

Windows PowerShell

```
PS E:\Spring 2019\NLP\Assignment\hw3> python Assignment3_Viterbi.py 331
['HOT', 'HOT', 'COLD']
PS E:\Spring 2019\NLP\Assignment\hw3>
PS E:\Spring 2019\NLP\Assignment\hw3>
PS E:\Spring 2019\NLP\Assignment\hw3> python Assignment3_Viterbi.py 122313
['HOT', 'HOT', 'HOT', 'HOT', 'HOT', 'HOT']
PS E:\Spring 2019\NLP\Assignment\hw3>
PS E:\Spring 2019\NLP\Assignment\hw3>
PS E:\Spring 2019\NLP\Assignment\hw3> python Assignment3_Viterbi.py 331123312
['HOT', 'HOT', 'COLD', 'COLD', 'HOT', 'HOT', 'HOT', 'HOT', 'HOT']
PS E:\Spring 2019\NLP\Assignment\hw3> _
```

Type here to search

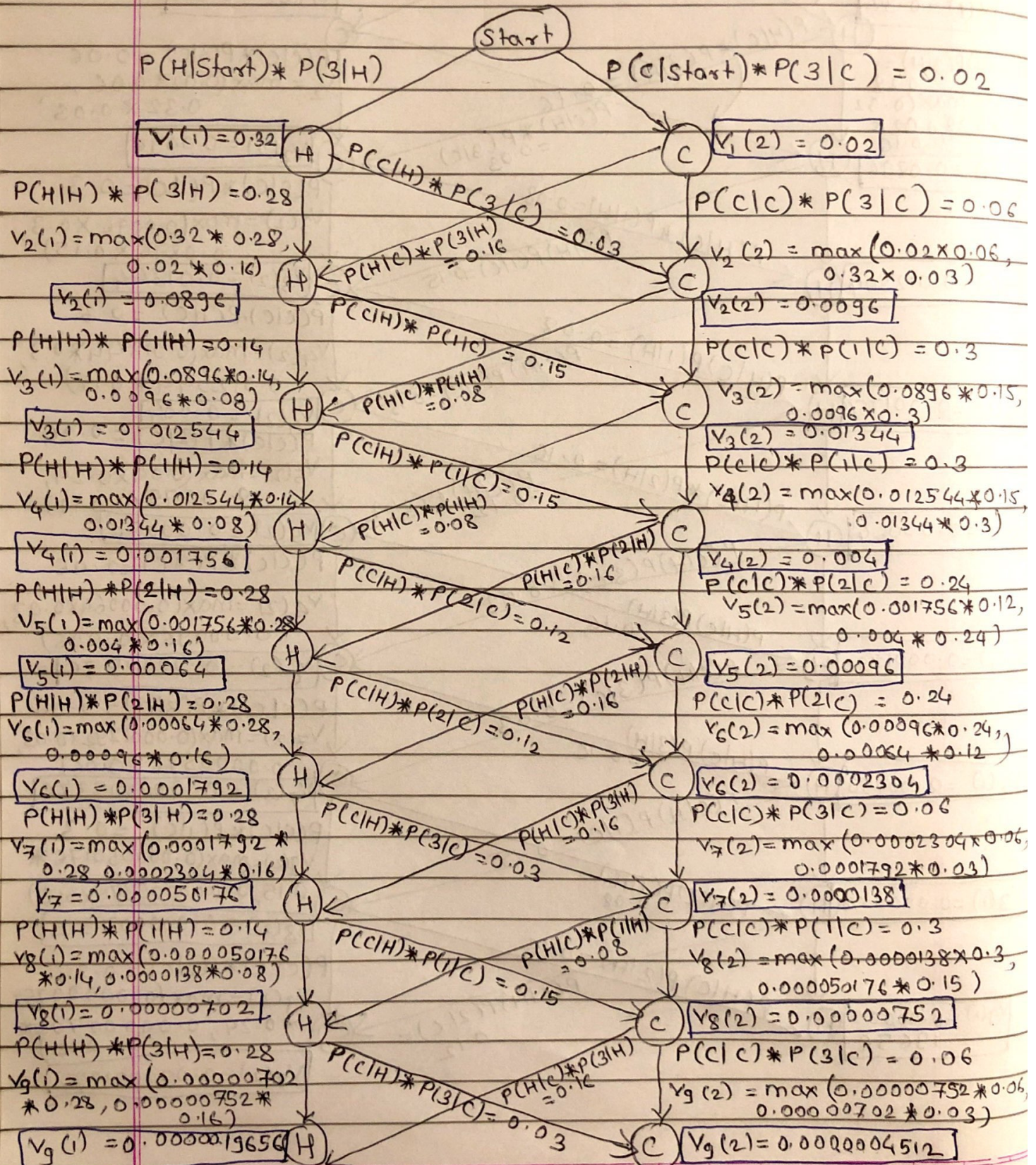


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Q1 @

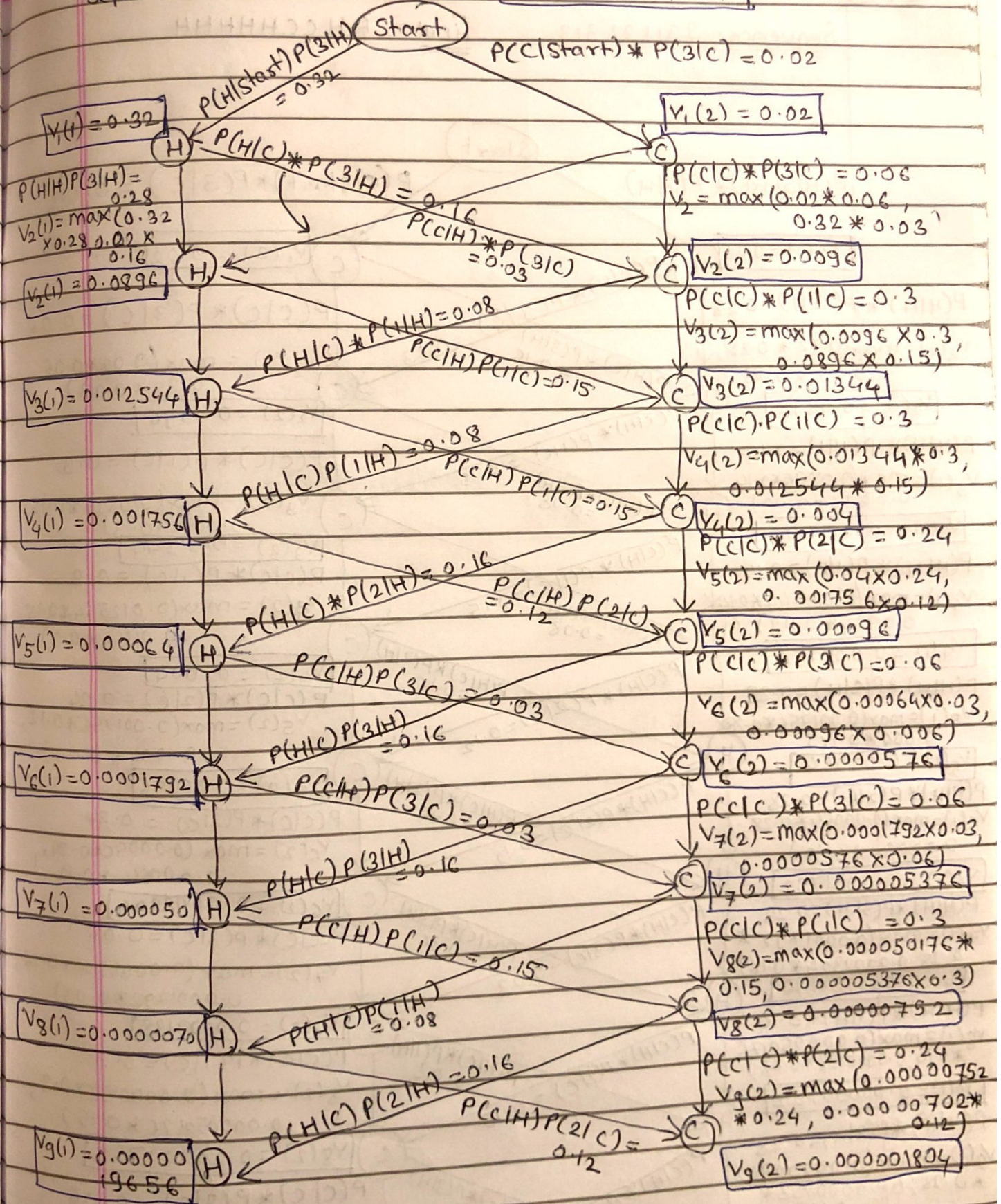
Sequence: 3 3 1 1 2 2 3 1 3

Final: H H C C H H H H H



