

Advanced Coding Assignment 3

亚历克上

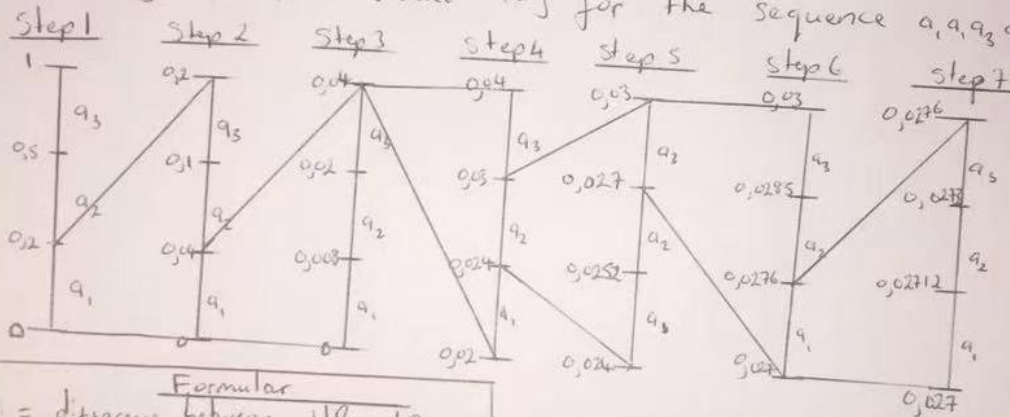
M202161029

Page 130 Question 6

Assignment 3

6) The probability model :-

Letter	Probability
a_1	0.2
a_2	0.3
a_3	0.5

Finding the real valued tag for the sequence $a_1 a_2 a_3 a_2 a_3 a_1$ 

Formular
 $d = \text{difference between UB - LB}$
 Finding the range of the symbol:-
 $R(A) = LB : LB + d \times P(A)$

Step 1 - Step 2

$$d = 0.2 - 0 \Rightarrow 0.2$$

$$R(A) \Rightarrow 0 + 0.2(0.2) \Rightarrow 0.04$$

$$R(B) = 0.04 + 0.2(0.3) \Rightarrow 0.1$$

Step 2 - Step 3

$$d = 0.04 - 0 \Rightarrow 0.04$$

$$R(A) = 0 + 0.04(0.2) \Rightarrow 0.008$$

$$R(B) = 0.008 + 0.04(0.3) \Rightarrow 0.02$$

Step 3 - Step 4

$$d = 0.04 - 0.02 \Rightarrow 0.02$$

$$R(A) = 0.02 + (0.02 \cdot 0.2) \Rightarrow 0.024$$

$$R(B) = 0.024 + (0.02 \cdot 0.3) \Rightarrow 0.03$$

Step 4 - Step 5

$$d = 0.03 - 0.024 \Rightarrow 0.006$$

$$R(A) = 0.024 + (0.006 \cdot 0.2) \Rightarrow 0.0252$$

$$R(B) \Rightarrow 0.0252 + (0.006 \cdot 0.3) \Rightarrow 0.027$$

Step 5 - Step 6

$$d = 0.03 - 0.027 \Rightarrow 0.003$$

$$R(A) = 0.027 + (0.003 \cdot 0.2) \Rightarrow 0.0276$$

$$R(B) = 0.0276 + (0.003 \cdot 0.3) \Rightarrow 0.0285$$

Step 6 - Step 7

$$d = 0.0276 - 0.027 \Rightarrow 0.0006$$

$$R(A) = 0.027 + (0.0006 \cdot 0.2) \Rightarrow 0.02712$$

$$R(B) = 0.02712 + (0.0006 \cdot 0.3) \Rightarrow 0.0273$$

The tag value is :

$$0,027 < a_1 < 0,02712$$

$$\therefore \text{the average} \Rightarrow \frac{0,027 + 0,02712}{2}$$

$$\Rightarrow \underline{0,02706}$$

Our tag value of this sequence is 0,02706