

CS 180 - Huff man codes

Note Title

1/30/2009

Announcements

- HW due tomorrow
- Program due next Monday
 - In class checkpoint on Thursday
- Instructor evals on Wednesday

Go over new program

- Question: How do we transmit messages?

ASCII codes

Is this the best way?

bits = 8 * (# letters)

If we only spend 1 bit to send a common character (like S):

$$\# \text{bits} = (\# \text{ of } S) + 9 * (\# \text{ chars not } S)$$

How can we make this give fewer # of bits possible?

Suppose we know frequency counts

What should we do?

Higher frequency count \leftrightarrow fewer bits

Build tree to encode our bit-strings.

make low frequency counts be deeper (leaves) in the tree

Algorithm:

Take 2 least frequent characters.

"Merge them" into a single character with frequency count which is the sum of their counts:

Recurses!

Ex

