Assignment 03

Out: 04/12
Due: 04/26

Instructions

Collaboration:

Collaboration on solving the assignment is allowed, after you have thought about the problem sets on your own. It is also OK to get clarification (but not solutions) from online resources, again after you have thought about the problem sets on your own. There are two requirements:

- Cite your collaborators fully and completely (e.g., "XXX explained to me what is asked in problem set 3"). Or cite online resources (e.g., "I got inspired by reading XXX") that helped you.
- Write your scripts and report independently - the scripts and report must come from you only.

Late Submission:

Late submissions will not receive full credit. Half credit will be awarded to correct solutions submitted within 24 hours of the original deadline. Otherwise, no credit will be given.

Submitting your assignment:

Submit your scripts and report via mail (pudc2020@mail.sustech.edu.cn) .

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1. [15 points] [RS] *The Statistical Sleuth: A Course in Methods of Data Analysis*
   P54 2.7 EXERCISES 21.

2. [15 points] [RS] *The Statistical Sleuth: A Course in Methods of Data Analysis*
   P83 3.8 EXERCISES 33.

3. [15 points] [RS] *The Statistical Sleuth: A Course in Methods of Data Analysis*
   P146 5.8 EXERCISES 23.

4. [15 points] Previous studies suggest that vegetarians may not receive enough zinc in their diets. As the zinc requirement is particularly important during the pregnancy, researchers conducted a study to determine whether vegatarian pregnant women are at greater risk from zinc level than are nonvegetarian pregnant women.

23 women were monitored: 12 vegetarians who were pregnant, 6 nonvegetarian who were pregnant, and 5 vegetarians who were not pregnant. None of these women was smokers, and none of the nonpregnant women was taking oral contraceptives. The zinc status in each woman was measured by zinc content in the blood, urine, and hair. The following table presents zinc levels in the hair.

What evidence is there that pregnant vegetarians tend to have lower zinc levels than pregnant nonvegetarians?

Pregnant nonvegetarians	Pregnant vegetarians	Nonpregnant vegetarians
185	171	210
189	174	139
187	202	172
181	171	198
150	207	177
176	125	
	189	
	179	
	163	
	174	
	184	
	186	

5. Please describe the general steps[10 points] and precautions[10 points] for hypothesis testing.

6. [20 points] Please compare Z-test(One-sample,Two-sample) , t-test(One-sample,Two-sample,Paired sample) and One-way ANOVA in detail.