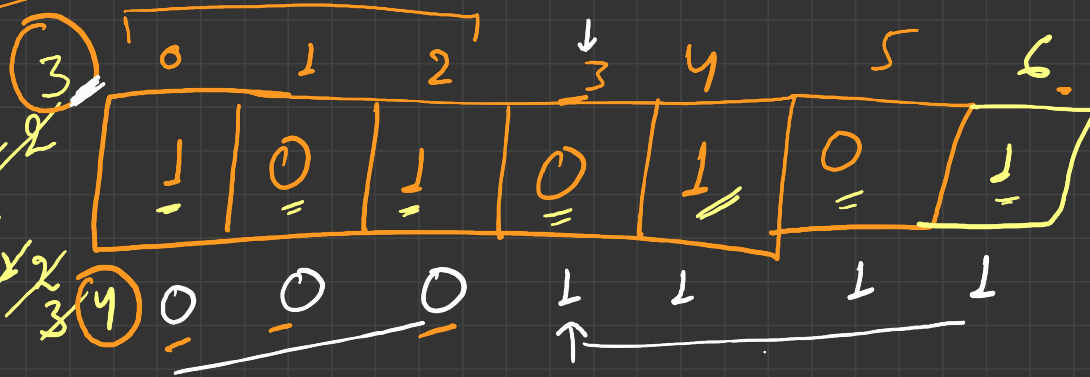


0 = $i=0 \ i < 3$

Segregate 0s and 1s

✓ count0 = $\phi \times 2$
 ✓ count1 = $\phi \times 2$



= $2x$
 \downarrow
 vector

① Sorting $\left\{ \begin{array}{l} \text{selection} \\ \text{Bubble} \\ \text{Insertion} \end{array} \right\} O(n^2)$ Brut
 \downarrow

✓ ② $\text{sort}(x.\text{begin}(), x.\text{end}());$ $[O(n \log n)]$
 $O(n)$

```
int count0 = 0, count1 = 0;
```

```
for (i=0; i < n ; i++) {
```

```
    if (arr[i] == 0) {
```

```
        count0 ++;
```

```
    }
```

```
    else {
```

```
        count1 ++;
```

```
    }
```

```
}
```

```
for (i=0; i <= count0; i++) {
```

```
    arr[i] = 0;
```

```
}
```

```
for (i = count0; i < n; i++) {
```

```
    arr[i] = 1;
```

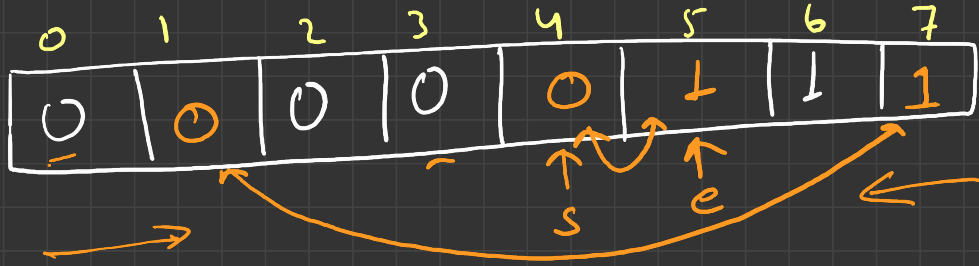
```
}
```

$n + n + n$

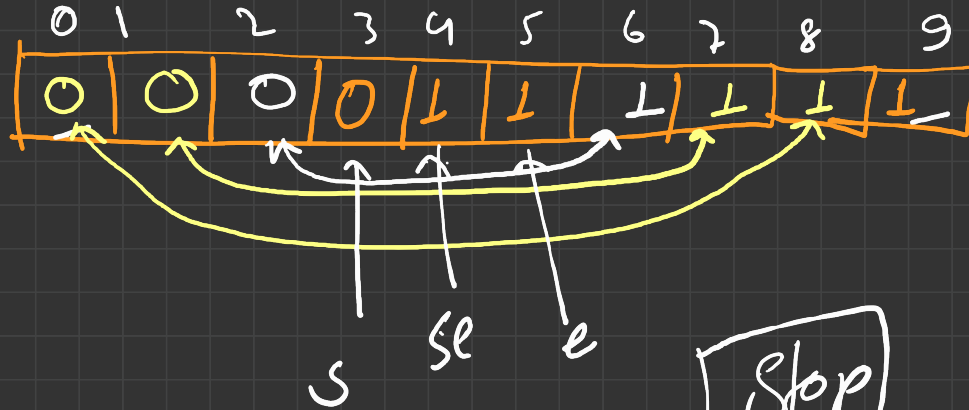
$3n$

$O(n)$

Space $O(1)$

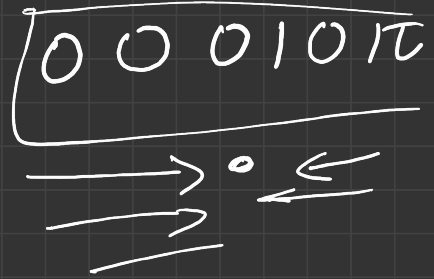


Stop



Stop

```
int start = 0, end = n - 1;
while (start < end) {
    if (arr[start] == 0)
        start++;
```



$O(N)$

```
else {
    if (arr[end] == 0) {
        swap(arr[start], arr[end]);
        start++; end--;
    }
    else
        end--;
}
```

Two Sum

Best

sorted \rightarrow

2	7	11	15	18
---	---	----	----	----

n

Target = 26

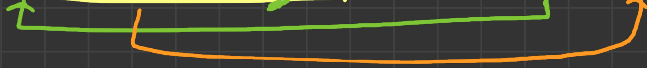
vector<int> ans

```
for (i = 0 ; i < n ; i++)  
    for (j = i + 1 ; j < n ; j++)  
        if (arr[i] + arr[j] == target)  
            ans.push_back(arr[i]);  
            ans.push_back(arr[j]);  
            break
```

$O(N^2)$

}

2	7	11	15	18/20
---	---	----	----	-------



Target - 26

for ($i = 0$; $i < n - 1$; $i++$) $\rightarrow N$

$N \log N$

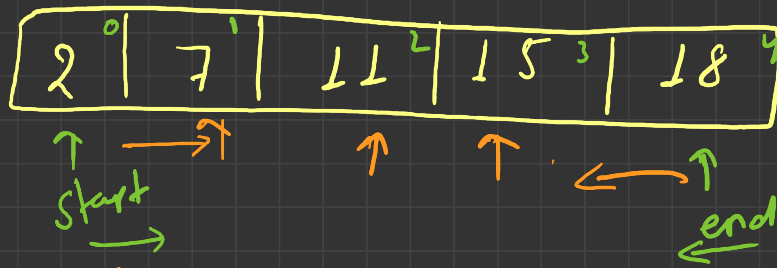
②: Target - arr[i]

start = i + 1; end = n - 1;

n = {

} $\log N$

} Break



Target = 26

start = 0, end = n - 1;

while (start < end) {

if (arr[start] + arr[end] == target)

return 1;

else if (arr[start] + arr[end] < target)

start++

else {

end--;

}
return 0;

