

CSC 522/ 422 - Automated Learning and Data Analysis

Midterm 1 - Solutions

1. (a) i. False - $d(x, y) \neq 0$ when $x = y$
ii. True
iii. True
(b) i. True
ii. True
iii. True
(c) (bonus) $d = -\log S$ or $d = (1 - S)/S$
2. (a) False
(b) False
(c) False
(d) True
(e) False
3. (a) Nominal
(b) Ratio
(c) Ordinal
(d) Interval
(e) Ratio
4. (a) i. 0.5
ii. 0.5
iii. 0
iv. 0
v. 0
vi. 0
(b) $A \rightarrow 1/4, B \rightarrow 1/2$ - Sally would choose B
5. (a) i. 4
ii. 4
iii. 3
iv. 4
v. 5
vi. 2
vii. 6
viii. - Extra Credit: 1

(b) Yes, there is a strong linear dependence between root length and sepal length. The length of the root is smaller than the sepal length

(c) Scatter Plot

6. (a) A: F \rightarrow F
T \rightarrow B: F \rightarrow T
T \rightarrow F

(b) C: F \rightarrow T
T \rightarrow F

(c)

| Actual | True | False |
|--------|------|-------|
| True | 0 | 2 |
| False | 1 | 2 |