	4056.10512	43.03	<.0001
Error	461	43451	94.25409		
Corrected Total	464	55619			
Root MSE	9.70845	R-Square	0.2188		
Dependent Mean	7.90108	Adj R-Sq	0.2137		
Coeff Var	122.87510				

Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t
Intercept	1	-3.70485	1.12420	-3.30	0.0011
phyheal	1	1.78695	0.22107	8.08	<.0001
menheal	1	-0.00967	0.12903	-0.07	0.9403
stress	1	0.01361	0.00361	3.77	0.0002

The REG Procedure

Model: MODEL2

Dependent Variable: timedrs

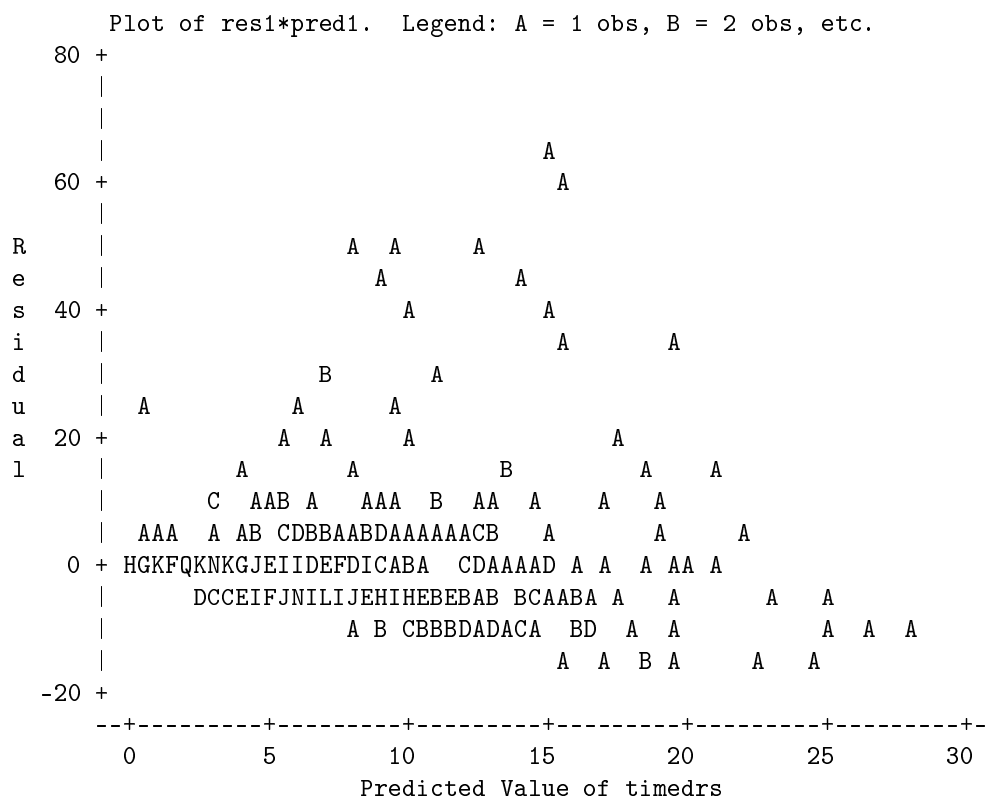
Number of Observations Read 465

Number of Observations Used 465

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	3632.84851	3632.84851	32.35	<.0001
Error	463	51987	112.28208		
Corrected Total	464	55619			

Root MSE	10.59632	R-Square	0.0653
Dependent Mean	7.90108	Adj R-Sq	0.0633
Coeff Var	134.11243		

Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t
Intercept	1	3.81588	0.87022	4.38	<.0001
menheal	1	0.66723	0.11730	5.69	<.0001



The UNIVARIATE Procedure  
Variable: res1 (Residual)

Moments			
N	465	Sum Weights	465
Mean	0	Sum Observations	0
Std Deviation	9.67701842	Variance	93.6446855
Skewness	3.34735403	Kurtosis	14.603265
Uncorrected SS	43451.1341	Corrected SS	43451.1341
Coeff Variation	.	Std Error Mean	0.44876098

Basic Statistical Measures			
Location		Variability	
Mean	0.00000	Std Deviation	9.67702
Median	-1.81468	Variance	93.64469
Mode	.	Range	80.67744
		Interquartile Range	5.25493

Tests for Location: Mu0=0			
Test	-Statistic-	-----p Value-----	
Student's t	t 0	Pr >  t	1.0000
Sign	M -86.5	Pr >=  M	<.0001
Signed Rank	S -19060.5	Pr >=  S	<.0001

