

CS170 – Fall 2016 — Homework N

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Collaborators: PUT SOMETHING HERE (LIST OF YOUR COLLABORATORS, OR WRITE NONE)

1. First Question

- (a) Your answer to the first part.
- (b) Your answer to the second part.

Question Asking for an Algorithm

Main idea

Explain, in a few sentences, the key steps of your algorithm, focusing on the (usually) single key insight that would be a total giveaway to the problem if you shared it with a classmate. This is the single most important part of your solution, because if you clearly demonstrate your understanding of the solution here, the readers tend to be more forgiving of small errors elsewhere.

Pseudocode

Write pseudocode for your algorithm here. A fellow CS 170 student should be able to generate working code from your pseudocode. However, the pseudocode itself should not be working code, as this is usually too detailed. Feel free to abstract away basic operations. For example:

```
procedure POKEMON NONSENSE(array  $P$ , height  $h$ )
  Set maxHeight := 0
  for  $p$  in  $P$  do
    if height( $p$ ) > maxHeight then
      Set maxHeight := height( $p$ )
    else
      I wanted to demonstrate an else clause.
  while There are two Pokemon  $p_1$  and  $p_2$  in  $P$  who haven't been paired up do
    Pair up  $p_1$  and  $p_2$ .
  Set singleHeight := height( $p$ ) if there is an unpaired Pokemon  $p$  and 0 otherwise.
  Return max(singleHeight, maxHeight)
```

Proof of correctness

See [this detailed explanation](#) for more details on proofs and the other parts of your answer.

Running time analysis

State your algorithm's runtime and your justification for why it is correct.