Sample – norman forester

Part I. Compression using Huffman code

Create a Huffman code for your first and last name. Use all lower-case letters and include a count for a space/blank between your first and last names.

1. Fill in the table below based on the frequency counts for the letters in your name.

nn –x2
oo –x2
rrr – x3
m
a
space
f
ee –x2
s
t

Code	Letter
000	r
001	n
010	o
011	e
1000	m
1001	a
1010	space
1011	f
11000	s
11001	t
11010	
11011	
111100	
111101	
111110	
111101	

2. Show your name converted to Huffman code (write the corresponding letters above the bits)

```
n   o   r   m    a    n      space
001 010 000 1000 1001 001    1010

f    o   r   e   s     t     e   r
1011 010 000 011 11000 11001 011 000
```

3. How many **bits** of storage are required to store your name using the **Huffman code**?hint: count the number of bits you used

53 bits using Huffman Code

4. How many **bits** of storage are required to store your name using **8-bit ASCII code**?hint: multiply the number of letters (and space) by 8. 1 byte = 8 bits

15 letters/space * 8 bits per letter/space = 120 bits

5. What is the compression ratio for your name stored using the Huffman code compared to using 8-bit ASCII? Hint: Compression Ratio = Huffman bits / ASCII bits

= 53 / 120 = .44 compression ratio