**National University of Computer and Emerging Sciences**


# Lab Manual 07
# Object Oriented Programming

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## 1.1 Objectives

After performing this lab, students shall be able to:

- ✓ Friend function
- ✓ Static member variables and functions
- ✓ Inline functions

# Class for Task 1 and 2:

Implement a class called **Box**. The **Box** class will have three data members:

- double length; // Length of a box
- double breadth; // Breadth of a box
- double height; // Height of a box

You have to implement the following:

1. Write a default constructor.
2. Write an overloaded constructor.
3. Write all setters for length, breadth, height.
4. Write all getters for length, breadth, height.
5. Write Print Function

**TASK 1: (Static member and Function)**

1. There should be a static data member
   - static int objectCount; // Increases every time object is created
2. Write member functions as follow:
   - static int getCount();
   - double Volume();
   - double Area();
3. Write a suitable main() function to test the functionality of the static members and functions.

**TASK 2: (Friend Function)**

- Friend Function print_surface_area (SA=2lw+2lh+2hw)
- Friend Function double_data_members (length, breadth, height)
- Write a suitable main() function to test all the functions of the **Box** class and to test the functionality of the Friend Function.

**TASK 3: (Inline Function)**

Implement a class called **Operation**. The Operation class will have three data members:

- int a;
- int b;

You have to implement the following:

1. Implement all getters/setters.
2. Write an overloaded and default constructor.
3. Implement following member functions such that they are inline.

```
void sum();
void difference();
void product();                    // Write in Comments section what are the
void division();                      benefits of inline function.
```

4. Write a suitable main() function to show desired functionality.