

Analysis of Code

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June 18, 2020

1. $2n \quad O(n)$
2. $2n^2 \quad O(n^2)$
3. $\frac{1}{2}n^2(n^4 + n^3) \quad O(n^4)$
4. $\frac{1}{4}(n^4 + 2n^3 + n^2) \quad O(n^4)$
5. $100n \quad O(n)$
6. $\log_2 n \quad O(\lg n)$
7.

```
1: for  $i = 0$  to  $n$  do
2:   for  $k = 0$  to  $n$  do
3:     for  $m = 0$  to  $n$  incrementing by  $m* = 2$  do
4:       print("hello");
```

$O(n^2 \lg n)$

8.

```
1: Given a string 'x' with repeating characters
2: int n = x.length();
3: int maxCount = 0;
4: char max = ' ';
5: for  $i = 1$  to  $n$  do
6:   if  $x.charAt(i) == x.charAt(i - 1)$  then
7:     count++;
8:   else if  $count > maxCount$  then
9:     maxCount = count;
10:    max = x.charAt(i-1);
11:    count = 0;
12:  else
13:    count = 0;
14: return max;
```

$O(n)$