

Fundamentals of Data Mining - Homework 3

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May 6, 2022

1 Question 1

All the answers to this question are at `./Q1/Q1.ipynb`

2 Question 2

All the answers to this question are at `./Q2/Q2.ipynb`

3 Question 3

Consider the input variable X to be $X : (Age = 0 - 9 \wedge Fever = True \wedge Fatigue = True \wedge Pain = False \wedge DryCough = False)$

$$\begin{aligned} P(Healthy|X) &= \frac{P(X|Healthy) \cdot P(Healthy)}{P(X)} \\ &= \frac{\left[\frac{P(Age = 0 - 9|Healthy) \cdot P(Fever = 1|Healthy) \cdot P(Fatigue = 1|Healthy) \cdot P(Pain = 0|Healthy) \cdot P(DryCough = 0|Healthy)}{P(X)} \right] \cdot P(Healthy)}{P(X)} \\ &= \frac{\left[\frac{5}{8} \cdot \frac{5}{8} \cdot \frac{7}{8} \cdot \frac{5}{8} \cdot \frac{1}{8} \right] \cdot \frac{1}{3}}{P(X)} = \frac{0.0089}{0.0361} = 0.2465 \end{aligned}$$

4 Question 4

All the answers to this question are at `./Q4/Q4.ipynb`

5 Question 5

All the answers to this question are at `./Q5/Q5.ipynb`

6 Question 6

All the answers to this question are at `./Q6/Q6.ipynb`

7 Question 7

All the answers to this question are at `./Q7/Q7.ipynb`

8 Question 8

All the answers to this question are at `./Q8/Q8.ipynb`

9 Question 9

All the answers to this question are at `./Q9/Q9.ipynb`

10 Question 10

All the answers to this question are at `./Q10/Q10.ipynb`

11 Question 11

All the answers to this question are at `./Q11/Q11.ipynb`
