

Pair Sum      return pair in sorted array with target sum



target = 9

∴ (2, 7)

unique pairs

(2, 7), (2, 11), (2, 15)

(7, 11), (7, 15)

(11, 15)

① Brute force

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

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

```
        if (arr[i] + arr[j] == target) {
```

```
            ans.pb(i);
```

```
            ans.pb(j);
```

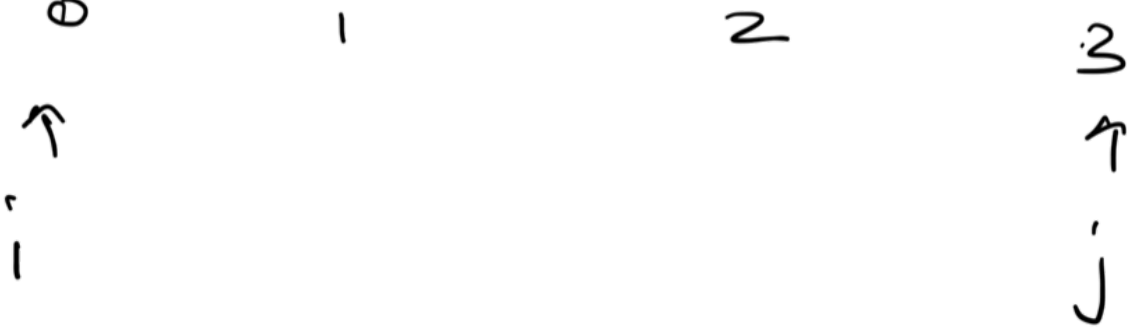
```
        }
    }
    return ans;
```

```
}
```

time complexity :  $O(n^2)$

② Optimal solution

2 pointer approach



i++

ps > target

j--

ps < target

i++

ps == target

ans ⇒ (i, j)

i = 0, j = n - 1

```
while (i < j) {
```

```
    pairSum = arr[i] + arr[j];
```

```
    if (pairSum < target) {
```

```
        i++;
```

```
    } else if (pairSum > target) {
```

```
        j--;
```

```
    } else {
```

```
        return (i, j);
```

```
    }
```