**Logo

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**CS360L - Programming in C and C++ Lab**

**2022 Summer Midterm Exam**

**Student Name: Student ID:**

1. Complete the program, relying on class container *sort* function to implement sorting for a given array.

*#include <iostream> // std::cout*

*#include <algorithm> // std::sort*

*#include <vector> // std::vector*

*int main (void) {*

*int arr[] = {3,7,12,45,26,81,52,33};*

*//Write the source code here*

*}*

1. Create a class *A* with a private static variable *x,* initialize *x*, and increase *1* to *x* in a method within the class *A* file. after that, verify it in the main function
2. Knowing that *"if class B is a friend of class A, A is not necessarily a friend of B",* write a program to verify it for class *A* with a private member.
3. Given class *A* & class *B*, and an object *b* of *B* in class *A*, write a program to initialize *b* in class *A* by the constructor with some arguments that you decide
4. Compare *const* pointer related syntax of *p* and *q* as below by the program. And explain what the difference between them is?

*#include <iostream>*

*using namespace std;*

*int main(void){*

*int a=123, b=456;*

*const int\* p;*

*int const\* q;*

*... ...;*

*return 0;*

*}*

1. Write a method in a class *HugeInteger* to implement operator overloading as follows, and verify it in the main function

*class HugeInteger{*

*//Write the source code here*

*... ...;*

*};*

*int main(void){*

*HugeInteger bigInteger;*

*int integer;*

*//Write the source code here*

*bigInteger = bigInteger + integer;*

*... ...;*

*return 0;*

*}*

1. Write a program to implement user-define casting operator to covert a class *A* to the other class

*A::operator otherClass() const;*