National University of Computer and Emerging Sciences

# Lab Manual 02
# Object Oriented Programming – CL1004

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# Lab Manual 02 – Pointers and Arrays II

**Important Note:**

- **You may find the syntax to accomplish these exercises from lecture demo.**
- **Add Necessary Comments in you code to justify your logic.**
- **Comment exercise number or statement at the start of your code**
- **Save each exercise in .cpp file with your roll no, ex and lab number e.g.**
- **22LXXXX_EX01_Lab01.cpp**
- **Place all of your exercises in a folder a Zip it (Do not create .rar file) with roll no and lab no. e.g. 22LXXX_Lab01.zip**
- **Make sure that the interface of your program is user friendly i.e. properly display information.**
- **Properly follow the coding standards.**

## 1. Exercise Using subscripting and pointer notations with array – [20 Minutes]

Declare an array of 5 elements. Print the elements of the array:

1. Using Array subscript notation.
2. Using Offset notation where the pointer is the array name.
3. Using Pointer subscript notation.
4. Using Offset notation.

## 2. Exercise – Dynamic Allocation – [30 Minutes]

Write a function that takes two arguments as input: a pointer to integer p and size s. You are required to allocate memory for an array with s elements of type int using new operator. As your next step, randomly initialize all the elements of the array and then update each element value with its square, i.e., replace each element value with its square.
Point to Ponder: why we are passing the pointer by reference into the function?

## 3. Exercise Passing Pointer to a Function [30 Minutes]

Take Salary and bonus of an employee from the user, create a function named fullSalary. Pass Pointer of salary as reference parameter to the function to calculate full salary (full salary is obtained by adding salary and bonus). Print the full salary in main().

## 4. Exercise – Dynamic Allocation – [30 Minutes]

Declare two dynamic arrays of length 5. Initialize one of them from user input. Make the second one duplicate of the first one using pointers arithmetic and assignment operator.

## 5. Exercise – Pointers [30 Minutes]

Write a program which contains a function isPalindrome, the function checks a string using pointers whether it is a palindrome or not and based on the decision return True or False. A string/word that reads the same backwards as forward is known as palindrome.
E.g. MADAM, POP, BOB etc.