CS170–Fall 2014 — Solutions to Homework 8

Steffan Voges, SID 23434518, `cs170-cz`

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Collaborators: Ryan Flynn

1. Subsequence

Main idea. The main idea is to iterate through B, while keeping track of whether or not each letter in A has been hit yet.

Pseudocode.

```
def algorithm(A[1...n], B[1...m]):
    for i = 1, 2, ..., m
        if A[0] == B[i]:
            A = A[1:]
    if A is empty: return True
    else: return False
```

Proof of correctness. YOUR ANSWER GOES HERE

Running time. $O(m + n)$

Justification of running time. You complete m iterations through B, complete n searches through A. Since each search through A is only complete once during an iteration of B, our running time is $O(m + n)$.

2. Another scheduling problem

Main idea. YOUR ANSWER GOES HERE
Pseudocode. YOUR ANSWER GOES HERE
Proof of correctness. YOUR ANSWER GOES HERE
Running time. YOUR ANSWER GOES HERE
Justification of running time. YOUR ANSWER GOES HERE

3. Park Tours

Main idea. YOUR ANSWER GOES HERE
Pseudocode. YOUR ANSWER GOES HERE
Proof of correctness. YOUR ANSWER GOES HERE
Running time. YOUR ANSWER GOES HERE
Justification of running time. YOUR ANSWER GOES HERE

4. Optimal binary search trees

Main idea. YOUR ANSWER GOES HERE
Pseudocode. YOUR ANSWER GOES HERE
Proof of correctness. YOUR ANSWER GOES HERE
Running time. YOUR ANSWER GOES HERE
Justification of running time. YOUR ANSWER GOES HERE

5. Beat inference

Main idea. YOUR ANSWER GOES HERE
Pseudocode. YOUR ANSWER GOES HERE
Proof of correctness. YOUR ANSWER GOES HERE
Running time. YOUR ANSWER GOES HERE
Justification of running time. YOUR ANSWER GOES HERE

6. Optional Bonus Problem: Image re-sizing

Main idea. YOUR ANSWER GOES HERE
Pseudocode. YOUR ANSWER GOES HERE
Proof of correctness. YOUR ANSWER GOES HERE
Running time. YOUR ANSWER GOES HERE
Justification of running time. YOUR ANSWER GOES HERE