Assignment 1 SENG474

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A for AGE:

young:

$$\frac{3}{24} \cdot \left[-\frac{2}{8} \cdot lag_2 \left(\frac{1}{8} \right) - \frac{1}{8} lag_2 \left(\frac{1}{8} \right) \right] = 0.5$$

pre-pre

 $\frac{2}{24} \cdot \left[-\frac{2}{8} lag_2 \left(\frac{1}{8} \right) - \frac{1}{8} lag_2 \left(\frac{1}{8} \right) \right] = 0.43.79$

presp

 $\frac{3}{24} \left[-\frac{1}{8} lag_2 \left(\frac{1}{8} \right) - \frac{5}{8} lag_2 \left(\frac{1}{8} \right) - \frac{1}{8} lag_2 \left(\frac{1}{8} \right) \right] = 0.3538$

$$total = 1.2867$$

For spectrode - prescrip

myape

 $\frac{12}{24} \left[-\frac{1}{12} lag_2 \left(\frac{1}{12} \right) - \frac{1}{12} lag_2 \left(\frac{1}{12} \right) \right] = 0.6922$

hyper

 $\frac{12}{24} \left[-\frac{3}{12} lag_2 \left(\frac{1}{12} \right) - \frac{3}{12} lag_2 \left(\frac{1}{12} \right) \right] = 0.5944$
 $total = 1.2866$

for astignatism

No

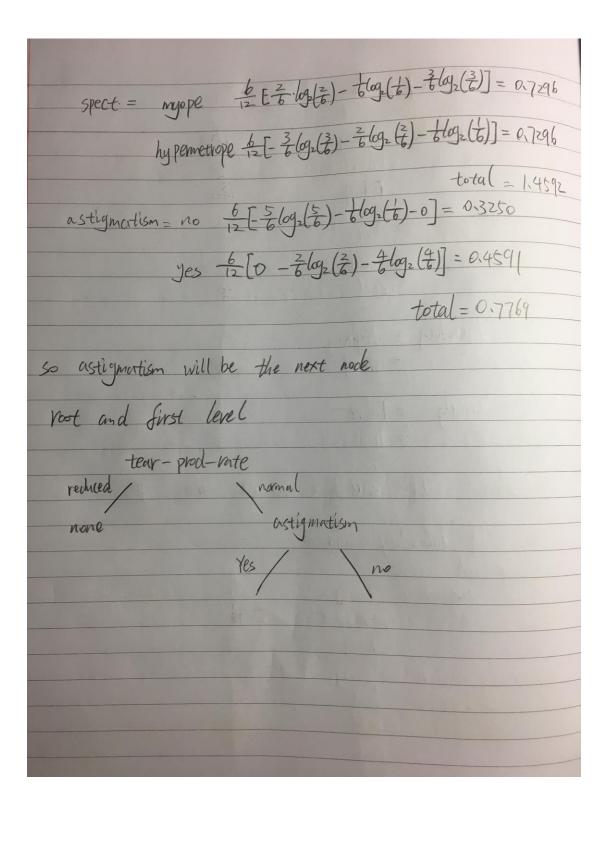
 $\frac{12}{24} \left[-\frac{5}{12} lag_2 \left(\frac{5}{12} \right) - \frac{7}{12} lag_2 \left(\frac{1}{12} \right) - 0 \right] = 0.4899$

Yes

 $\frac{12}{24} \left[0 - \frac{8}{12} lag_2 \left(\frac{8}{12} \right) - \frac{1}{12} lag_2 \left(\frac{4}{12} \right) \right] = 0.4899$

Total = 0.949

For tear- and
For tear-prod-rate reduced $\frac{12}{24} \begin{bmatrix} 0 & -\frac{12}{12} log_2(1) & 0 \end{bmatrix} = 0$
$\frac{12 \text{ Je}(1)}{24 \left[-\frac{5}{12} \log_2(\frac{5}{12}) - \frac{3}{12} \log_2(\frac{12}{12}) - \frac{4}{12} \log_2(\frac{4}{12})\right] = 0.7771}$
total = 0.777
So root is tear-prod-rate
For tear-prod-rate = reduced Expected info: 0
tear-prod-rate = normal
age = young info ([2, 0, 2+]) = $-\frac{7}{4}\log_2(\frac{2}{4}) - 0 - \frac{2}{4}(g_2(\frac{2}{4}) = 1)$ age = $e^{-\frac{1}{4}\log_2(\frac{2}{4})} - \frac{1}{4}\log_2(\frac{2}{4}) - \frac{1}{4}\log_2(\frac{2}{4}) - \frac{1}{4}\log_2(\frac{2}{4}) = 1.5$
$acge = presb$ $info([1,2,1]) = -\frac{1}{4}log_2(\frac{1}{4}) - \frac{1}{2}log(\frac{1}{2}) - \frac{1}{4}log_2(\frac{1}{4}) = 1.5$
Expected info: $1.\frac{4}{12} + 1.5.\frac{4}{12} + 1.5.\frac{4}{12} = 1.3333$



