ST30005 Multivariate Analysis
Tutorial 2
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Q1:

We'll look into the example discussed in week 2 lectures slide 10. See pages 7 & 9 of the text book for further information about this data set. In the lectures, we calculated the Euclidean distance with the raw variables. Now we'll calculate the Euclidean distances for standardised variables.

Your R output should produce this table at the end.

Table 5.2 Euclidean distances between seven canine groups

	Modern dog	Golden jackal	Chinese wolf	Indian wolf	Cuon	Dingo	Prehistoric dog
Modern dog	—						
Golden jackal	1.91	—					
Chinese wolf	5.38	7.12	—				
Indian wolf	3.38	5.06	2.14	—			
Cuon	1.51	3.19	4.57	2.91	—		
Dingo	1.56	3.18	4.21	2.20	1.67	—	
Prehistoric dog	0.66	2.39	5.12	3.24	1.26	1.71	—

Q2:

We'll try to re-produce the results given in the lecture slides 18. Data set is given in the Blackboard and we'll try to calculate the distances.

Q3:

Suppose you have 10 number of variables each with a mean value of 5. You modify the codes that we discussed in the lectures to answer the below questions.

1. Obtain a random varaince-covariance matrix.

2. Simulate 5000 values from a 10-dimensional multivariate normal distribution using the above parameters.

3. Draw a scatterplot matrix using the corrplot package.

4. Draw the bivariate normal density between the first and second simulated variables.