

Lab Report
Fundamentals Of C Programming
CSC-102

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Information

All code used in this report including source code of this report itself is available at:
<https://github.com/beinganukul/Assignments-Of-C/tree/master/A02>

Software

Following compiler and configuration is verified to work with the snippets in this report:

Compiler - gcc 9.2.0 (GCC)

Compiler target - x86_64-pc-linux-gnu

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Program 1

While Loop

1.1 Problem Statement

Write a program to reverse a number using while loop.

1.2 Program

```
#include<stdio.h>
int main() {
    int a,b=0,c;
    printf("Enter an integer number: ");
    scanf("%d",&a);
    while(a!=0) {
        c=a%10;
        b=b*10+c;
        a /=10;
    }
    printf("Reversed number is : %d ",b);
}
```

Program 2

Looping The Sentence For n Numbers Of Times

2.1 Problem Statement

Write a program to read an integer number n from keyboard and display the message Get Well Soon n times.

2.2 Program

```
#include<stdio.h>
int main() {
    int a,i;
    printf("Enter a number to display the number of times.");
    scanf("%d",&a);
    for(i=0;i<=a;i++)
    {
        printf("Get Well Soon\n");
    }
}
```

Program 3

Factorial

3.1 Problem Statement

Write a program to compute the following using factorial.

1. factorial of an integer n .

3.2 Factorial's Algorithm

The factorial of a positive integer n can be obtained recursively using the following algorithm.

- If $n = 0$, return 1.
- Multiply n by $(n - 1)!$ and return the result.

3.3 Factorial

```
#include <stdio.h>
long int factorial(int number);

void main() {

    int number;

    printf("Enter a positive number: ");
    scanf(" %d", &number);

    printf("The factorial of %d is %d\n", number, factorial(number));
}

long int factorial(int number) {

    if(number >= 1)
        return number * factorial(number - 1);

    else
        return 1;

}
```

Program 4

Sum Of Natural Numbers

4.1 Problem Statement

Write a program that asks an integer number n and calculate sum of all natural numbers from 1 to n.

4.2 Program

```
#include<stdio.h>
int main () {
    int a,b,c=0;
    printf("Enter a positive integer number.");
    scanf("%d",&a);
    for ( b=1; b<=a;++b)
    {
        c +=b;
    }
    printf("Sum= %d",c);
}
```

Program 5

Sum of Series using Loop

5.1 Problem Statement

Compute $1^2 + 2^2 + 3^2 + \dots + n^2$ using for loop taking n as input from user.

5.2 Program

```
#include<stdio.h>
int main () {
    int a,b,c=0;
    printf("Enter a positive integer number.");
    scanf("%d",&a);
    for ( b=1; b<=a;++b)
    {
        c +=b;
    }
    printf("Sum= %d",c);
}
```


Program 6

Prime Numbers

6.1 Problem Statement

Write an program to find the prime numbers from given input.

6.2 Algorithm

A natural number is called a prime number (or a prime) if it has exactly two positive divisors, 1 and the number itself. The prime numbers can be computed using following algorithm:

- Inside each iteration, divide the number by every number less than itself except 1.
- If remainder $\neq 0$, the number prime. Otherwise **break** from the loop.

6.3 Program

```
#include<stdio.h>
int main () {
    int a,b,c=0;
    printf("Enter a positive integer number.");
    scanf("%d",&a);
    for ( b=1; b<=a;++b)
    {
        c +=b;
    }
    printf("Sum= %d",c);
}
```