

2013

Range of symbol:

lower limit : lower limit + d (Prob. of symbol)

NOVEMBER

27

Week 48 • 331-034

WEDNESDAY

~~JPEG COMPRESSION~~

08

Arithmetic Coding:

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WENT.

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 $e = 0.3, n = 0.3, t = 0.2, w = 0.1 \Rightarrow 0.1$

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Step 1: Divide the numeric range 0 to 1 into no. of diff. symbol present in the message.

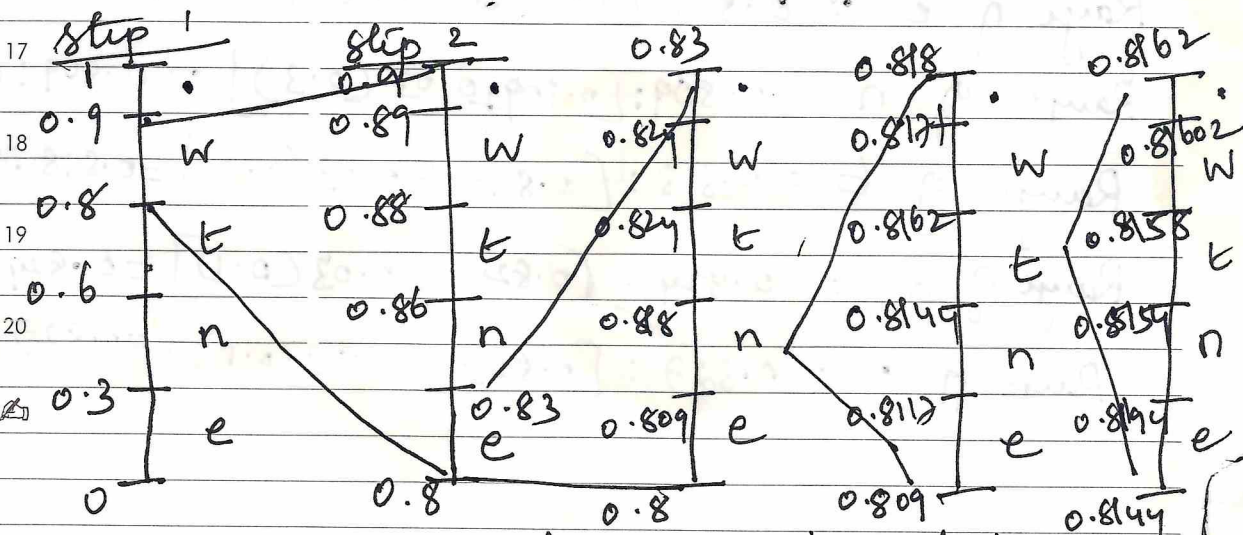
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Step 2: Expand the first letter to be coded along with the range. Further sub divide this range into no. of symbols.

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Step 3: Repeat the procedure until termination character is encoded.

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$$d = \text{upper bound} - \text{lower bound}$$
DECEMBER
2013

S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

Range of symbol = lower limit : lower limit + d.

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THURSDAY

Week 48 • 332-033

$$\begin{aligned} \text{Range of } e &= 0.8 : [0.8 + 0.1(0.3)] \\ &= 0.8 : 0.83 \end{aligned}$$

$$\begin{aligned} \text{Range of } n &= 0.83 : [0.83 + 0.1(0.3)] \\ &= 0.83 : 0.86 \end{aligned}$$

$$\begin{aligned} \text{Range of } t &= 0.86 : [0.86 + 0.1(0.2)] \\ &= 0.86 : 0.88 \end{aligned}$$

$$\begin{aligned} \text{Range of } w &= 0.88 : [0.88 + 0.1(0.88)] \\ &= 0.88 : 0.89 \end{aligned}$$

$$\begin{aligned} d &= \text{upper bound} - \text{lower bound} \\ &= 0.83 - 0.8 = 0.03 \end{aligned}$$

Range of symbol:

$$\text{Range of } e = 0.8 : [0.8 + 0.03(0.3)] = 0.8 : 0.809$$

$$\text{Range of } n = 0.809 : [0.809 + 0.03(0.3)] = 0.809 : 0.818$$

$$\text{Range of } t = 0.818 : [0.818 + 0.03(0.2)] = 0.818 : 0.824$$

$$\text{Range of } w = 0.824 : [0.824 + 0.03(0.1)] = 0.824 : 0.827$$

$$\text{Range of } \cdot = 0.827 : [0.827 + 0.03(0.1)] = 0.827 : 0.83$$

NOVEMBER
2013

F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	*

08 Arithmetic Code word & Tag:

09 Hence the arithmetic code word is

10 $0.81602 < \text{Codeword} < 0.8162$

11 Generation of Tag:

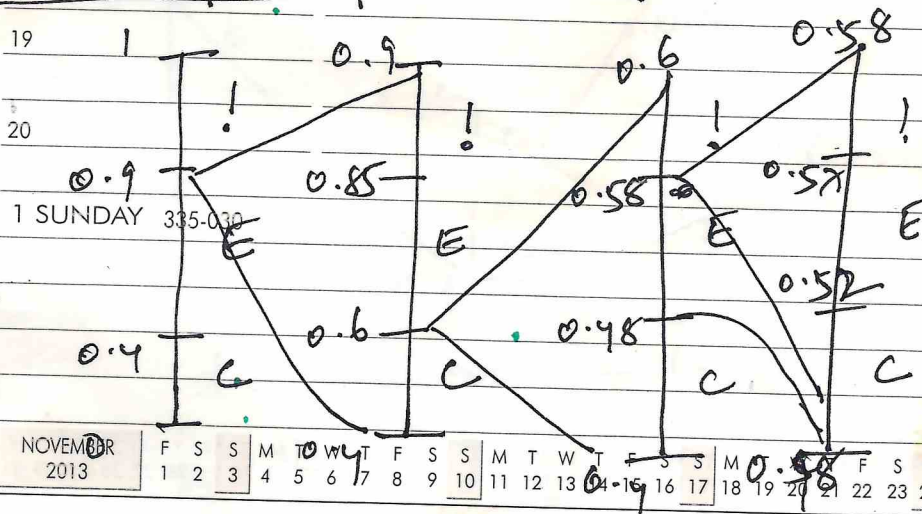
12 Tag = (Upper limit of code word + Lower limit
13 of code word)

$$= \frac{0.8162 + 0.8162}{2} = 0.8161$$

Arithmetic Decoding:

16 Decode the message 0.572 given the coding model.

Symbol	I	C	E
Prob	0.1	0.4	0.5



$d = \text{upper bound} - \text{lower bound}$

Week 48 • 333-032

$= 0.9 - 0.4 = \underline{0.5}$ FRIDAY

29

08

Range of $C = 0.4 : [0.4 + 0.5(0.4)] = 0.4 : 0.6$

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$0.4 : [0.4 + 0.20] = 0.4 : 0.6$

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Range of $E = 0.6 : [0.6 + 0.5(0.5)]$
 $= 0.6 : 0.85$

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DECEMBER
2013

S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31