## Name Bays classifier



FOR Man Lumurian



No.E -

08365

PLEMENTARY SHEET (4 PAGES)

TO BE FILLED IN BY THE CANDIDATE:-

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1. Subject Likelyhood P(CIX) = P(XIC) P(c) t class prior probability

P(X) < Predictor prior probability

Posterior probability

The steps to compute posterior probability

- Construct the Gregnency table
- 2) Transborn the brequency table into likely bood.
- 3) The class with highest posterior is the outcome.

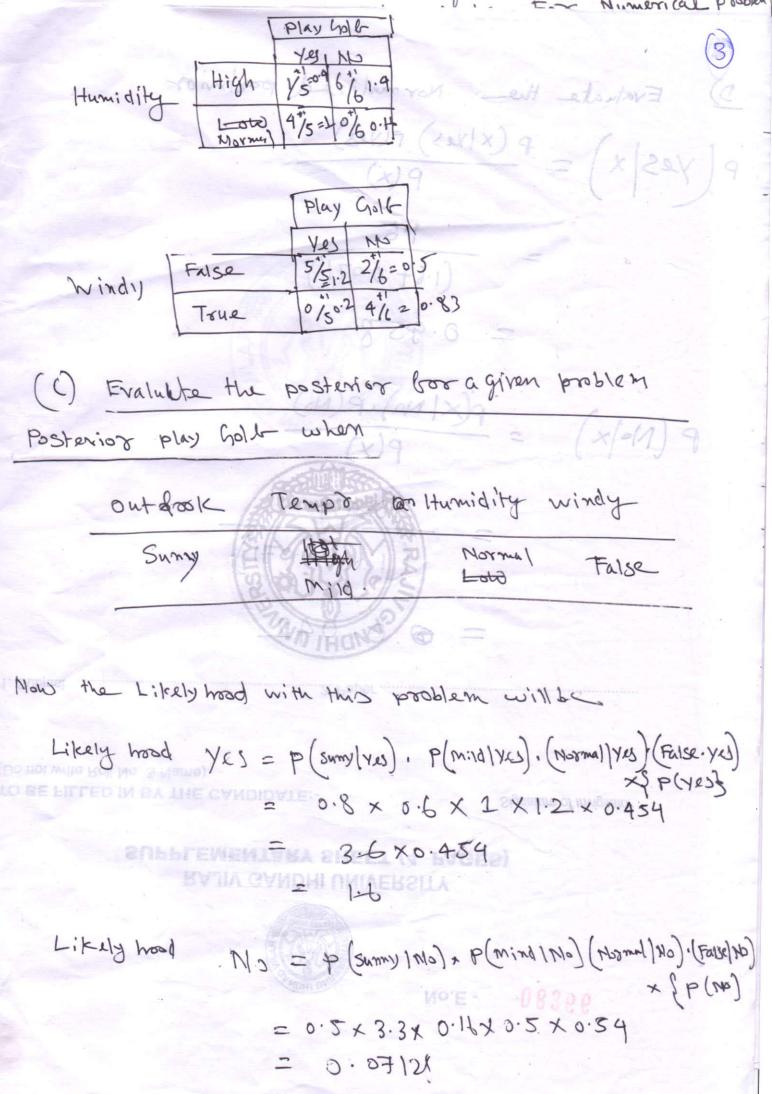
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1	0	)
1-	<	-)
1		/

outlook of weather	Tempt	Humidity	windy	Cluss Play holf
Rainy	Hot	high	False	No
Painy	Itot	High	True	No
Sunay	mild	nigh	False N	Yes.
Sunny	Coolyman	Normal .	False	Y23.
Rainy	Mild	High	False	No
Rainy	Coo \ 4113	Mormal	Falge	Yes
Sunny	Mild	Norma)	False	Yes:
Sunny	tantot 7	High	True CM	ONSW
Rainy	Cool	High	True	No
Rainy	Cool	Norma)	False	725
Sunny	Hot S	1+igh	Tone	1/0

(a) First we have to calclute the priso brom the class

Prior of Play Golf YeS =  $\frac{5}{11}$  = 0.454 Prior of Play Golf No =  $\frac{6}{11}$  = 0.545 P(N) = 0.545

19012 construction of the Granuary table (b) Frequency tables of the attributes Play Golb You HAD of own there Sunny outlook Rainy 2/5=0.6 4/6=0.83 In this we have to calculate poolability of yes in summy day probability of No in Summy day -1814 probability to yes in Rainyday 18/24 probability of Mo in Roiny day For that we have to divide the total unua numberal summy duy when their is play gold with the Total number w yes Similarly Play Gold HOT Temp 2/5:05/1/6:0.33 mild 3/5:08 1 6203 1000 PIN GOLD YES = From the play Goth NO P(N) = 0-545



15/FO . 6 =

(deput) (out proper) (out prim) & x (out come 2×3·3× 0.14× 0.2 × 0.2 d



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Charle how a reality / 27 = 15 (short xx) 1 6 (bring) xx

Paper S. Many Con (1)

= 00042

wine phibimouthes 8.071 (1.6+0.071)

P(X/M0).P(M0)

0.958

(1.6+0.071)

Yes x = P(x | Yes) P(yes)

Evaluate the Normalized posterior

Play holl

No.E - 08364





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1. Sub	ect	.2.	Paper	•		
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Suppose are have numerical values like this

