

[4/23] Fill in the blanks in the following sentences.

- The worst-case performance of the sequential search algorithm (using Big-Oh notation) is $O(n)$
- The worst-case performance of the binary search algorithm (using Big-Oh notation) is $O(\log n)$

[6/23] What are the worst-case time complexities, $T(n)$, (using Big-Oh notation) of the following three pieces of code:

```
 $i \leftarrow 1$   
while (  $i < n$  )  
do [  
     $i \leftarrow i * 2$   
]
```

$$T(n) = \underline{O(\log n)}$$

```
i ← n;  
while ( i > 0 )  
do [  
    j ← n;  
    while ( j > 1 )  
    do (  
        j ← j − 1;  
    )  
    i ← i/2;  
]
```

$$T(n) = \underline{O(n \log n)}$$

```
i ← n;  
j ← n + 1;  
if ( i < j )  
then [  
    j ← n;  
    if ( j = i )  
    then (  
        j ← j - 1;  
    )  
]
```

$$T(n) = \underline{O(1)}$$