National University of Computer and Emerging Sciences

Lab Manual 08
Object Oriented Programming

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Objectives:

After performing this lab, students shall be able to:
- ✓ This Pointer
- ✓ Cascaded function calls
- ✓ Static member variables and functions

TASK 1: (Static member and Function)

Implement a class called **Box**. The Box class will have three data members:
- int length;
- int breadth;
- int height;

You have to implement the following:

1. Implement all getters/setters.

2. There should be a static data member
   - static int objectCount;   // Increases every time object is created

3. Write an overloaded and default constructor.

4. Write member functions as follow:
   - static int getCount();
   - double Volume();
   - double Area();

5. Also find the function values by passing local data members into the following functions.
   - double Volume();
   - double Area();

   Note: For assigning and accessing the values of local variables we must use this pointer because same data members are present there.

6. Write a suitable main() function to test the functionality of the static members and functions.

TASK 2: (Cascading)

Implement a class called **Duration**. The Duration class will have three data members:
- int date;
- int month;
- int year;
- int salary;

You have to implement the following:

1. Write a default constructor.

2. Write an overloaded constructor to enter the current date, month and year.

3. Write all setters for date, month, year such that each method of returns a reference to itself. (Cascading)

   > Make sure that
   > - Date can never be greater than 31 and less than 1.
   > - Month can never be greater than 12 and less than 1.
   > - Year can never be greater than 2022 and less than 0.
   >
   > Whenever object is created your setters logic should be checked.

4. Write a member function getEmployeeDuration() that returns the working duration of an employee in this company by comparing it with current date.

5. Write all getters.

6. Write a member function newSalary() that returns the salary of each employee if

   - EmployeeDuration is greater than 3 years than 7% appraisal is added
   - EmployeeDuration is greater than 5 years than 10% appraisal is added
   - Otherwise salary of an employee remains same

7. Write a suitable main() function to test all the functions of the Duration class such that implementation of function cascading is clear.