

Run Times for finding the Minimum Value in an array Recursively and Iteratively:

```
public int find_min_iterative ()
{
    int count = 0; → O(1)

    for (int i = 1; i < arr.length; i++) → O(n)
    {
        if (arr[i] < arr[count]) → O(1)
        {
            count = i; → O(1)
        }
    }

    return count;
}
```

The runtime of this function $O(n)$, as this needs to iterate through all the elements in the array.

```
public int find_min_recursive (int current_min, int current_index)
{
    if (arr.length-1 <= current_index) → O(1) → all these are constant time
    {
        return current_min; → O(1)
    }

    if (arr[current_index] < arr[current_min]) → O(1)
    {
        current_min = current_index; → O(1)
    }

    return find_min_recursive(current_min, current_index+1); → O(n)
}
```

The run time of this function is $O(n)$. Most of these lines of code run in constant time, except the recursive call, which executes 'n' times.