Homework 4

1. What is wrong with the following code, and how would you fix it?

```
  void swap(int* a, int* b) {

      int* tmp = a;
       a = b;
       b = tmp;

  } // end of swap method
```

Instead of putting the "*" after the int in the line "int* tmp=a;", the "*" should be put in front of the a so that the line line would look like "int tmp= *a". The temporary variable should not be set to the dereference of something.

Suppose you have a function that takes an array as an argument in the usual way, which is declared as:

```
   void f(int* array, int length);
```

Suppose you also have an array declared as:

```
int a[128];
```

How would you pass a sub-array containing only the third through sixth elements of a to the function f?

f(a+2, 4);

What is wrong with the following code and how would you fix it?

```
   double* allocateArray(int length) {
      double array[length];
      return array;
}
```

When the function is called, the array variable goes out of scope and the returned pointer is no longer pointing to allocated memory. To fix this, you would allocate the array on the heap.

What is wrong with the following code, and how would you fix it?

```
char string[5];
 string[0] = ’h’;
 string[1] = ’e’;
 string[2] = ’l’;
 string[3] = ’l’;
 string[4] = ’o’;

printf("%s\n", string);
```

The string needs to have a null terminator. That means the string needs to have one more variable that is string [5] = ‘\0’. The array size then needs to be changed to 6.