**18CSC202J – OODP - C++ Lab 2 Exercises**

**Topic: Control Structures**

1. Write a C++ program to print whether the given number is positive number or negative number.
2. Write C++ program to find if an integer is positive, negative or zero **// using nested if statements**
3. Write a program to checks whether a year (integer) entered by the user is a leap year or not. **Using if...else Ladder**
4. Write C++ program to find the sum of positive numbers, if the user enters a negative numbers, break ends the loop the negative number entered is not added to sum.
5. C++ Program to Count Total Number of Notes Using If Else Statement.

Example Test case:

Input: Enter the amount: 5454

Output:

Total number of notes:

2000 = 2

500 = 2

200 = 2

100 = 0

50 = 1

20 = 0

10 = 0

5 = 0

2 = 2

1 = 0

1. Write a program to find the prime numbers between100 to 500.
2. Write a program to calculate positive numbers till 50 only if the user enters a negative number, that number is skipped from the calculation. (negative number -> loop terminate , numbers above 50 -> skip iteration)
3. Consider the situation when you need to write a c++ program which prints number from 1 to 10 and but not 6. It is specified that you have to do this using loop and only one loop is allowed to use.
4. Write a program to create a Calculator using the switch Statement.
5. Write a program to calculate the average of numbers entered by the user. If the user enters a negative number, it ignores the number and calculates the average number entered before it (Use Go to statement)
6. Write C++ program to check if a number is even or not using go to statement
7. Write a program to find factorial of a given number using Recursion
8. Write a program to find Fibonacci series Using Recursion in C++.
9. Write a program to Calculate Number Power Using Recursion in C++.
10. Write a program to find Reverse a number Using Recursion in C++.

**Topic: Arrays, Strings and Functions**

1. Write a C++ program to find the largest element of a given array of integers
2. Write a C++ program to rearrange the elements of a given array of integers in zig-zag fashion way.
3. Write a C++ program to find and print all common elements in three sorted arrays of integers.
4. Write a C++ program to find the second lowest and highest numbers in a given array.
5. Write a C++ program to change every letter in a given string with the letter following it in the alphabet.
6. Write a C++ program to capitalize the first letter of each word of a given string. Words must be separated by only one space.
7. Write a C++ program to update every array element by multiplication of next and previous values of a given array of integers.
8. Write a C++ program to insert a dash character (-) between two odd numbers in a given string of numbers.
9. Write a simple C++ program to get string input array of fruit names and display it using for-loop.
10. Write a program using functions to implement Fibonacci series.
11. Write a program using functions to swap two number’s using call by value.
12. Write a program using functions to swap two number’s using call by reference.
13. Write a program using recursive function to find factorial of given number.
14. Create your own version of the library function strcmp(s1, s2), which compares two strings and returns –1 if s1 comes first alphabetically, 0 if s1 and s2 are the same, and 1 if s2 comes first alphabetically. Name your function compstr(). It should take two char\* strings as arguments, compare them character by character, and return an int. Write a main () program to test the function with different combinations of strings. Use pointer notation throughout.

15. Write a complete program that prompts the user for the radius of a sphere, and

calculates and prints the volume of that sphere. Use an inline function

sphere Volume that returns the result of the following expression: (4.0 / 3.0 \*

3.14159 \* pow (radius, 3)).

**Topic: Structures, Union, and File concepts in C**

1. Write a C program to store information of n students using structure
2. Write a C program to calculate the difference between two time periods
3. Write a C program to add two distances in feet and inches using structure
4. Write a C program to extract individual bytes from an unsigned int using union
5. Write a [C program to find the size of the union](https://www.includehelp.com/c-programs/find-the-size-of-the-union.aspx?ref=rp)
6. Write a C program to create a file and write contents, save and close the file.
7. Write a C program to read numbers from a file and write even, odd and prime

numbers to separate file.

1. Write a C program to append content to a file.
2. Write a C program to copy contents from one file to another file.
3. Write a C program to copy contents from one file to another file.
4. Write a C program to count characters, words and lines in a text file.
5. Write a C program to remove specific line from a text file.
6. Write a C program to find occurrence of a word in a text file.
7. Write a C program to convert uppercase to lowercase character and vice versa in a text file.
8. Write a C program to check if a file or directory exists.
9. Write a C program to list all files and sub-directories recursively.