Problem #1

Output from the array of length 16:

```
----------------- Part A (Length of 16 Integers) -----------------
Original Array:
[2, 4, 3, 5, 1, 6, 10, 11, 7, 8, 16, 9, 12, 13, 15, 14]

Sorted Array:
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16]
```

Output from Part B:

```
----------------- Part B -----------------

Unsorted Arrays:
[6463343, 7056020, 679215, 4343902, 8577766]
[1263009, 8065366, 6800160, 3071720, 7863096]

Sorted Arrays:
[679215, 4343902, 6463343, 7056020, 8577766]
[1263009, 3071720, 6800160, 7863096, 8065366]
```

Problem #1

Output of the 2 elements in the array and 1 element not in the array which prompts and IndexError

Array spanning from index 0 - 10:
[0, 1, 5, 7, 8, 9, 10, 11, 11, 11]
Calling binary search for 2 elements within the array:
Element within Array: 5
Element within Array: 8

IndexError Traceback (most recent call last)
<ipython-input-1-3774468ef361> in <module>()
93
94 # Calling binearysearch function for 1 element outside of the bounds of the array
---> 95 binarysearch(z, 3)

---

3 frames

<ipython-input-1-3774468ef361> in binarysearch(arr, x)
56 middle = len(arr) // 2 # Going with the divide and conquer approach to best compare the elements within the array
57
---> 58 if x == arr[middle]:
59 return x
60 elif x > arr[middle]:

IndexError: list index out of range