

CSI2372 [A]

Fall 2021

Lab 8

Final lab!

### Exercise 1 of 3-

Write the generic class **arrayType** to define arrays that can check legal boundaries when accessing their elements. You can look at the main() method of the program to see how to use the class **arrayType**. Use templates and operator overloading in defining the class **arrayType**. The main function of the program is **lab8\_q1\_main.cpp**

### Exercise 2 of 3-

Write a generic **swapArgs()** function that takes two inputs of various types and swaps their values. Specialize the **swapArgs()** function for the int data type, which causes the function to print “the inputs are of type int” as well.

### Exercise 3 of 3-

Derive two classes, kiloToGrams and farenToCelsius, from the abstract class **convertClass**. These two classes convert kilogram to grams and Fahrenheit to Celsius, respectively.

The base class **convertClass** has two fields **initialValue** and **convertedValue**, which store the initial and converted values of the measurements. Two methods **getInitial()** and **getConverted()** of the **convertClass** class are getter methods. The **compute()** method of the **convertClass** performs the conversion of measurements, but it is a *pure abstract method* that any derived class must implement. The main() method of this question is **Q3\_main()**.

*Discuss lines 15,16,22 and 23 of the main() method with TAs.* Every derived class defines its required **compute()** method because it is a pure abstract method in the abstract class **convertClass**.