

**Guidelines for Programming in C++
(BSCS08A)
Skill Enhancement Course
B. Sc. Physical Science/Mathematical Science**

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Chapter 5	Upto page no. 171, 176 (Returning values from functions) – 178, 188 (Overloaded functions) - 199 (upto Default arguments)	Ref [1]
Chapter 6	Upto page no. 241(upto returning objects from functions)	Ref [1]
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Reference

Object Oriented Programming in C++ by Robert Lafore, 4th Edition, SAMS Publishing

Suggestive Practical List

Note: It is recommended that additional exercises be given to students for extra practice

1. Write a program (WAP) to find the greatest of three numbers.
2. WAP to reverse a number.
3. WAP to convert temperature in Celsius to Fahrenheit.
4. WAP to compute the sum of the first n terms of the following series
 $S = 1 - 2 + 3 - 4 + 5 - \dots$
5. WAP to find factorial of a given number a) using recursion b) using iteration.
6. WAP to find grade of a student given her/his marks in four subjects.
7. WAP to find whether a given number is prime or not.
8. WAP to compute the factors of a given number using default argument.
9. WAP to swap two numbers-
10. WAP to define a function 'Area' that calculates the area of a rectangle, square and triangle. Use function overloading.
11. WAP (menu-driven) to perform following actions on an array entered by the user:
 - i) Print the even-valued elements
 - ii) Print the odd-valued elements
 - iii) Calculate and print the sum and average of the elements of array
 - iv) Print the maximum and minimum element of array
12. WAP to print a triangle of stars as follows (take number of lines from user):

```
*
*
* *
* * *
* * * *
```
13. Create a structure called Employee that contains the following members: employee number, name and salary. Display the information of an employee.
14. Create Matrix class. WAP (menu-driven) to perform following matrix operations:
 - a) Sum
 - b) Difference
 - c) Transpose
15. Create a class: Person with member variables: name and age. Create two overloaded constructors for this class along with a copy constructor. Also create a destructor. Include member function, get_data(), to get the name and age of the person. Define a member function, display_data() to display the member variables. Define objects for this class and showcase the

use of each of these functions.

16. Inherit the above defined class: Person to create two new classes: Teacher and Student. In both the new classes, override the `get_data()` function of the Person class. Also include new functions `get_specialization()` and `get_class()` for the Teacher and Student class respectively. Create objects of these classes. Use the member functions suitably to show the properties of inheritance.
17. Create a text file by taking input from user. Save the file and read back the contents of the file and display on the screen.