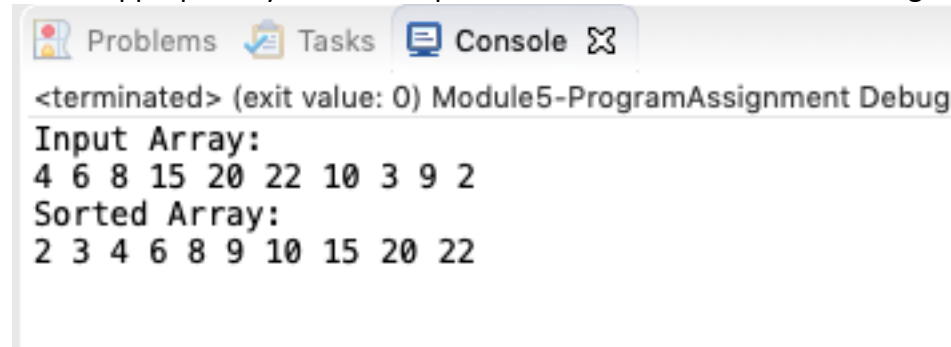


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Module 5 – Program Assignment  
2/11/19

Part 1- In this part of the program assignment, we were tasked with implementing the selection sort algorithm to sort an array of integers that are passed to it. This program accomplished all of the requirements.

When provided with the input array of 4, 6, 8, 15, 20, 22, 10, 3, 9, 2, we can see the output is sorted appropriately with the implementation of the selection sort algorithm.

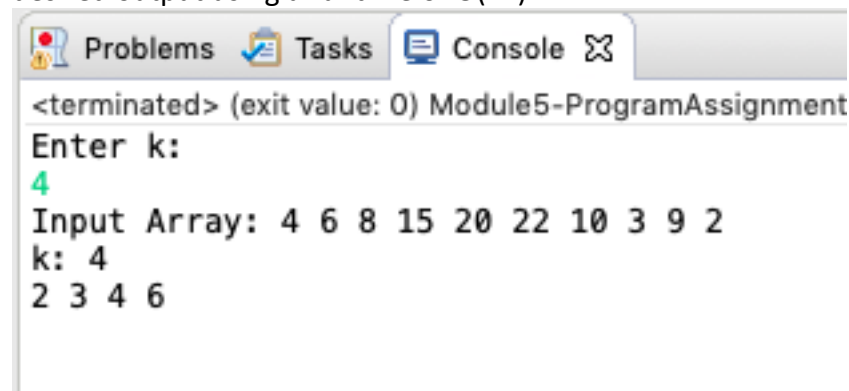


```
Problems Tasks Console 
```

```
<terminated> (exit value: 0) Module5-ProgramAssignment Debug  
Input Array:  
4 6 8 15 20 22 10 3 9 2  
Sorted Array:  
2 3 4 6 8 9 10 15 20 22
```

Part 2- In this part of the program assignment, we were tasked with implementing our selection sort algorithm to take in a value of k, and have a run time of  $O(nk)$ . After this was accomplished, we were to calculate the median using our  $O(nk)$  implementation. This program accomplishes all requirements.

With the input array of 4, 6, 8, 15, 20, 22, 10, 3, 9, 2, and a K value of 4, we are given the desired output using a runtime of  $O(nk)$



```
Problems Tasks Console 
```

```
<terminated> (exit value: 0) Module5-ProgramAssignment  
Enter k:  
4  
Input Array: 4 6 8 15 20 22 10 3 9 2  
k: 4  
2 3 4 6
```

With the input array of 4, 6, 8, 15, 20, 22, 10, 3, 9, 2, and a K value of 6, we are given the desired output using a runtime of  $O(nk)$

```
Problems Tasks Console
<terminated> (exit value: 0) Module5-ProgramAssignment-Par
Enter k:
6
Input Array: 4 6 8 15 20 22 10 3 9 2
k: 6
2 3 4 6 8 9
```

With an input array of 4, 6, 8, 15, 20, 22, 10, 3, 9, 2, we can see that the median calculated using our  $O(nk)$  function is 8.5 which is the average of the middle two numbers.

```
Problems Tasks Console
<terminated> (exit value: 0) Module5-ProgramAssignment-P
Input Array: 4 6 8 15 20 22 10 3 9 2
Median: 8.5
```

With an input array of 4, 6, 8, 15, 20, 22, 10, 3, 9, 2, we can see that the median calculated using our  $O(nk)$  function is 9, which is the middle number.

```
Problems Tasks Console
<terminated> (exit value: 0) Module5-ProgramAssignment-Par
Input Array: 4 6 8 15 20 22 10 3 9
Median: 9
```