Experimental Design and Data Analysis: Assignment 5

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Exercise 1

1

Talk about how this is made and add a small figure?

2

By using the R command xtabs(~medicine+nausea) we are able to create a contingency table of our data so far. As we can see in Table:

	No Nausea	Nausea
Chlorpromazine	100	52
Pentobarbital(100mg)	32	35
Pentobarbital(150mg)	48	37

Figure 1: Contingency table for all 3 drugs, and their effect

3

4

Exercise 2

1

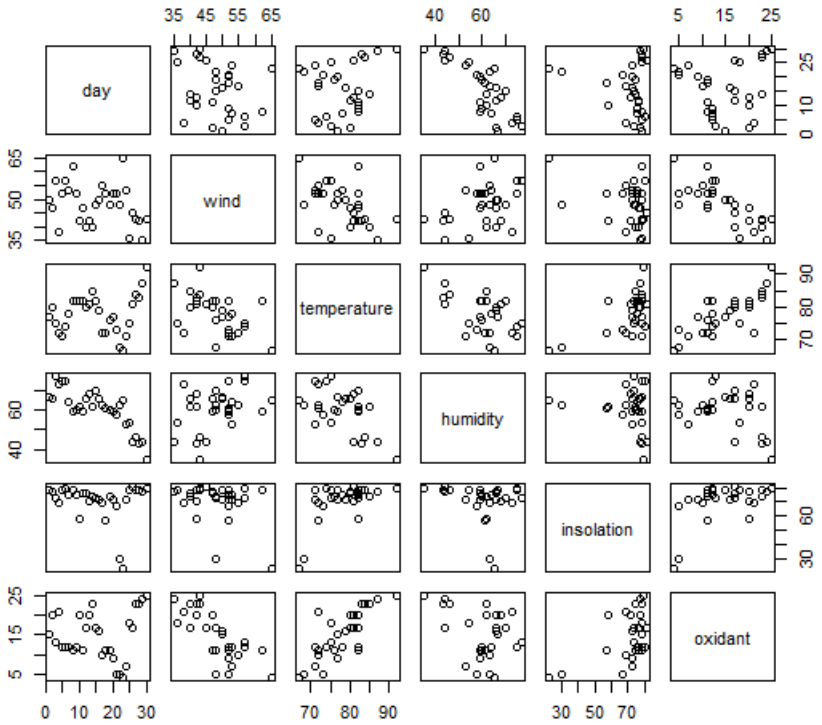

Figure 2: Pairplot of the airpollution data

2

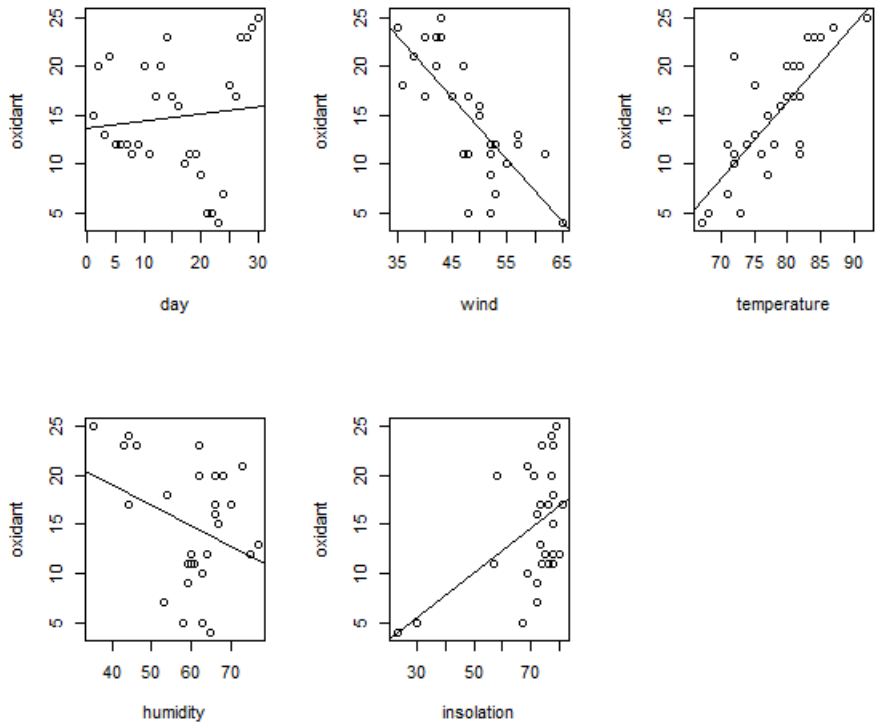

Figure 3: The linear regression of the explanatory variables

3

4

5

Exercise 3

1

2

3

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5

Exercise 4

Following the step-up method we get for the first variable:

Table 1: Results of 1-way Anova on square root of *genal.txt* data

Variable	R^2
Expend~Pop	0.9073
Expend~Employ	0.954
Expend~Lawyers	0.9373
Expend~Crime	0.1119
Expend~Bad	0.6964

Expend~Employ had the highest score, so we take this for the second step:

Table 2: Results of 1-way Anova on square root of *genal.txt* data

Variable	R^2
Expend~Employ+Pop	0.9543
Expend~Employ+Lawyers	0.9632
Expend~Employ+Crime	0.9551
Expend~Employ+Bad	0.9551

Expend~Employ+Lawyer had the highest score, so we take this for the third step:

Table 3: Results of 1-way Anova on square root of *genal.txt* data

Variable	R^2
Expend~Employ+Lawyers+Pop	0.9637
Expend~Employ+Lawyers+Crime	0.9632
Expend~Employ+Lawyers+Bad	0.9639

Adding these variables yield no significant change and so we stop at the second step. The result of Expend~Employ+Lawyer is:

```
Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept) -1.107e+02  4.257e+01  -2.600  0.01236 *
employ       2.971e-02  5.114e-03   5.810 4.89e-07 ***
lawyers      2.686e-02  7.757e-03   3.463  0.00113 **
Multiple R-squared:  0.9632
```

1 R-Code

1.1 Exercise 1

1.2 Exercise 2

1.3 Exercise 3

1.4 Exercise 4