TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
PULCHOWK CAMPUS
DEPARTMENT OF ELECTRONICS AND COMPUTER ENGINEERING

LAB SHEETS
ON

COMPUTER PROGRAMMING[CT 401]

Bachelor's Degree in Electrical Engineering (BEL)
First Year First Part (I/I)

Lab Teachers:
Dr. Surendra Shrestha
Er. Bikal Adhikari
Er. Anila Kansakar

Tribhuvan University
Institute of Engineering
Pulchowk Campus
Department of Electronics and Computer Engineering
"Computer Programming"
(Practical)
FOR
BEL First Year First Part (I/I)
(Group C)
2079 Odd Semester

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Lab-1

Input/output statements in C

In this lab, students shall write and run different programs related to formatted/unformatted input output statements in C. Following programs shall be covered in the lab:

[1]. Write a Program(WAP) in C to input a character from the user and display the entered character using getchar() and putchar()
[2]. WAP in C to input a string from the user and display the entered string using gets() and puts().
[3]. WAP in C to illustrate the concept of formatted input/output. Your program should input name, roll, marks, address and phone number of a student from the user using scanf() and display the entered information using printf().
[4]. WAP in C to add two complex numbers entered by the user and display the result.
[5]. WAP in C to convert a temperature entered by the user in degree centigrade into Fahrenheit and display the converted value.

Note:-

i. **In every lab classes, students must bring the lab report of earlier lab class and the initial for the concerned lab in the instructed format. Otherwise his/her attendance would be absent.**
ii. **While attending every lab classes, the lab report of earlier lab must be submitted.**

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Lab-2

Control Statements in C Part I

In this lab, students shall write and run different programs related to control statements in C. Following programs shall be covered in the lab:

[1]. WAP in C to find the greatest among three numbers entered by the user.

[2]. WAP in C to find the roots of a quadratic equation $ax^2 + bx + c = 0$. Your program should input coefficients a, b and c from the user.

[3]. WAP in C to display the multiplication table of an integer entered by the user by using while loop or for loop or do while loop in following format:

For Example: if user inputs 5 the output must be

5 X 1 = 5
5 X 2 = 10
.
.
5 X 10 = 50

[4]. WAP to determine whether a number entered by the user is prime or composite.

[5]. WAP to convert a decimal number entered by the user into its binary equivalent and display its value.

[6]. WAP to determine whether the year entered by the user is leap year or not. (Hint: A year is a leap year if : year is divisible by 4 but not by 100 or the year is divisible by 400.)

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Lab-3

Control Statements in C Part II

In this lab, students shall write and run different programs related to control statements in C. Following programs shall be covered in the lab:

[1]. WAP in C to generate the following pattern using the concept of nested loop:

```
1 2 3 4 5 4 3 2 1
  1 2 3 4 3 2 1
    1 2 3 2 1
      1 2 1
        1
```

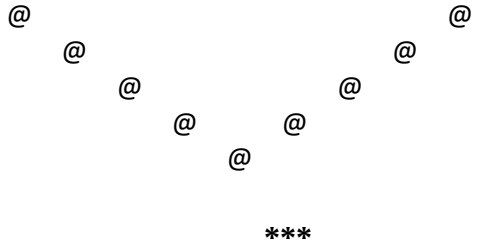
[2]. WAP in C to generate the following pattern using the concept of nested loop:

```
        *
      * * *
    * * * * *
  * * * * * * *
* * * * * * * * *
  * * * * * * *
    * * * * *
      * * *
        *
```

[3]. WAP in C to generate the following pattern using the concept of nested loop:

```
                1
              1   1
            1   2   1
          1   3   3   1
        1   4   6   4   1
      1   5   10  10  5   1
    1   6   15  20  15  6   1
```

[4]. WAP in C to generate the following pattern using the concept of nested loop:



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Lab-4

User Defined Functions in C Part I

In this lab, students shall write and run different programs related to user defined functions in C. Following programs shall be covered in the lab:

[1]. WAP in C to find the sum of two integer numbers entered by the user using function with return type and arguments.

[2]. WAP in C to display the multiplication table of a number entered by the user using function with no argument and no return type.

[3]. WAP in C to convert a number entered by the user from decimal to binary using the concept of a user defined function.

[4]. WAP in C to check whether an entered number is prime or composite using function.

[5]. WAP in C to check whether an entered number is armstrong or not using function.

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Lab-5

User Defined Functions in C Part II

In this lab, students shall write and run different programs related to user defined functions in C. Following programs shall be covered in the lab:

[1]. WAP in C to calculate the factorial of a number entered by the user using the concept of recursive function.

[2]. WAP in C to find the sum of following series up to n terms using recursive function.

$$f(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + ...upton\ terms$$

[3]. WAP in C to check whether a number entered by the user is prime or composite using the concept of recursive function.

[4]. WAP in C to generate n^{th} term of the Fibonacci sequence using the concept of recursive function.

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Lab-6

Arrays, Strings and Pointers in C

In this lab, students shall write and run different programs related to Arrays, strings and pointers in C. Following programs shall be covered in the lab:

[1]. WAP in C to find the greatest number among n integers entered by the user using the concept of one dimensional array.
[2]. WAP in C to find the sum of two matrices entered by the user using the concept of two dimensional arrays.
[3]. WAP in C to concatenate two strings entered by the user.
[4]. WAP in C to check whether a string entered by the user is palindrome or not.
[5]. WAP in C to find the sum of two numbers entered by the user using the concept of pointer.

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Lab-7

Structure and Data Files in C

In this lab, students shall write and run different programs related to Structure and Data Files in C programming language. Following programs shall be covered in the lab:

[1]. WAP in C to multiply two complex numbers entered by the user using the concept of structure.

[2]. Create a structure called student with member variables roll, name, address and marks. WAP to input these data creating an instance of type student and display the entered information.

[3]. WAP to write the name, ID, and salary of n employees in a file named "employee.txt".

[4]. WAP to read the file "employee.txt" created in question number 2.

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Lab-8

Programming in FORTRAN

In this lab, students shall write and run different programs using FORTRAN programming language. Following programs shall be covered in the lab:

[1]. WAP in FORTRAN to input two numbers from the user and display the sum.
[2]. WAP in FORTRAN to find the greatest number among n numbers entered by the user.
[3]. WAP in FORTRAN to find the sum of two matrices entered by the user.
[4]. WAP in FORTRAN to display a multiplication table of an integer number entered by the user.

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