

Roll No: 220950320059

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Assignment 1: C Programing.

- 1. Write a program to check whether a given number is odd or even.**

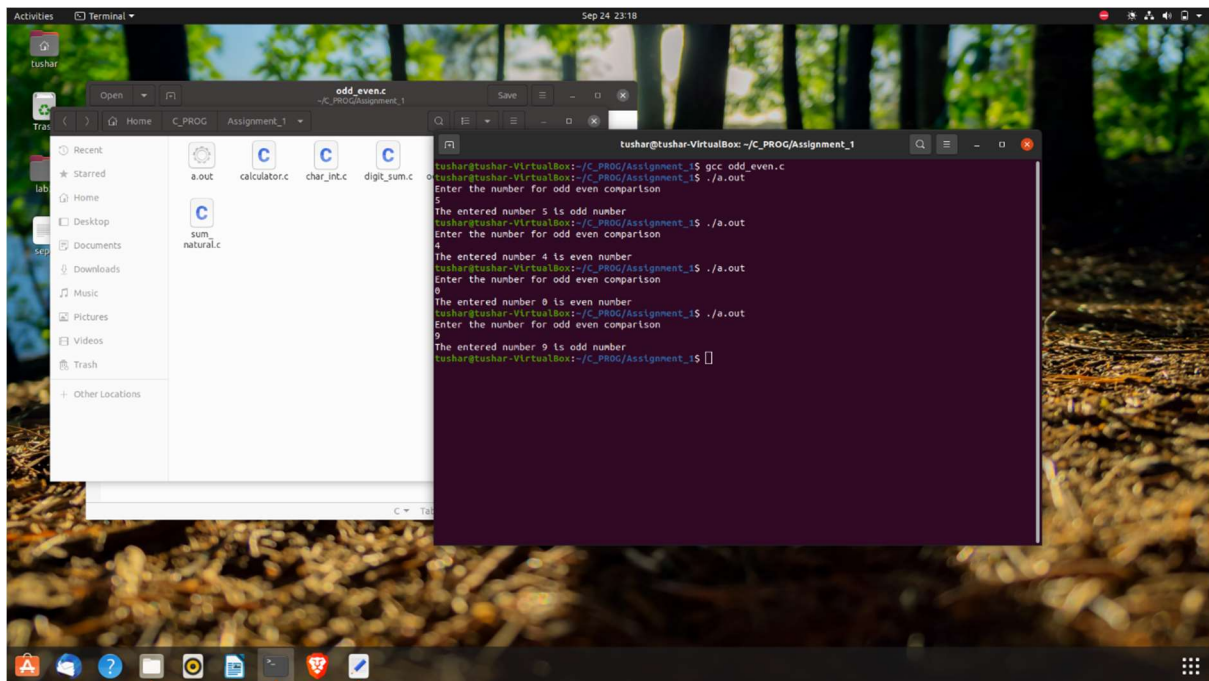
Code:

```
#include<stdio.h>

int main()
{
    int a;
    printf("Enter the number for odd even comparison\n");
    scanf("%d",&a);
    if (a%2==0)
    {
        printf("The entered number %d is even number\n",a);
    }
    else
    {
        printf("The entered number %d is odd number\n",a);
    }
    return 0;
}
```

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Output:



```
tushar@tushar-VirtualBox: ~/C_PROG/Assignment_1
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ gcc odd_even.c
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out
Enter the number for odd even comparison
5
The entered number 5 is odd number
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out
Enter the number for odd even comparison
4
The entered number 4 is even number
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out
Enter the number for odd even comparison
0
The entered number 0 is even number
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out
Enter the number for odd even comparison
9
The entered number 9 is odd number
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$
```

- 2. Write a C program to check whether the input is digit or alphabet.
Print the ASCII number if it is a digit.**

