K=14

Temp

<15°C	16°C-25°C	>26°C
2Yes	4Yes	3Yes
4No		1No

$En(<15°C) = En[\frac{2}{6}, \frac{4}{6}]$

$= -\frac{2}{6}\log_2\frac{2}{6} + \frac{4}{6}\log_2\frac{4}{6}$

$= 0.9182$

$En(16-25) = 0$

$En(>26) = 0.8113$

$En(Temp) = 0.9403$

Midterm

High	Medium	Low
2Yes	4Yes	3Yes
2No	2No	1No

$En(High) = 1$

$En(Mid) = 0.91813$

$En(Low) = 0.8113$

$En(Midterm) = 0.9403$

Gain (14, Midterm)

$= 0.0292$

Gain(14. Temp)

$= En(Temp) - (\frac{6}{14} \times 0.9183 + \frac{4}{14} \cdot 0 + \frac{4}{14} \cdot 0.8113)$

$= 0.3149$

Homework - done

Done	Yet
3 Yes	6 Yes
4 No	1 No

Quiz

Good	bad
3 Yes	6 Yes
3 No	2 No

En(Done) = 0.9852

En(Yet) = 0.5917

En(HW) = 0.9403

En(Good) = 1

En(bad) = 0.8113

En(14, Quiz) = 0.0481

Gain(14, HW) = 0.1519

argMax(Gain) = Gain(14, Temp) = 0.9403

<15°C

	Midterm			HW		Quiz	
	H	M	L	D	Y	G	B
Y	0	1	1	2	0	1	1
N	2	2	0	0	4	2	2

>26°C

	Midterm			HW		Quiz	
	H	M	L	D	Y	G	B
	0	2	1	2	1	0	3
	0	0	1	1	0	1	0

Temp

- <15°C → HW. Done
  - Done → Yes
  - Yet → No
- 16-25°C → Yes
- >26°C → Quiz
  - Good → No
  - bad → Yes