Agenda

- Questions on anything
- Basic Debugging Tips
- PA2: Huffman Encoding
- Specific questions
Questions on anything?

- Questions?
Basic Debugging Tips

- `xxd (demonstration)`
- `Cout vs. printf`
  - `printf`: How to use
  - Common args: `d`, `x`, `o`
PA2: Huffman Encoding

- MinHeap
  - What's a heap?
  - What's a minheap?
  - Enqueue (example)
  - Dequeue (example)
    - Right child
    - Smallest key swap
  - How can we use this for PA2...?
PA2: Huffman Encoding

Happy Halloween!
(Candy example)
PA2: Huffman Encoding

- Okay, so we have minheap with frequencies... Now what?
- Trie
  - Putting into tree
  - Encoding
- Alert: Can make your life easier with
  - Good style (Markdowns on PA1)
  - Classes
    - Trie
    - Minheap
PA2: Huffman Encoding

- Okay, so now it's in a trie... now what?
  - Regular code table: <sym, freq, code>
  - Compressed code table (use this one)
    - Website
PA2: Huffman Encoding

- What goes in the encoded data?
PA2: Huffman Encoding

- Review of what we need to do (remember this is ONE way):
  1.) Create minheap class: can have <key,object> pair
  2.) Create trie class
  3.) Read in input data (M&Ms)
  4.) Put input data into minheap "keyed" by frequency
      - This means lowest key at root
  5.) Construct trie (keep pulling off the root of minheap to get pairs)
      - Remember: have to put sub-trie back onto minheap sometimes!
  6.) When trie is built, we can create the codes for each symbol
  7.) Create compressed code table
  8.) For encoded data, just use the code table to determine what goes where
Bit operations

- Is anyone having trouble with bit operations for anything (rle, etc.)?
- If so, let's address it now
Any questions?