common cold: 0, lesion: 0

common cold: 0, lesion: 1

Synonyms

Mass

Is-A

Nodule

Explanation: First, report mentions acute coryza, which we can see from the SNOMED CT cards is a synonym for the common cold. Since it is a positive mention, we can safely say that the patient has a common cold. However, while mass is synonymous mass and lump, which are mentioned, they are negated. Therefore the

7. Let's see why F1 is used instead of the regular mean of precision and recall. Let's say the mean of precision and recall is at 1/1 point

Synonyms

Acute coryza

Is-A

Viral Upper Respiratory Tract Infection

common cold: 1, lesion: 1

common cold: 1, lesion: 0

label should be common cold: 1, lesion: 0.

least 0.75. Which of the following could be the true value of the precision?

✓ Correct

() 0.75

0.5

Both

0.75

0.5

Both

Neither

Correct

important.

Example

1

2

3

4

(0.5, 0.83)

(0.5, 0.8)

Label

1

1

0

0

Pneumonia

1/1 point

Patient exhibits acute coryza. No mass or

lump. No edema or effusion. Heart size

normal, lungs clear.

✓ Correct
Explanation: Here we see both are possible. If the precision is 0.75, then the recall just could be anything greater than 0.75, and if the precision is 0.5, then the recall could be 1 to keep the average at 0.75. Therefore a relatively high mean still permits quite a low precision.
8. Now let's say F1 score is at least 0.75. Now which of the following values of precision are possible?

9. Compute the F1 score for pneumonia and mass separately based on the following retrieved labels and ground truth:

Mass

1

0

1

0

Explanation: Here it is only A. We see that if we set precision and recall to 0.75, then the F1 score is

2*precision*recall / (precision + recall) = <math>2*0.75*0.75 / (0.75 + 0.75) = 0.75. Now let's see if we can use 0.5 for precision. Then the F1 score is 2*0.5*recall / (0.5 + recall) >= 0.75, which implies that recall / (0.5 + recall) >= 0.75.

0.75, which implies that recall >= 1.5, which is impossible. Therefore a precision of 0.5 is not possible. Here we

Ground Truth

Pneumonia

Ground Truth

Mass

1

Pneumonia

0

0

1

0

1

Mass

1

1

1

0

see that F1 encourages balancing of precision and recall, and therefore is good for tasks where both are

1 / 1 point

(0.	75, 0.8)
) No	one of the above
~	Correct Explanation: Let's begin with pneumonia. Both precision and recall are 0.5. Therefore the F1 score is $2*0.5*0.5$ / $(0.5+0.5)=0.5$. Next let's do mass. Recall was 2/3, while precision was 1. Computing the F1 score, we get $2*2/3*1$ / $(1+2/3)=0.8$. Therefore the correct answer is B. A was using the arithmetic mean, so be careful!

Example Pneumonia

1 1

Label

mean of the overall recall and precision.

10. Now compute the F1 score for all labels jointly:

1/1 point

	2	1	0	1	1
	3	0	1	0	1
	4	0	0	1	0
0	1.35				
0	0.61				

Mass

1

0	None of the above

0.66

Correct
Explanation: The overall recall is ¾, while the overall precision is ¾. Therefore the F1 score is 2*¾*¾ / (¾ + ¾) = 18/20 / 27/20 = 18/27 - 0.66. Therefore the correct answer is C. Note that it is not B, which is the harmonic mean of the individual class F1 scores, since 2*0.5*0.8 / (0.5 + 0.8) - 0.62, and it is not A, which is the arithmetic