2. P(Yes) = 14 P(no) = \(\frac{1}{4} \) Possible tests For "Yes" Outlook = sunny \(\frac{1}{2} \) Overcast \(\frac{1}{4} \) Itemp = hot \(\frac{1}{4} \) Mind \(\frac{1}{4} \) Mind \(\frac{1}{4} \) In the side of \(\frac{1}{4} \) Windy = False \(\frac{1}{4} \) = run \(\frac{1}{4} \) Windy = False \(\frac{1}{4} \) Then: If outlook = avercast then yes \(\frac{1}{4} \) If hunding = namal \(\frac{1}{4} \) possible tests \(\frac{1}{4} \) Outlook = sunny \(\frac{1}{4} \) Temp = hot \(\frac{1}{4} \) Temp = hot \(\frac{1}{4} \) Then \(\frac{1}{4} \)	2. $P(Yes) = \frac{9}{14} P(no) = \frac{5}{14}$	
temp = hot	possible tests For "Yes"	
temp = hot	Outlook = sunny 2	
temp = hot	overcast 4	
temp = hot	lamy 3	
humidity = high = normal windy = False = \$\frac{1}{2}\$ = True = \$\frac{1}{2}\$ Then: If outlook = overcost then yes If humidity = normal possible tests outlook = surry = \$\frac{1}{2}\$ roiny = \$\frac{1}{2}\$ mild = \$\frac{1}{2}\$	$temp = hot \frac{2}{4}$	
humidity = high = normal windy = False = \$\frac{1}{2}\$ = True = \$\frac{1}{2}\$ Then: If outlook = overcost then yes If humidity = normal possible tests outlook = surry = \$\frac{1}{2}\$ roiny = \$\frac{1}{2}\$ mild = \$\frac{1}{2}\$	mild 4	
humidity = high = normal windy = False = \$\frac{1}{2}\$ = True = \$\frac{1}{2}\$ Then: If outlook = overcost then yes If humidity = normal possible tests outlook = surry = \$\frac{1}{2}\$ roiny = \$\frac{1}{2}\$ mild = \$\frac{1}{2}\$	600 3	
windy = False = Frue = True = Then: If outlook = avercast then yes If humidity = normal possible tests outlook = sunny = 7 rainy = hot = 1 mild = 3 mild = 3		
windy = False = 3 = True 3 = T	humidity = high =	
Then: If $virtlook = avercast$ then yes If $humidity = narmal$ $possible tests$ $outlook = sunny$ $rainy$ $\frac{z}{3}$ $temp = hot$ $mild$ $\frac{z}{3}$	= normal 7	
Then: If $\frac{1}{4}$ $\frac{1}{$	Winds - Falco 6	ya a sana
Then: If $virtlook = avercast$ then yes If $humidity = narmal$ $possible tests$ $outlook = sunny$ $rainy$ $\frac{z}{3}$ $temp = hot$ $mild$ $\frac{z}{3}$	= True 3	
If humidity = normal possible tests outlook = sunny rainy $\frac{2}{3}$ temp = hot $\frac{1}{2}$ mild $\frac{2}{3}$		
If humidity = normal possible tests outlook = sunny rainy $\frac{2}{3}$ temp = hot $\frac{1}{2}$ mild $\frac{2}{3}$	Then: If outlook = avercast then yes	
$\frac{z}{3}$ $\frac{z}{3}$ $\frac{1}{1}$ $\frac{1}{2}$ $\frac{z}{3}$	4	
$\frac{z}{3}$ $\frac{z}{3}$ $\frac{1}{1}$ $\frac{1}{2}$ $\frac{z}{3}$	If humidity = normal	
$\frac{z}{3}$ $temp = hot \qquad \frac{1}{2}$ $mild \qquad \frac{2}{3}$	possible tests	
temp = hot $\frac{1}{2}$ mild $\frac{2}{3}$	outlook = sunny	
temp = hot	2 3	
$\frac{1}{2}$	ramy	
$\frac{1}{2}$	to lost	
Cool 3	Temp = 1100 = 2	
Court	max 3	
	(No C	

windy = False = True	4 4 2 3
If humidity = normal and windy = False	then yes
possible tests outpook = sunny voiny	4
temp = hot mild cool	0
humidity = normal high	1/2
windy = False True choose mild	4
If temp = mild possible tests	
outlook = Sunny Valmy	1 3

humi di+u	= normal			
and the	= normal	<u></u>		
windy =	False True	1 2		
If temp = then ye	mild and	d humidity =	normal	
possible tests outlook =				
outlook =	ramy	3		
temp =	hot	0 1		· ·
	cool	0		
humidity	= normal = high	5		
windy	= false True	3		
	= jainy			
possible tests temp =	hot mild	0		
	cool	0		

huni	ditu = hidh	1/2	of the second
	dity = high normal	0	
uinde	1 = False	1 - 321	
1	True	0	
then	tlook = rainy yes.	and windy	= False
For "No" Possible tes	<u> </u>		1 tonis
	2 = 3unny	35	Mak
	roiny	ŧ	
7//	Overcost	0	
temp	= hot	2	
(mild	2 + 1=	
	cool	4	
humidita	j = high	4	
	normal	1	
Lind.	El.	2	No. No.
windy	= False True	3	
If outloo	z = sunny		600.1

possible tests				
	ot ild	2 1 2 0	1.43	
humidity =)	high	3 0		
windy = F	nie	2 1/2		
If outlook = then no	= Sunny	and	hamidity =	high
possible tests outlook =	sunny rainy overcast		0 2 5 0	
temp =	hot mild = cool		4 4	
hemidity	= high = normal		4-4-	

windy =	False 0
	True 5
If outlook =	boint :
possible tests	
temp =	hot
,	1
	Cool
humidity =	high ±
7	hormal 3
Windy	- Falca O
vmog	True $\frac{3}{2}$
If outlook = vo	my and windy = True
then no.	
Prism rules: If	outlook = overcast then yes
Id	himidity = normal and windy = False than yes
If	temp = mild and hunidity = normal than yes
14	outlook = rainy and wholy = False then yes
<u></u>	outlook = sunny and humidity = high then no outlook = rainy and windy = True then no
4	outlook - round and umay = True then no