Sequence: 331123312

H H C C H H H H





Q2

(a)

		$f_1$	$f_2$	$f_3$	$f_4$	$f_5$	$f_6$
VB	f		1		1	1	
VB	w		0.75		0.10	0.15	
NN	f	1					1
NN	w	0.3					-0.2

$$P(\text{NN}|\text{race}) = \frac{e^{0.3} * e^{-0.2}}{e^{0.3} e^{-0.2} + e^{0.75} e^{0.10} e^{0.15}}$$

$$= 0.289$$

$$P(\text{VB}|\text{race}) = \frac{e^{0.75} e^{0.10} e^{0.15}}{e^{0.3} e^{-0.2} + e^{0.75} e^{0.10} e^{0.15}}$$

$$= 0.7109$$

VB is more probable.

(b)

		$f_1$	$f_2$	$f_3$	$f_4$	$f_5$	$f_6$
VB	f				1	1	
VB	w				0.10	0.15	
NN	f	1		1			
NN	w	0.3		0.9			



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$$P(NN|race) = \frac{e^{0.3} e^{0.9}}{e^{0.3} e^{0.9} + e^{0.10} e^{0.15}}$$

$$= 0.7211$$

$$P(VB|race) = \frac{e^{0.10} e^{0.15}}{e^{0.3} e^{0.9} + e^{0.10} e^{0.15}}$$

$$= 0.27888$$

NN is more probable.