

Studio Session on C++ Algorithms 2

Part1

1.

Queue&deque, since the iterators are random-accessible, I did it by pointer arithmetic, $O(1)$

List & forward_list, since the iterators are not random-accessible, I did it by iterate through it $O(n)$

```
Algorithm Studio 2\Algorithm Studio 2> ./main
3
3
3
3
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```

2.

When using the empty range i.e. [begin, begin), nothing is outputed

When using a non-empty range, corresponding content, namely, [begin, end-1] is outputed

```
3
3
3
3
Deque range: 1 2 3
List range: 1 2 3
Forward List range: 1 2 3
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```

3.

```
Algorithm Studio 2\Algorithm Studio 2> ./main
-2 19 80 -47 80 80 -2
80 80 80 19 -2 -2 -47
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```

4.

```
using namespace std;
bool cmp(int a, int b) {
    return a > b;
}
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```

```
int arr[] = { -2, 19, 80, -47, 80, 80, -2 };
int arrSize = sizeof(arr) / sizeof(arr[0]);

std::copy(arr, arr + arrSize, std::ostream_iterator<int>(std::cout, " "));
std::cout << std::endl;

std::sort(arr, arr + arrSize, cmp);
std::copy(arr, arr + arrSize, std::ostream_iterator<int>(std::cout, " "));
std::cout << std::endl;

return 0;
```

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5.

```
-2 19 80 -47 80 80 -2
80 80 80 19 -2 -2 -47
```

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Part2

6.

```
-2 19 80 -47 80 80 -2
80 80 80 19 -2 -2 -47
```

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7.

```
-2 19 80 -47 80 80 -2
80 80 80 19 -2 -2 -47
80 80 80 19
```

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