

National University of Computer and Emerging Sciences



Lab Manual 04 Object Oriented Programming

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Objectives

After performing this lab, students shall be able to:

- ✓ Learn basics of classes and object creation.
- ✓ Create Constructors (Default Parameterized, Overloaded).
- ✓ Create and use setters and getters.

TASK 1:

Define your class in “Date.h” file, Implement all the functions of Date class in “Date.cpp” and Test your class in “Driver.cpp”.

Exercise 1:

- Create a class Date having following private data members:
 Int Day
 Int Month
 Int Year
- Create an object of Date “date1” and run your program

Exercise 2 [Default Constructor]:

- Write a default Constructor of Date that initializes the object to 1st January 1926 and prints “Default Constructor Called” in start.
- Now run your program and test what does date1 prints?

Exercise 3 [Print Function]:

- Implement a function Print in Date class which prints a date in following format: dd/mm/yyyy (e.g. 1/1/1926 for date1)
- Print object date1 in your main function and run the program.
- What does it print and how can we initialize the data of date1 at the time of creation?

Exercise 4 [Overloaded Constructor]:

- Write an overloaded Constructor of Date class that initializes the date object to date, month and year provided as parameter and prints “Overloaded Function Called”
- Now create another object independenceDay in main that is 14/08/2020
- Print independenceDay by calling Print function of Date class and run your program

Exercise 5 [Input Function]:

- Write a function Input in your Date class that takes input from user to populate a Date object.
- Call “date1.Input()” and “date1.Print()” in your driver program and test it.

Exercise 6 [Setters]:

- Create an object xmasDay using default constructor.
- Print xmasDay and see what it prints.

- Write Setters i.e. SetDay, SetMonth and SetYear in your class.
- Now set xmasDay to 25/12/2020 using Setters in main.

Exercise 7 [Getters]:

- Write Getters i.e. GetDay, GetMonth and GetYear in your date class.
- Now print xmasDay using Getters in your Driver program.

TASK 2:

Implement a class called myVector that stores integers in it. You have to implement the following members:

1. Private data member **arrayPtr** to integer array
2. Private data member **capacity** of array
3. Private data member that specifies the actual elements i.e. **current size**(elements added to the array by the user (initially it should be set to zero))
4. Default constructor (initially it should allocate an array of size 2. You will have to set the other private members too. Initialize the array to zero)
5. Constructor with int parameter (the int parameter specifies the capacity of the array). The constructor should initialize the entire array to zero.
6. Copy constructor (should make a deep copy)
7. Destructor (if the array is allocated then deallocate it)
8. Get function for total capacity...(think of other get functions)

TASK 3:

As we already know that a class is simply a representation of a type of object. It is the blueprint/plan/template that describes the details of an object.

Your task is to design a class for Student. You must take any 5 necessary data members as Roll No, Name, CNIC, Degree and Address. Now implement all the required functions i.e. constructors, getters, setters, input function, print function.

Now create an object of Student in the main and try all the functions.

NOTE: Make sure that you create 3 separate files, .h file to declare class and its members, imp.cpp file for implementation member function of class. Driver.cpp file for main() function.