

CS240 Tutorial 4

1. Show that the following algorithm for comparing strings (using lowercase English letters) uses $O(1)$ comparisons **on average**

```
def strcmp(A, B):  
    for i = 0, ..., n-1:  
        if A[i] != B[i]: return False  
    return True
```

2. What is an asymptotic upper bound on the expected number of iterations of the while loop in the following function?

```
def silly(n):  
    while n != 0:  
        n = randint(0, n) # random int in range [0, n]  
    print("done")
```

3. Show that any comparison based searching algorithm uses $\Omega(\log(n))$ comparisons (even if the input is sorted).