

Homework 0

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1 Question 0

- What is the asymptotic runtime of the following? Another way to ask the same question is to ask "How many times will the `if` statement be executed?"

```
1 def f(a):
2     n = len(a)
3     for i in range(n):
4         s=0
5         for j in range(i,n):
6             s = s + a[j]
7             if s == 0:
8                 return a[i:j]
9     return []
```

2 Question 1

Fill-in the following table. For each function $f(n)$ in the table and time t , determine the largest size n of a problem that can be solved in time t , assuming that the algorithm to solve the problem takes $f(n)$ microseconds.

$f(n)$	1 second	1 minute	1 hour	1 day	1 month	1 year
$\log_2 n$						
\sqrt{n}						
n	10^6					
$n \log_2 n$						
n^2						
n^3						
2^n						
$n!$						