



Name:

Student ID:

Lab instructor:

Borja Sotomayor

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Maximum possible points: 35

Exercise 1 <<15 points>>

You will implement a Pair ADT (Abstract Data Type) that represents a pair of values. You will use a template class so that the programmer can specify the type of each of the values in the pair. For example:

```
Pair<int, float> p1;  
Pair<int, int> p2;  
Pair<float, int> p3;
```

This class must include a default constructor, a constructor with two parameters (the two values), a copy constructor, get/set methods for both values, and overloaded assignment (=) and equality (==) operators.

Exercise 2 <<10 points>>

You will write a short program that will ask the user for two sequences of numbers and will then merge them. You do *not* have to implement a merging algorithm but, rather, use the containers and generic algorithms included in the STL. Also, take into account that the sequences of numbers specified by the user will not necessarily be in order so, before merging them, you will need to check if they are ordered and, if they are not, sort them (both these operations can be done using STL generic algorithms).

Exercise 3 <<10 points>>

You will write a short program that will ask the user for two sets of numbers and will then show the intersection of those two sets. As in the previous exercise, you don't have to implement a set intersection algorithm yourself. The needed algorithm has not been seen in class, but you can easily find it by checking the STL reference.