```cpp
/**
  CECS 282 Lab 5
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  @version 9/28/2020
*/

#include <iostream>
#include <fstream> //ifstream equivalent of scanner
using namespace std;

/**
  This is the prototype for readData. Creates an array and stores to a
pointer this makes is a reference to a pointer
*/
int readData(int * &arr);

/**
  This is the prototype for bsort. This is bubble sort
*/
void bsort(int * arr, int last);
/**
  This is the prototype for writeToConsole. This will display the arr
*/
void writeToConsole(int *arr, int last);


/**
  This is the readData function. Reads data from a text file into an array
It needs a reference because you reference the array when you create a new
one.
  @param * &arr this is a pointer reference to the array
  @return size the size of the array;
*/
int readData(int * &arr) {
  // Open the file to get the data
  int size;

  //needs ifstream input to open txt file
  ifstream inputFile("data.txt");
  // inputFile.open("data.txt"); //can also write like this
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  // The first line of the file is the size of the array
  inputFile >> size;

  //Allocate the memory for pointer arr
  arr = new int[size];

  // Read the rest of the data into the array
  for (int i = 0; i < size; i++) {//do not use [] increment the pointer
    inputFile >> *(arr + i);
  } // End for loop

  inputFile.close();
  return size;
} // End readData

/**
  This is the bubble sort function. The bubble sort swaps numbers
  It will order the numbers in the array to assending order.
  @param * &arr this is a pointer reference to the array and the integer
last. Bubble sort swaps the numbers that are adjacent to each other if
they are in the wrong order.
  @param last this is the integer value of the number ofelements in the
array
*/
void bsort(int *arr, int last){
  bool swapped = true;
  int j = 0;
  int temp;
  while (swapped) {
    swapped = false;
    j++;

    for (int i = 0; i < last - j; i++) {
      if (*(arr + i) > *(arr + i + 1)) {
        temp = *(arr + i);
        *(arr + i) = *(arr + i + 1);
        *(arr + i + 1) = temp;
        swapped = true;
      }//End if statement
    }//End for loop
  }//End while loop
```

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}//End bsort


/**
  This is the writeToConsole function it will display the values in the
array.
  @param * &arr this is a pointer reference to the array and the last
integer  value of the size of the array. The function prints the content
of the array.

*/
void writeToConsole(int *arr, int last){
  for(int i = 0; i < last; i++){
    cout << *(arr + i) << endl;
  }//End for loop
}//End writeToConsole

/**
  This is the main function that will use the methods above: readData,
bsort, writeToConsole.
*/
int main() {
  int * arr;
  int size = readData(arr);

  for(int i = 0; i < size; i++){
    cout << *(arr + i) << endl;
  }
  cout << endl;

  bsort(arr, size);
  //calling bsort to sort the array


  writeToConsole(arr, size);


  return 0;
}
```

```
> clang++-7 -pthread -std=c++17 -o main main.cpp
> ./main
8
4
7
2
9
5
6
1
3
5

1
2
3
4
5
5
6
7
8
9
>
```