

CMPUT 350 Lab 5 Prep Problems

1. In file `pp1.cpp` write function template `swap_if_bigger` that swaps two elements of arbitrary but equal type if the first is bigger than the second (use operator `<` to decide)

Examples:

```
int a=2, b=1;
swap_if_bigger(a, b); // now: a=1, b=2

double c=0.5, d=1.3;
swap_if_bigger(c, d); // no change
```

Also write test code in `main()`.

2. In file `pp2.cpp` write class template `Array` that stores a C-array of type `T` and size `N` in place, i.e., not allocating it on the heap.

Also implement the constructor that initializes all values with `T()`, the size function that returns the number of elements, and the bracket operator giving access to elements similar to how C-arrays work.

Examples:

```
Array<int, 3> A1; // int array of size 3 containing 0s
Array<double, 5> A2; // double array of size 5 containing 0s
cout << A1.size() << endl; // 3
cout << A2.size() << endl; // 5
A1[0] = 2;
cout << A1[0] << endl; // 2
```

3. Transform the singly connected list implementation that works for `int` data (given in `SList.h`, `SList.cpp`, `SListMain.cpp`) into a class template for arbitrary data payload.

The class template must be implemented in file `SListTemplate.h` and tested using `SListTemplateMain.cpp`