Code:

```
#include<stdio.h>

int main()
{
    char c;
    int val;

    printf("Enter a character or number: ");
    scanf("%c", &c);

    if ((c >= 'a' && c <= 'z') || (c >= 'A' && c <= 'Z'))
    {
        printf("%c is an alphabet.\n", c);
    }
    else if (c >= '0' && c <= '9')
    {
        val = c;
        printf("%c is an integer with ascii value %d. \n", c, val);
    }
    else
    {
        printf("enter the valid component.\n");
    }
    return 0;
}
```

Output:

The screenshot displays a Linux desktop with a background image of a forest. In the foreground, there are two terminal windows. The left window, titled 'char_int.c', shows the source code of a C program. The right window, titled 'tushar@tushar-VirtualBox: ~/C_PROG/Assignment_1', shows the compilation and execution of the program.

```
#include<stdio.h>
2 int main()
3 {
4     char c;
5     int val;
6     printf("Enter a character or number: ");
7     scanf("%c", &c);
8
9     if ((c >= 'a' && c <= 'z') || (c >= 'A' && c <= 'Z'))
10    {
11        printf("%c is an alphabet.\n", c);
12    }
13    else if (c >= '0' && c <= '9')
14    {
15        val = c;
16        printf("%c is an integer with ascii value %d. \n", c, val);
17    }
18    else
19    {
20        printf("enter the valid component.\n");
21    }
22    return 0;
23 }
```

The right terminal window shows the following output:

```
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ gcc char_int.c
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out
Enter a character or number: 5
5 is an integer with ascii value 53.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out
Enter a character or number: a
a is an alphabet.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out
Enter a character or number: A
A is an alphabet.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out
Enter a character or number: @
enter the valid component.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$
```

- 3. Write a program to create a simple calculator to perform Addition, Subtraction, Multiplication and Division using switch statement. Take the required operation as input from the user.**

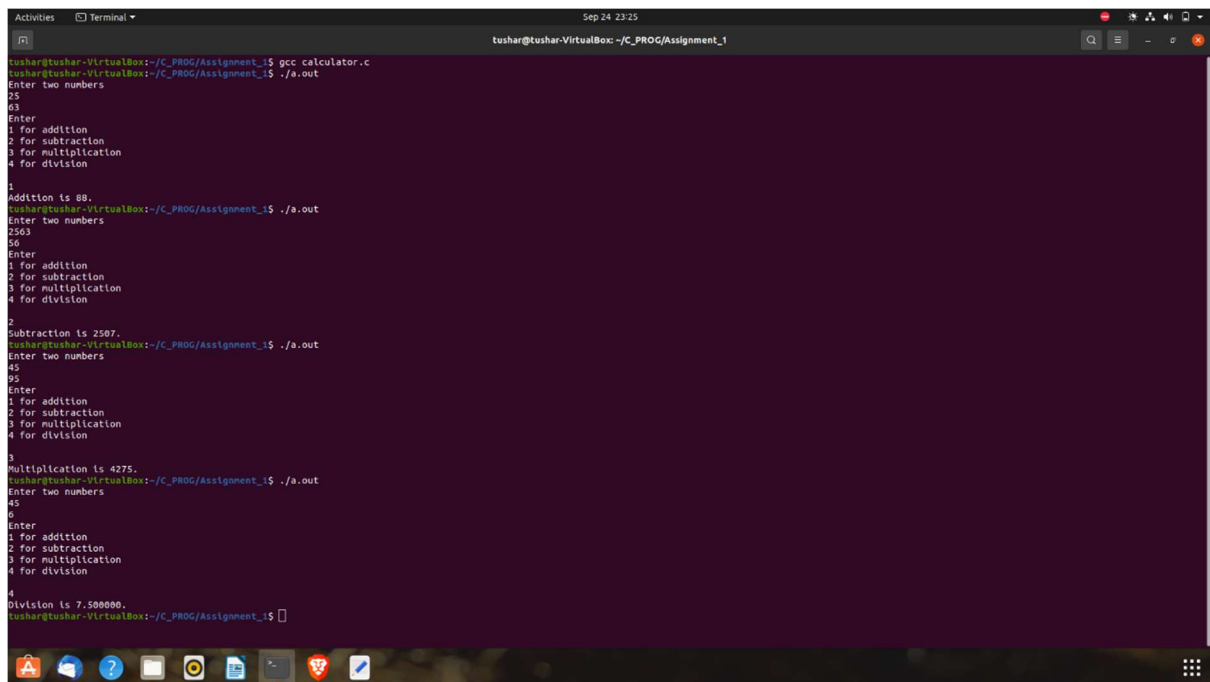
Code:

```
#include<stdio.h>

int main()
{
    int o, addition, subtraction, multiplication;
    float division, a, b;
    printf("Enter two numbers\n");
    scanf("%f%f",&a,&b);
    printf("Enter\n1 for addition\n2 for subtraction\n3 for multiplication\n4 for division\n\n");
    scanf("%d",&o);
    switch (o)
    {
        case 1:
            addition = a + b;
            printf("Addition is %d.\n", addition);
            break;
        case 2:
            subtraction = a - b;
            printf("Subtraction is %d.\n", subtraction);
            break;
        case 3:
            multiplication = a * b;
            printf("Multiplication is %d.\n", multiplication);
            break;
        case 4:
            division = a / b;
            printf("Division is %f.\n", division);
            break;
        default:
```

```
printf("Enter valid number for operation.\n");  
  
break;  
  
}  
  
return 0;  
  
}
```

