Cooper Tush

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Assignment 5

Question 1

To find the entropy we need to use this formula:

A picture containing text

Description automatically generated

We have two unique classes and a total of 10 classes in total. 5 of the taste are Meh and 5 or the taste are Yummy. Using this info and data we can fit it into our formula and solve:

-5/10 \* log2(5/10) – 5/10 \* log2(5/10) = 0.5 + 0.5 = 1.0.

Question 2

We have three unique classes in defects. 3 have Many, 3 have Some, and 4 have None. All those that have the Some defect also have the Meh taste. With None defects, there are 2 that taste Meh and 2 that taste Yummy. Finally, those who have Many defects are all Yummy. Using this data and info we can find our answer by using the same formula used in Question 1.

3/10 \* (-3/3log2(3/3) + 4/10 \* (-2/4log2(2/4) – 2/4log2(2/4)) + 3/10 \* (-3/3log2(3/3) =

3/10 \* 0 + 4/10 \*(1/2 + 1/2) + 3/10 \* 0 =

0 + 4/10 \* (1) + 0 = 0.4

Now, we just need to subtract that from our answer in Question 1 to get the answer and we get 1.0 – 0.4 = 0.6.

Question 3

Using all the data and info we found in the previous questions, we can use it all to solve this problem.

H (Taste | Visual defect == Some) = -3/3log2(3/3) – 0log2(0) = 0 – 0 = 0

H (Taste | Visual defect == None) = -2/4log2(2/4) – 2/4log2(2/4) = 1/2 + 1/2 = 1