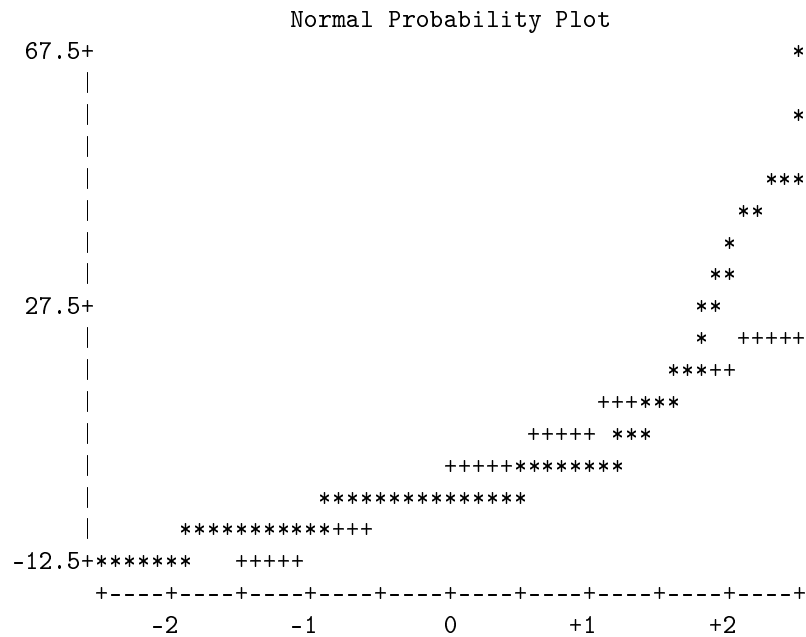
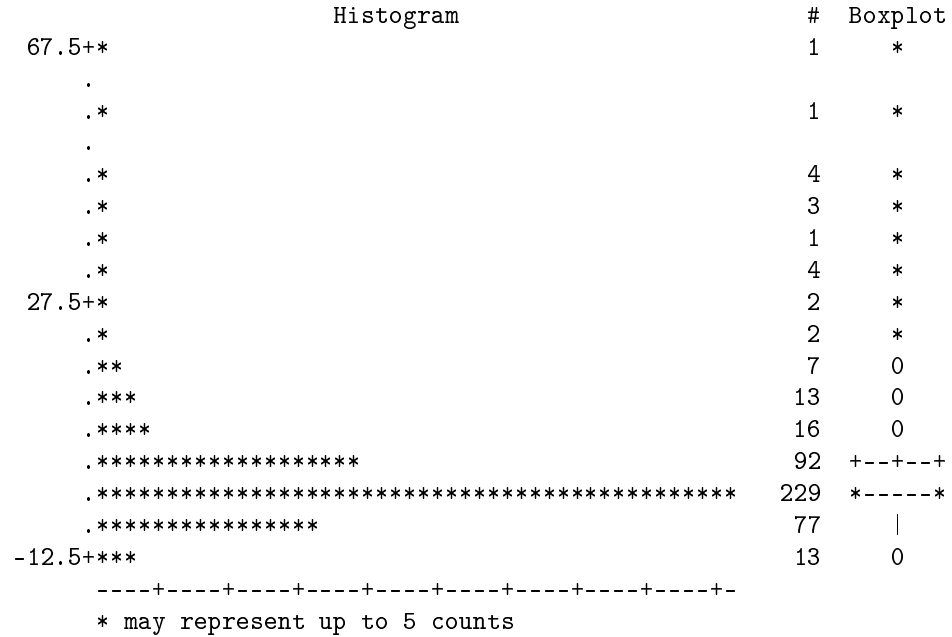
Quantiles (Definition 5)	
Quantile	Estimate
100% Max	65.885554
99%	47.564671
95%	15.610091
90%	6.798522
75% Q3	0.901696
50% Median	-1.814679
25% Q1	-4.353234
10%	-7.385004
5%	-9.311842
1%	-13.418388
0% Min	-14.791886

Extreme Observations			
-----Lowest-----		-----Highest-----	
Value	Obs	Value	Obs
-14.7919	81	47.5647	40
-14.4645	320	48.3625	249
-14.3584	224	48.9516	275
-13.4354	391	59.4164	290

-13.4184      351      65.8856      405

The UNIVARIATE Procedure

Variable: res1 (Residual)



The REG Procedure

Model: MODEL1

Dependent Variable: lgtime

Number of Observations Read 465

Number of Observations Used 465

#### Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	156.19705	52.06568	89.56	<.0001
Error	461	268.00870	0.58136		
Corrected Total	464	424.20574			

Root MSE	0.76247	R-Square	0.3682
Dependent Mean	1.70687	Adj R-Sq	0.3641
Coeff Var	44.67073		

#### Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t
Intercept	1	0.39039	0.08829	4.42	<.0001
phyheal	1	0.20194	0.01736	11.63	<.0001
menheal	1	0.00714	0.01013	0.71	0.4812
stress	1	0.00132	0.00028369	4.64	<.0001

The REG Procedure

Model: MODEL1

#### Test 1 Results for Dependent Variable lgtime

Source	DF	Mean Square	F Value	Pr > F
Numerator	2	51.73210	88.98	<.0001
Denominator	461	0.58136		

The REG Procedure

Model: MODEL1

#### Test 2 Results for Dependent Variable lgtime

Source	DF	Mean Square	F Value	Pr > F
Numerator	2	0.54126	0.93	0.3949
Denominator	461	0.58136		

Plot of res2\*pred2. Legend: A = 1 obs, B = 2 obs, etc.

|  
4 +  
|  
|



