Rica Mae Jin C. Calugtong

BSIT 3-5

DATASET:

SNo.	Weather condition	Road condition	Traffic condition	Engine problem	Accident
1	Rain	Bad	High	No	Yes
2	Snow	Average	Normal	Yes	Yes
3	Clear	Bad	Light	No	No
4	Clear	Good	Light	YES	Yes
5	Snow	Good	Normal	No	No
6	Rain	Average	Light	No	No
7	Rain	Good	Normal	No	No
8	Snow	Bad	High	No	Yes
9	Clear	Good	High	Yes	No
10	Clear	Bad	High	Yes	Yes

Predict the ff. data if accident (yes/no):

Weather condition	Road condition	Traffic condition	Engine problem	Accident
Clear	Average	High	No	Yes
Rain	Average	Normal	Yes	No
Snow	Bad	Light	Yes	Yes
Clear	Good	High	No	No
Snow	Average	High	No	Yes

Weather	Accident
Rain	Yes
Snow	Yes
Clear	No
Clear	Yes
Snow	No
Rain	No
Rain	No
Snow	Yes
Clear	No
Clear	Yes

$P(\text{Weather} = o \mid \text{Accident} = b)$

Weather	Yes		No		All	
Rain	1	0.2	2	0.4	3	0.3
Snow	2	0.4	1	0.2	3	- 0.3
Clear	2	0.4	2	0.4	4	0.4

Rain | Yes

$P(\text{Rain} \mid \text{Yes})$	1/5	0.2
$P(\text{Yes})$	5/10	0.5
$P(\text{Rain})$	3/10	0.3
$P(\text{Yes} \mid \text{Rain})$	(0.2×0.5)/0.3	0.33

Rain | No

$P(\text{Rain} \mid \text{No})$	2/5	0.4
$P(\text{No})$	5/10	0.5
$P(\text{Rain})$	3/10	0.3
$P(\text{No} \mid \text{Rain})$	(0.4 × 0.5)/0.3	0.67

Snow | Yes

$P(\text{Snow} \mid \text{Yes})$	2/5	0.4
$P(\text{Yes})$	5/10	0.5
$P(\text{Snow})$	3/10	0.3
$P(\text{Yes} \mid \text{Snow})$	(0.4×0.5)/0.3	0.67

Snow | No

$P(\text{Snow} \mid \text{No})$	1/5	0.2
$P(\text{No})$	5/10	0.5
$P(\text{Snow})$	3/10	0.3
$P(\text{No} \mid \text{Snow})$	(0.2 × 0.5)/0.3	0.33

Clear | Yes

$P(\text{Clear} \mid \text{Yes})$	2/5	0.4
$P(\text{Yes})$	5/10	0.5
$P(\text{Clear})$	4/10	0.4
$P(\text{Yes} \mid \text{Clear})$	(0.4×0.5)/0.3	0.5

Clear | No

$P(\text{Clear} \mid \text{No})$	2/5	0.4
$P(\text{No})$	5/10	0.5
$P(\text{Clear})$	4/10	0.4
$P(\text{No} \mid \text{Clear})$	(0.4×0.5)/0.4	0.5

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Road Condition	Accident
bad	yes
average	yes
bad	no
good	yes
good	no
average	no
good	no
bad	yes
good	no
bad	yes

P(Road = o | Accident = b)

Road	Yes		No		All	
Bad	3	0.2	1	0.4	4	0.4
Average	1	0.4	1	0.2	2	0.2
Good	1	0.4	3	0.4	4	0.4

Bad | Yes

$P(Bad \mid Yes)$	3/5	0.6
$P(Yes)$	5/10	0.5
$P(Bad)$	4/10	0.4
$P(Yes \mid Bad)$	(0.6×0.5)/0.4	0.75

Bad | No

$P(Bad \mid No)$	1/5	0.2
$P(No)$	5/10	0.5
$P(Bad)$	4/10	0.4
$P(No \mid Bad)$	(0.2×0.5)/0.4	0.25

Average | Yes

$P(Average \mid Yes)$	1/5	0.2
$P(Yes)$	5/10	0.5
$P(Average)$	2/10	0.2
$P(Yes \mid Average)$	(0.2×0.5)/0.2	0.5

Average | No

$P(Average \mid No)$	1/5	0.2
$P(No)$	5/10	0.5
$P(Average)$	2/10	0.2
$P(No \mid Average)$	(0.2×0.5)/0.2	0.5

Good | Yes

$P(Good \mid Yes)$	1/5	0.2
$P(Yes)$	5/10	0.5
$P(Good)$	4/10	0.4
$P(Yes \mid Good)$	(0.2×0.5)/0.4	0.25