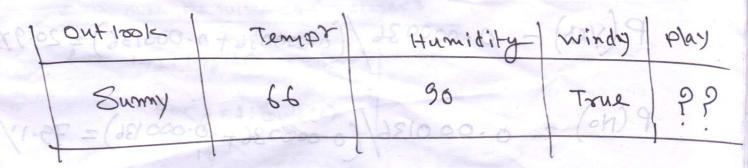
ON+LOOK	temps	he	emidity	~	priv	F	DAY	4
Sunny	85		85	F	False	14	No	9
Sunny	80		90	-	True	1	(0	70
Over Cast	83	DH4	86	1	False	1	123	85
Rainy	70	X.	96	F	False	1.	Yes	- 9
Rainy	68		80	1	False	-	Yes	
Rainy	65		70	1	True	_	No	
over cont	64		65		True		423	
Synny	72	5	95		Falge	-	No	
Sunny	. 69		70		False	-	Yes	
Rainy	75		80		False	-	res	
Sumy	75		70		Ton		425	
Tover (a)	- The second second	1	90		Tran		Yes	
Soin,	7 71		1 91		Trou		NO	

Prior Hillidadorg Polayous of Now calculating the Frequency Duthook P(Y) = 9/14 P(N)=5/4 No Y23 3/5 2/9 TEV O 0/5 overcust Rainy 3/9 2/5 maem? !X Humidity Temperature No MO Yes 85 85 88 83 84may 80 100 96 dadoog901 70 65 100 × 7000 83 74.b 88.2 mean 79.1 73 mean 7.9 9.7 Sty du 10.2 Std dev 6.2

Windy

	Yes -	No
False	6/9	2/5
True	3/9	3/5

given by  (x-W <sup>2</sup> -GPD = \( \frac{1}{\sqrt{2}} \)  (x-W <sup>2</sup> -\sqrt{2} \	ERPD = 10 the Handon'd deviation  M = mean  This postability distribution bunction will be used  for the calgulation of the Likely hood  web by	Vaus				, OK 140	I may ounty
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87d day 6.2 9.7 Windy False 40 2/5	Std day 6.2 7.7 Std day 10.2 9.7  Windy  Fully  Fully  1.9 Std day  1.	This po	abability Lulai	- distrib	whom bunets - the Likel	on will &	ewsed
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		cos the	calqui	lation of	- the Likeli	y hoods EF S.J.	means veb bt8



Likely hord

$$\frac{1}{\sqrt{2\sqrt{2\pi}}} = \frac{2}{9} \times 6PD(66) \times 6PD(99) \times \frac{3}{9} \times \frac{9}{14}$$

$$= \frac{2}{9} \times \sqrt{\frac{1}{6 \cdot 2\sqrt{2\pi}}} \sqrt{\frac{(66 - 73)^2}{2 \times (6 \cdot 2)^2}} \sqrt{\frac{3}{6 \times \sqrt{2\pi}}} \sqrt{\frac{9}{14}}$$

$$= \frac{2}{9} \times \sqrt{\frac{1}{6 \cdot 2\sqrt{2\pi}}} \sqrt{\frac{(90 - 76 \cdot 1)^2}{2(10 \cdot 2)^2}} \sqrt{\frac{3}{9} \times \frac{9}{14}}$$

= 0.000036

Likely had
$$\frac{3}{5} \times \left\{ \frac{1}{7.9\sqrt{2\pi}} - \frac{(66-74.6)^{2}}{2(7.9)^{2}} \right\} \times \left\{ \frac{1}{9.7\sqrt{2\pi}} - \frac{(90-86.2)^{2}}{2(94)^{2}} \right\}$$

$$\times \frac{3}{5} \times \frac{5}{14}$$
0.8383

2 0.000 136

1800 140

No.E - 08363



#### SUPPLEMENTARY SHEET (4 PAGES) RAJIV GANDHI UNIVERSITY

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ilely m

- 5) Determine the posterior probability
- 4) Determine the likely bood boom the breaven cy
- 3) Determine the brequency of each of the atributes
- 1) Determine the Number of classes 2) Determine the priors of each classes
- Psudo code bor Determining the Naire Bays classification

P(No) = 0.000136/(0.000036+0.000136)=79.11/.

19 maxe mountain and 24 to

P(Yes) = 0.000036/(0.000036+0.000136)=20.97.

a south cular class

1 shife

#### Step 1

### Determine the number of classes

Molegy class = 0 for i=1: length (class vactor)

it sum (e) to and c(i) to No declass = No de class + 1,

I = find C = 21 K(i) = C(i)

>Z = = = Io] // assign zeros to each element Whene Z=1

end

Poedo code to determine breaming of the attributes for the a perticular class Extramine the number of classes

xistans man soi the att att of income matrix where each coulombs represent a particular attailably Find the breaking of a porticular att of bute for a perticular class

bor I=1: Not coulomb

5) = 5) with my 12 = 1.3

Select coulomb & M(i) MM = M(i)

timed bor j= 1: Mo Ar crass 7 dass valor

z = bind (C = = 6ass(i))

-> elas elimit verha

lind X = mez mm(2) // Find the element of nome which event too correspond

to the classelement (j)

12 reas or comes my issa (A (i) = mean (x)

B(i) = stdv(x)

Freeway Or Attributes