2170 End of First Month

- The role of function
  - single purpose
    - don't mix many statements for different purposes in it.
    - 25 lines of code rule
  - function can call other functions, not just the main function can call other functions.
  - function declarations
  - functions discussed in class ➔ tools you should know how to use and actually use them to solve problems
- Parameters
  - what are the parameters? why passing parameters?
  - how to pass parameters?
  - parameter vs. local variables
- Use for loop for array operation when you want to iterate through the items in the array, don't use while loop simply because you are more familiar with that loop structure
- Program efficiency
  - memory efficiency
    - no need to store all the boxes quantity and names in the array
  - computing time efficiency
- Read the instructions carefully when working on the open labs and closed labs

Topics:

- getline function // reads an entire line of characters, it consumes the new line character '\n'
  getline(input stream, string variable)

```
// read from a data file
ifstream myIn;
string name
getline(myIn, name);
```

```
// read from user input
// from the keyboard
string name
getline(cin, name);
```

- if statement, if/else if /else statement
  What are the difference between these two statements?

```
if (age<=2)
    cout << "infant "<< endl;
if (age<=6)
    cout << "toddler" << endl;
if (age <=12)
    cout << "Child" << endl;
if (age <=18)
    cout << "Teen" << endl;
if (age>18)
    cout << "Adult" << endl;
```

```
if (age<=2)
    cout << "infant "<< endl;
else if (age<=6)
    cout << "toddler" << endl;
else if (age <=12)
    cout << "Child" << endl;
else if (age <=18)
    cout << "Teen" << endl;
else
    cout << "Adult" << endl;
```

- Understand array operations using for loop
  - why do you need to know how to trace program execution?
  - how to trace program execution?

```
#include <iostream>
using namespace std;
```

```
void Delete(int [], int, int&);
int main()
{
        int values[10]={4, 16, 3, 8, 20};
    int  size=5;
    int  k;
    int position = 1;

        // Delete the item at position in the array values
        Delete(values, position, size);

        for (k=0; k<size; k++)
           cout << values[k] << " ";
        cout << endl;

        return 0;
}

// This function deletes the element at location "position" in the array named "myArray".
// If the position value is < 0 or greater than the size of the array, nothing will be done.
// Otherwise, the value is deleted, and all the values below will be shifted up one position.
// It returns the new array size.

void Delete(int myArray[],  int position, int &size)
{
        for (int k=size; k>=position; k--)
           myArray[k] = myArray[k-1];

        size--;
}
```