

1)

Read on streams from this page

<https://docs.oracle.com/javase/tutorial/collections/streams/>

Modify the Java assessment of last week's solutions to use streams as much as possible.

2)

The following shows pseudocode to sort an array of numbers.

So if the input = [1,7,2,10,3] the output will be [1,2,3,7,10]

```
1  for  $j = 2$  to  $A.length$ 
2     $key = A[j]$ 
3    // Insert  $A[j]$  into the sorted
      sequence  $A[1..j-1]$ .
4     $i = j - 1$ 
5    while  $i > 0$  and  $A[i] > key$ 
6       $A[i+1] = A[i]$ 
7       $i = i - 1$ 
8     $A[i+1] = key$ 
```

Try implementing in java code.

3)

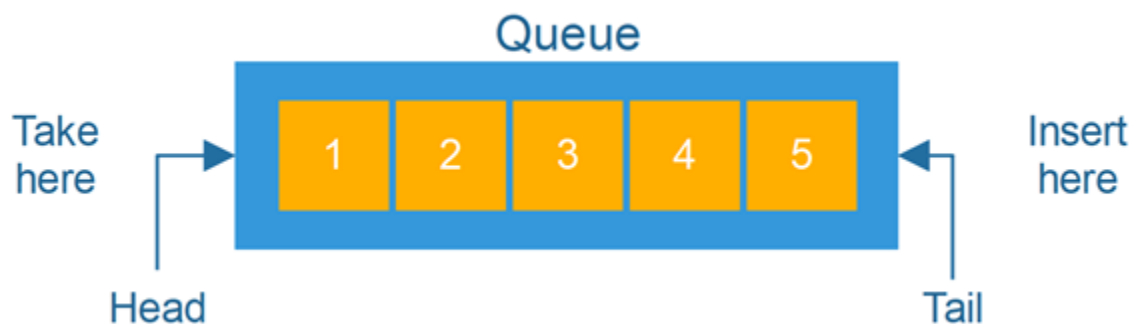
Write a code that takes two sorted arrays and merges them into a single array.

**(sorted array means that the numbers are in ascending order)**

The final merged array should be sorted.

4) We implemented Generic Stack on Day 3. A Stack is a First in Last Out Data structure.

There is a data structure called Queue, which is a First in First Out Data structure.



Implement a Generic Queue. Think of what attributes or methods you will have

5) Implement a method that takes two matrices A and B as input and returns the matrix that is the sum of these two matrices. Now try doing the same thing using threads by implementing a function :

```
public static double[][] parallelAddMatrix(
double[][] a, double[][] b)
```