Output:



```
Activities Terminal Sep 24 23:25  
tushar@tushar-VirtualBox: ~/C_PROG/Assignment_1  
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ gcc calculator.c  
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out  
Enter two numbers  
25  
63  
Enter  
1 for addition  
2 for subtraction  
3 for multiplication  
4 for division  
1  
Addition is 88.  
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out  
Enter two numbers  
2503  
56  
Enter  
1 for addition  
2 for subtraction  
3 for multiplication  
4 for division  
2  
Subtraction is 2507.  
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out  
Enter two numbers  
45  
95  
Enter  
1 for addition  
2 for subtraction  
3 for multiplication  
4 for division  
3  
Multiplication is 4275.  
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out  
Enter two numbers  
45  
6  
Enter  
1 for addition  
2 for subtraction  
3 for multiplication  
4 for division  
4  
Division is 7.500000.  
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$
```

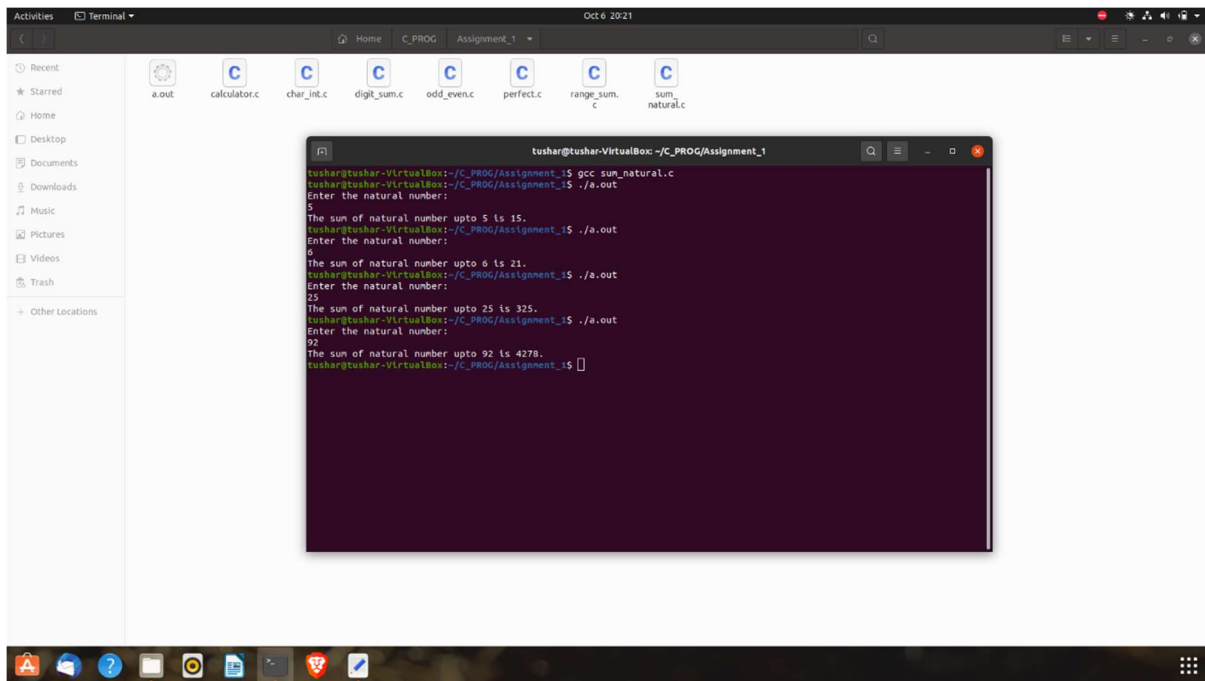
4. Write a program to find out the sum of first n natural numbers.