Good | No

$P(Good \mid No)$	3/5	0.6
$P(No)$	5/10	0.5
$P(Good)$	4/10	0.4
$P(No \mid Good)$	(0.6×0.5)/0.4	0.75

Traffic Condition	Accident
high	yes
normal	yes
light	no
light	yes
normal	no
light	no
normal	no
high	yes
high	no
high	yes

$P(\text{Traffic} = o \mid \text{Accident} = b)$

Traffic	Yes		No		All	
High	3	0.2	1	0.4	4	0.4
Normal	1	0.4	2	0.2	3	0.2
Light	1	0.4	2	0.4	3	0.4

High | Yes

$P(\text{high} \mid \text{Yes})$	3/5	0.6
$P(\text{Yes})$	5/10	0.5
$P(\text{high})$	4/10	0.4
$P(\text{Yes} \mid \text{high})$	$(0.6 \times 0.5)/0.4$	0.75

High | No

$P(\text{High} \mid \text{No})$	1/5	0.2
$P(\text{No})$	5/10	0.5
$P(\text{High})$	4/10	0.4
$P(\text{No} \mid \text{high})$	$(0.2 \times 0.5)/0.4$	0.25

Normal / Yes

$P(\text{Normal} / \text{Yes})$	1/5	0.2
$P(\text{Yes})$	5/10	0.5
$P(\text{Normal})$	3/10	0.3
$P(\text{Yes} / \text{Normal})$	$(0.2 \times 0.5)/0.3$	0.333333

Normal | No

$P(\text{Normal} / \text{No})$	2/5	0.4
$P(\text{No})$	5/10	0.5
$P(\text{Normal})$	3/10	0.3
$P(\text{No} / \text{Normal})$	$(0.4 \times 0.5)/0.3$	0.666667

Light | Yes

$P(\text{Light} / \text{Yes})$	1/5	0.2
$P(\text{Yes})$	5/10	0.5
$P(\text{Light})$	3/10	0.3
$P(\text{Yes} / \text{Light})$	$(0.2 \times 0.5)/0.3$	0.33333

Light / No

$P(\text{Light} / \text{No})$	2/5	0.4
$P(\text{No})$	5/10	0.5
$P(\text{Light})$	3/10	0.3
$P(\text{No} / \text{Light})$	$(0.4 \times 0.5)/0.3$	0.666667

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Engine problem	Accident
no	yes
yes	yes
no	no
yes	yes
no	no
no	no
no	no
no	yes
yes	no
yes	yes

Engine	Yes		No		All	
No	2	0.2	4	0.4	6	0.6
Yes	3	0.4	1	0.2	4	0.4

No / Yes

P (No/Yes)	2/5	0.4
P (Yes)	5/10	0.5
P (No)	6/10	0.6
P (Yes /No)	(0.4×0.5)/0.6	0.333333

No / No

P (No/No)	4/5	0.8
P (No)	5/10	0.5
P (No)	6/10	0.6
P (No/No)	(0.8×0.5)/0.6	0.66666

Yes / Yes

P (Yes/Yes)	3/5	0.6
P (Yes)	5/10	0.5
P (Yes)	4/10	0.4
P (Yes/Yes)	(0.6×0.5)/0.4	0.75

Yes / No

P (Yes/No)	1/5	0.2
P (No)	5/10	0.5
P (Yes)	4/10	0.4
P (No /Yes)	(0.2×0.5)/0.4	0.25

	Weather	Road	Traffic	Engine	Accident
	Clear	Average	High	No	Yes
P (Yes)	0.5	0.5	0.75	0.33	0.12
P (No)	0.5	0.5	0.25	0.67	0.08

	Weather	Road	Traffic	Engine	Accident
	Rain	Average	Normal	Yes	No
P (Yes)	0.33	0.5	0.33	0.75	0.08
P (No)	0.67	0.5	0.67	0.25	0.11

	Weather	Road	Traffic	Engine	Accident
	Snow	Bad	Light	Yes	Yes
P (Yes)	0.67	0.75	0.33	0.75	0.25
P (No)	0.33	0.25	0.67	0.25	0.03

	Weather	Road	Traffic	Engine	Accident
	Clear	Good	High	No	No
P (Yes)	0.50	0.25	0.75	0.33	0.06
P (No)	0.50	0.75	0.25	0.67	0.13

	Weather	Road	Traffic	Engine	Accident
	Snow	Average	High	No	Yes
P (Yes)	0.67	0.50	0.75	0.33	0.17
P (No)	0.33	0.50	0.25	0.67	0.06

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