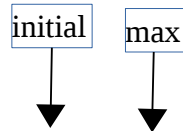


$O(1)$	Constant
$O(\log n)$	Logarithmic
$O(n)$	Linear
$O(n \log n)$	$n \log n$
$O(n^c)$ $O(n^2), O(n^3), O(n^{16}), etc$	Polynomial
$O(c^n)$ $O(1.6^n), O(2^n), O(3^n), etc$	Exponential
$O(n!)$	Factorial
$O(n^n)$	n power n

for/while/do-while are examples where there are repetition/frequency.

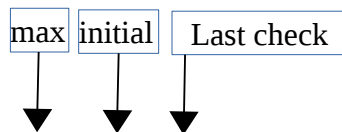
for/while, <, ++ loops

$$\text{Freq} = \text{max} - \text{initial}$$



```
for (int i = 1 ; i < n ; i++)  
    s1;
```

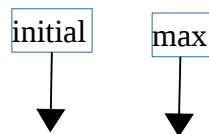
1 is the initial and n is the max



$$\text{Freq} = n - 1 + 1$$

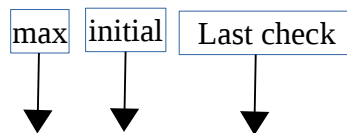
for/while, <=, ++ loops

$$\text{Freq} = \text{max} - \text{initial} + 1$$

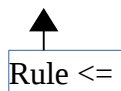


```
for (int i = 1 ; i <= n ; i++)  
    s1;
```

1 is the initial and n is the max

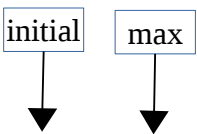


$$\text{Freq} = n - 1 + 1 + 1$$



for/while, >, -- loops

Freq = initial – max

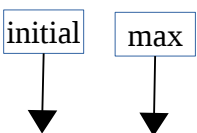


```
for (int i = n ; i > 1 ; i--)  
    s1;
```

n is the initial and 1 is the max

for/while, >=, -- loops

Freq = initial – max + 1 + 1



```
for (int i = n ; i >= 1 ; i--)  
    s1;
```

n is the initial and 1 is the max