ISCS 539 – Data Analytics

Assignment #1

1. (5 points) What are the most appropriate scales for the following examples?
   1. university students' exam marks
   2. level of urgency in the emergency room of a hospital
   3. classification of the animals in a zoo
   4. carbon dioxide levels in the atmosphere.
2. (5 points) Consider Table 1, what is the binary representation of the object given in rows 3 and 4 of Table 1 with the three attributes, Refund, Marital Status and Cheat, using One-hot encoding?

Table 1. Data set 1

|  |  |  |  |
| --- | --- | --- | --- |
| *Tid* | Refund | Marital Status | Cheat |
| 1 | Yes | Single | No |
| 2 | No | Married | No |
| 3 | No | Single | No |
| 4 | Yes | Married | No |
| 5 | No | Divorced | Yes |
| 6 | No | Married | No |
| 7 | Yes | Divorced | No |
| 8 | No | Single | Yes |
| 9 | No | Married | No |
| 10 | No | Single | Yes |

1. (5 points) Discuss how you might map the values of an attribute from the interval [−100, 100] to the interval [0, 1].
2. (15 points) For the following vectors, x and y, calculate covariance, Pearson’s correlation and Spearman’s rank correlation. Justify your answers.

x=(2, −1, 0, 1, −2, −3), y=( −1, 1, −2, 0, 1, 2)