**National University of Computer and Emerging Sciences**



Lab Manual # 05

Object oriented programming

(Section BSE-2A)

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**Objectives:**

After performing this lab, students shall be able to:

* Understand what cascading is and how it works in C++
* Copy constructor
* Pointers revision
* Constructors (default, overloaded).
* Destructor

**TASK 1:**

* Define a new class called MyClass that has two public methods:
* MyClass& setX(int x): sets the value of a private member variable m\_x to x and returns a reference to the calling object.
* MyClass& setY(int y): sets the value of a private member variable m\_y to y and returns a reference to the calling object.
* In the main() function, create an instance of MyClass.
* Use cascading to call both setX() and setY() on the same instance of MyClass in a single line of code.
* Print the values of m\_x and m\_y to confirm that the methods were successfully called.

**TASK 2:**

Consider the Time class in the following code and write the body of the function prototypes given for class Time. And in main function write a line of code that creates an instance of the Time class and sets the time to 12:34:56 using the cascading technique.

class Time

{

public:

Time( int = 0, int = 0, int = 0 );

Time &setTime( int, int, int );

Time &setHour( int );

Time &setMinute( int );

Time &setSecond( int );

int getHour() const;

int getMinute() const;

int getSecond() const;

void printUniversal() const;

private:

int hour;

int minute;

int second;

};

int main()

{

Time t;

// Write one line of code to set time i.e hour, min and sec using cascading technique

t.printUniversal();

return 0;

}

**TASK 3:**

Write a class Matrix and perform following task.

* Class have three parameters (int \*\* matrix, int rows, int size)
* Write default constructor (make matrix point to null ptr)
* Write Copy Constructor
* Create 2 matrix objects in main and one should be the copy of other matrix using copy constructor.
* Write setters and getters
  + int\*\* GetMatrix()
  + int GetSize()
  + int GetRows()
  + void SetRows(int r)
  + void SetSize(int s)
  + void SetMatrix(int\*\* m)
* **InputMatrix**
* **Void OutputMatrix()**
* **Int\*\* AddMatrix(Matrix &matrix2)**
* **Description:** This function take matrix as parameters, adds them and saves the result in a newly created matrix R and returns the result
* Write Destructor