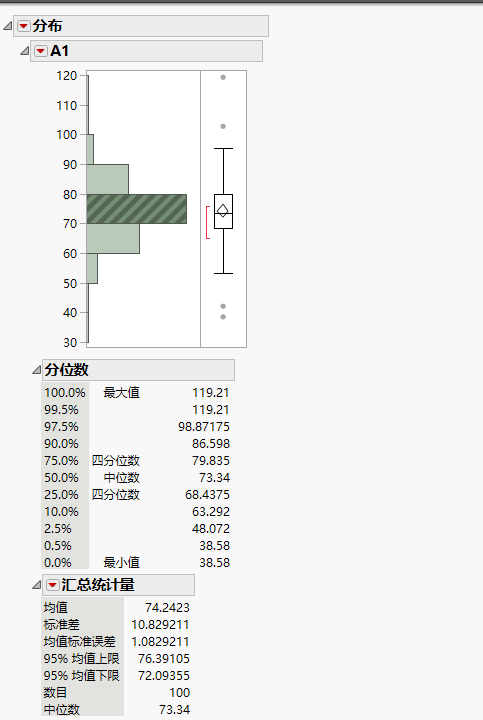
Weilin Lu

CS-699 HW2

Question 1

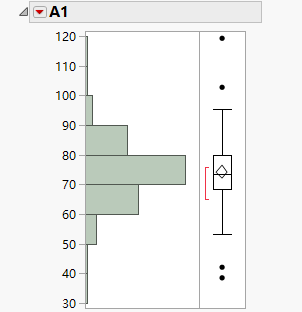


1:mean = 74.2423; median = 73.34; standard deviation = 10.829211

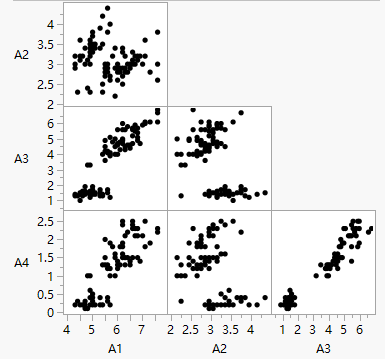
2:Q1 = 68.4375; Q2 = 73.34; Q3 = 79.835

3:IQR = Q3-Q1=79.835-68.4375=11.3975

4:



Question2:



By visual observation, it seems like A1A3 and A3A4 have the strongest correlation.

Question3:

d(P8,P9)=(p-m)/p=(7-2)/7=5/7

d(P8,P10)=(p-m)/p=(7-2)/7=5/7

According to the result showed above, they have same distance

Question4:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Object | A1 | A2 | A3 | A4 |
| O1 | 2 | 0.5 | 1 | 1 |
| O2 | 5 | 1 | 0.5 | 0 |

D(O1,O2)=Sqr root{(2-5)^2+(0.5-1)^2+(1-0.5)^2+(1-0)^2}=3.24

Question5:

A1:|27-52|/(73-12)=0.41

A2:1

A3:1

A4:1

A6: 1

A7:|0.5-0|/(1-0)=0.5

D(T6,T7)=(0.41+1+1+1+1+0.5)/6 =0.82

Question6:

D1\*D2=(3\*1+3\*1+2\*0+1\*3+2\*4+2\*2+4\*2+2\*3+2\*1+1\*1)=38

D1\*D3=(3\*2+3\*2+2\*1+1\*4+2\*0+2\*1+4\*0+2\*1+2\*2+1\*2)=28

||D1||=(3\*3+3\*3+2\*2+1\*1+2\*2+2\*2+4\*4+2\*2+2\*2+1\*1)^0.5=7.48

||D2||=(1\*1+1\*1+0\*0+3\*3+4\*4+2\*2+2\*2+3\*3+1\*1+1\*1)^0.5=6.78

||D3||=(2\*2+2\*2+1\*1+4\*4+0\*0+\*1+0\*0+1\*1+1\*1+2\*2)^0.5=5.92

cos(D1,D2)=38/(7.48\*6.78)=0.75

cos(D1,D3)=28/(7.48\*5.92)=0.63

So, D1 is closer to D3