Lab11

OBJECT ORIENTED PROGRAMMING

BSCS-SPRING-2022

Tasks

Problem 1:

You are required to design a class that calculate Electricity bill named electricity_bill. It should have customer number, customer name and unit used.

Perform following functionalities in electricity_bill class:

1) A parametrized constructor.

2) A copy constructor.

3) A function, which take details from user.

4) Count the number of customers.
   Hint*: make a static counter and a static function to display the value of that counter

5) A function to calculate electricity bill.

   Example:
   Total Consumed Units = 720.
   The cost of per unit electricity is 9.
   Therefore, the total Cost of Electricity Bill = 720 units x 9 = 6480.

6) A function to confirm that two objects of electricity_bill is not equal.
   Hint*: overload = operator which returns bolean.

7) A const function to display details of electricity_bill.

Problem 2:

The absence of array bounds checking in C++ is a source of potential hazard. Write a class which will perform bounds checking on integer array. Write a class IntegerList with private member variables as:

- **int *list;**// A pointer to an int .

  This member points to the dynamically allocated array of integers (which you will be allocating in constructor).

- **int numElements;**// An integer

  that holds the number of elements in the dynamically allocated array. And public member functions

- **IntegerList(int);**

  The class constructor accepts an int argument that is the number of elements to allocate for the array. The array is allocated, and all elements are set to zero.

- **IntegerList(const IntegerList& intList);**

  The class constructor accepts an IntegerList object and assigns intList.list to current object list (this.list).

- **bool isValid(int);**

  This function validates a subscript into the array. It accepts a subscript value as an argument and returns boolean true if the subscript is in the range 0 through numElements - 1. If the value is outside that range, boolean false is returned.

- **void setElement(int, int);**

  The setElement member function sets a specific element of the list array to a value. The first argument is the element subscript, and the second argument is the value to be stored in that element. The function uses isValid to validate the subscript. If subscript is valid, value is stored at that index, if an invalid subscript is passed to the function, the program aborts.

- **int getElement(int);**

  The getElement member function retrieves a value from a specific element in the list array. The argument is the subscript of the element whose value is to be retrieved.

  The function should use isValid function to validate the subscript. If the subscript is valid, the value is returned. If the subscript is invalid, the program aborts.