COMP 1433 Quiz 1 (Tuesday)

1. Which of the following is(are) the big data's characteristic(s)? ABD
   A. volume
   B. velocity
   C. validity
   D. variety

refer to Lecture1 page50

2. Ling flipped two fair and independent coins together. She handed a random one to you and you observed that it is a head. Based on what you have observed, what is the probability that the flipping results in two heads? B
   A. 1/2
   B. 1/3
   C. ¼

The all circumstances: 00, 01, 10, 11. We have known one coin is 1, so all possible circumstances: 01, 10, 11. Then the probability of two coins are heads are 1/3.

3. In a hypothesis testing, if we observe a null hypothesis H0 exhibits a p-value 6.5%, we will: AD
   A. reject H0 at the level of significance 10%
   B. accept H0 at the level of significance 10%
   C. reject H0 at the level of significance 5%
   D. accept H0 at the level of significant 5%

refer to Lecture3 page33-33

4. Suppose that we have the following training documents:
   1) HK Shatin HK
   2) HK HK Kowloon
   3) HK PolyU
   4) Casino Macao HK

   The human annotators have labeled document 1)-3) to the class of "HK", while 4) to the class of "Macao". What is the estimated likelihood of observing the word "HK" in the class "HK" by counting the words in the training documents? B

   A. 6/11
   B. 5/8
   C. 3/4

D. 5/11

In class “HK”. There is totally 3+3+2=8 word, so the probability of observing word “HK” in these 8 words equals (2+2+1)/8 = 5/8.

5. Suppose a random variable X~N(0,1), i.e., X is standard normal. Its cumulative distribution function is $\Phi(X)$. If we know $\Phi(1.2) = 0.8849$, which of the following is(are) correct. AC
   A. $P(X \leq -1.2) = 0.1151$
   B. $P(X \leq -1.2) = 0.8849$
   C. $P(-1.2 \leq X \leq 1.2) = 0.7698$
   D. $P(-1.2 \leq X \leq 1.2) = 0.8849$

Firstly, draw the distribution curve, the curve is symmetrical between the y-axis.

Φ(1.2)=0.8849, means P(X<=1.2)=0.8849, so P(X>=1.2)=1-0.8849=0.1151.

So P(X<=-1.2)=P(X>=1.2)=0.1151.

So P(-1.2<=X<=1.2)=1-P(X<=-1.2)-P(X>=1.2)=1-0.1151-0.1152=0.7698.