# C++ ASSIGNMENT 1.1

1. Write a program to print “Hello World” on the screen.
2. Write a program that generate the following output
   10, 20, 19
   Use an integer constant for 10, an arithmetic C++ ASSIGNMENT operator to generate the 20, and a decrement operator to generate 19.
3. Write a program that asks the user to enter a radius value and then compute the volume of a sphere with the input radius.
4. Write a program that takes three input of sides of a triangle. The program should indicate whether the triangle would be formed or not. If it can be formed it also indicates the type.
5. Write a program that takes one input as number and it will display whether the number is +ve, -ve or zero. If the number is +ve, then it will display whether the number is odd or even.
6. Write a program which takes username as input and it greets to user with his name.
7. Write a program, which takes two integer numbers as input and it shows their exchanged value. (Don’t use third variable)
8. WAP to check Leap Year.
9. WAP for finding remainder of division of 2 numbers.
10. WAP to calculate Area of Rectangle.
11. WAP to calculate Area of Square.
12. WAP to calculate the area of Triangle.
13. WAP to calculate Area and Circumference of Circle.
14. WAP for two item’s weight (floating points' values) and number of purchase (floating points' values) and calculate the average value of the items.
    Test Data:
    Weight - Item1: 15
    No. of item1: 5
    Weight - Item2: 25
    No. of item2: 4
    Expected Output:
    Average Value = 19.444444
15. WAP to calculate a bike’s average consumption from the given total distance (integer value) travelled (in km) and spent fuel.
    Test Data:
    Input total distance in km: 350
    Input total fuel spent in litres: 5
    Expected Output:
    Average consumption (km/lt) 70.00
16. Write a program that will give the grade of the student based on the percentage he got in the course.
    Use the following criteria for assigning grades:
    Grade = A ( when percentage >= 60)
    Grade = B ( when percentage >= 50 and percentage < 60)
    Grade = C ( when percentage >= 40 and percentage < 50)
    Grade = D ( when percentage >= 30 and percentage < 40)
    Grade = E ( when percentage >= 20 and percentage < 30)
17. WAP to check whether a number is divisible by 5.
18. WAP to input basic salary of an employee and calculate its Gross salary according to following:
    Basic Salary <= 10000 : HRA = 20%, DA = 80%
    Basic Salary <= 20000 : HRA = 25%, DA = 90%
    Basic Salary > 20000 : HRA = 30%, DA = 95%
19. WAP to input electricity unit charges and calculate total electricity bill according to the given condition:
    For first 50 units Rs. 0.50/unit
    For next 100 units Rs. 0.75/unit
    For next 100 units Rs. 1.20/unit
    For unit above 250 Rs. 1.50/unit
    An additional surcharge of 20% is added to the bill

## C++ ASSIGNMENT 1.2

1. WAP for printing all natural numbers till 20.
2. WAP for printing all natural numbers in reverse order starting from 20.
3. WAP for printing all even numbers from 1 to 20.
4. WAP for printing all odd numbers from 1 to 20.
5. WAP for adding all numbers from 1 to 20.
6. WAP for finding sum of all even numbers till 20.
7. WAP for finding sum of all odd numbers till 20.
8. WAP for printing multiplication table of a number. For eg. Display should be " 2 X 1 = 2"
9. WAP to calculate factorial of a number.
10. WAP to check whether a number is prime or not.
11. WAP to print all digits of a number and their sum.
12. WAP to print reverse of a number.
13. WAP to check whether the number is Armstrong or not.
14. WAP to print the Fibonacci series in a given range.
15. WAP to check whether the number entered is palindrome or not.

## C++ ASSIGNMENT 1.3

WAP to print following kind of patterns:

1)
```
*
**
***
****
******
```

2)
```
     *
    **
   ***
  ****
******
```

3)
```
     *
    ***
   *****
  *******
*********
```

4)
```
*********
****  ****
***    ***
**      **
*        *
```

5)
```
ABCD
ABC
AB
A
```

6)
```
1
12
123
1234
12345
123456
```

7)
```
ABCDEDCBA
ABCD   DCBA
ABC     CBA
AB       BA
A         A
```

## C++ ASSIGNMENT 2 (FUNCTIONS)

Solve the questions of C assignment 1.2 using functions.

## C++ ASSIGNMENT 3 (RECURSION)

1. WAP to calculate factorial of a number.
2. WAP to print all digits of a number and their sum.
3. WAP to print reverse of a number.
4. WAP to check whether the number is Armstrong or not.
5. WAP to print the Fibonacci series in a given range.
6. WAP to check whether the number entered is palindrome or not.

## C++ ASSIGNMENT 4 (ARRAYS)

1. Write a program that asks the user to take array of 10 integers. The program must compute and write how many integers are greater than or equal to 10.
2. Write a program that asks the user to take array of 10 integers. The program must output the largest element in the array, and the index at which that element was found.
3. Write a program that asks the user to take array of 10 integers. The program will then sort the array in descending order and display it.
4. Write a program that asks the user to take array of 10 integers. The program will then display either "the array is growing", "the array is decreasing", "the array is constant", or "the array is growing and decreasing."
5. Write a program which takes 2 arrays of 10 integers each, a and b. c is an array with 20 integers. The program should put into c the appending of b to a, the first 10 integers of c from array a, the latter 10 from b. Then the program should display c.
6. Write a program that asks the user to take an array of 10 integer and an integer value V and an index value i between 0 and 9. The program must put the value V at the place i in the array, shifting each element right and dropping off the last element. The program must then write the final array.
7. Write a program to handle the command line arguments entered by the user.
8. Write a program to add 2 matrices.
9. Write a program to multiply 2 matrices.
10. Write a program to implement sorting an array.
11. Write a program in C to calculate the square of the number using inline functions and macros both.
12. Write a program in C to calculate area of all figures using the concept of function overloading.

## C++ ASSIGNMENT 5 (STRING HANDLING)

1. Write a program to find the length of string.
2. Write a program to display string from backward.
3. Write a program to count number of words in string.
4. Write a program to concatenate one string contents to another.
5. Write a program to compare two strings they are exact equal or not.
6. Write a program to check a string is palindrome or not.
7. Write a program to find a substring within a string. If found display its starting position.

8. Write a program to reverse a string.
9. Write a program to convert a string in lowercase.
10. Write a program to convert a string in uppercase.

*** Implement above programs 1 to 10 by using pointers also.**