Task 1

Age:

    young → reduced (4/5)

    28-38 → normal (3/5)   Overall Accuracy = 11/15

    39+ → normal (4/5)

Prescription:

    farsighted → normal (5/7)

                          Overall Accuracy = 10/15

    nearsighted → reduced (5/8)

Astigmatism:

    no → normal (4/7)

                        Overall Accuracy = 8/15

    yes → reduced (4/8)

1R : choose age

Test examples:

id	actual	predicted	
16	reduced	reduced	✓
17	normal	reduced	✗
18	reduced	reduced	✓
19	reduced	normal	✗
20	normal	normal	✓
21	normal	normal	✓
22	normal	normal	✓
23	reduced	normal	✗
24	normal	normal	✓

Overall Accuracy = 6/9
= 66.67%

Actual	Predicted	
	reduced	normal
reduced	2	2
normal	1	4

Task 2

Age: goodness = (11/15)/3 = 24.4%

Prescription: goodness = (10/15)/2 = 33.3%

Astigmatism: goodness = (8/15)/2 = 26.67%

$$\text{Prescription}$$

farsighted ↙   ↘ nearsighted
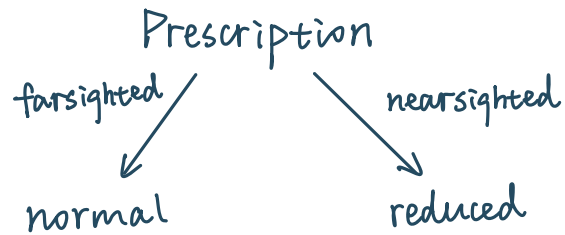
normal   reduced

For farsighted:

Age:

young → normal/reduced (1/2)

28-38 → normal/reduced (1/2)

39+ → normal (3/3)

Overall accuracy = 5/7

Goodness = (5/7)/2 = 35.7%

Astigmatism:

no → normal (3/4)

yes → normal (2/3)

Overall Accuracy = 5/7

Goodness = (5/7)/2 = 35.7%

No. Goodness are the same.

For nearsighted:

Age:

young → reduced (3/3)

28-38 → normal (2/3)

39+ → normal/reduced (1/2)

Overall Accuracy = 6/8

Goodness = (6/8)/2 = 37.5%

Astigmatism:

no → reduced (2/3)

yes → reduced (3/5)

Overall Accuracy = 5/8

Goodness = (5/8)/2 = 31.25%

Yes. choose age.

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                    ( Prescription )
          farsighted /              \ nearsighted
                    /                \
            [ normal ]              ( age )
          ( 5 out of 7 )     young /   | 28-38    \ 39+
                                  /    |           \
                        [ reduced ] [ normal ] [ reduced / normal ]

                        ( 3 out of 3)  ( 2 out of 3)  ( 1 out of 2 )
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