Take n as input from the user.

Code: #include<stdio.h>

```
int main()
{
    int n, sum = 0;
    printf("Enter the natural number: \n");
    scanf("%d",&n);
    if (n!=0)
    {
        for (int i = 1; i <= n ; i++)
        {
            sum = sum + i;
        }
        printf("The sum of natural number upto %d is %d.\n",n,sum);
    }
    else
    {
        printf("Enter the natural number, given number is not natural.\n");
    }
    return 0;
}
```

Output:



The screenshot shows a Linux desktop environment with a terminal window open. The terminal displays the following output:

```
tushar@tushar-VirtualBox: ~/C_PROG/Assignment_1
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ gcc sum_natural.c
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out
Enter the natural number:
5
The sum of natural number upto 5 is 15.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out
Enter the natural number:
6
The sum of natural number upto 6 is 21.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out
Enter the natural number:
25
The sum of natural number upto 25 is 325.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out
Enter the natural number:
92
The sum of natural number upto 92 is 4278.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$
```


5. Write a program to check whether the given number is perfect number or not.

A number is called as a perfect number if the sum of the factors of that number is equal to the same number. Example: $6 = 1 + 2 + 3$

Code:

```
#include<stdio.h>

int main()
{
    int i = 1, num, sum = 0;
    printf("Enter the number to check perfect number: \n");
    scanf("%d", &num);

    while(i < num)
    {
        if(num % i == 0)
        {
            sum = sum + i;
        }
        i++;
    }
    if(sum == num)
    {
        printf("\n%d is Perfect Number.\n", num);
    }
    else
    {
        printf("\n%d is not a Perfect Number.\n", num);
    }
    return 0;
}
```

O

Output:

The screenshot displays a Linux desktop with a background image of a forest path. In the foreground, there are two terminal windows. The left window, titled 'perfect.c', shows the source code of a C program designed to check if a number is a perfect number. The code includes a header file, a main function, and a while loop that iterates from 1 to the input number, summing its divisors. It then compares the sum to the original number and prints the result. The right window, titled 'tushar@tushar-VirtualBox: ~/C_PROG/Assignment_1', shows the execution of the program. It displays the compilation command 'gcc perfect.c', the execution command './a.out', and the user's input '6'. The output shows '6 is Perfect Number.' followed by another input '58', which results in the output '58 is not a Perfect Number.'

```
1#include<stdio.h>
2int main()
3{
4    int i = 1, num, sum = 0;
5    printf("Enter the number to check perfect number: \n");
6    scanf("%d", &num);
7
8    while(i <= num)
9    {
10       if(num % i == 0)
11       {
12           sum = sum + i;
13       }
14       i++;
15    }
16    if(sum == num)
17    {
18        printf("\n%d is Perfect Number.\n", num);
19    }
20    else
21    {
22        printf("\n%d is not a Perfect Number.\n", num);
23    }
24    return 0;
25}
```

```
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ gcc perfect.c
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out
Enter the number to check perfect number:
6
6 is Perfect Number.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out
Enter the number to check perfect number:
58
58 is not a Perfect Number.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$
```

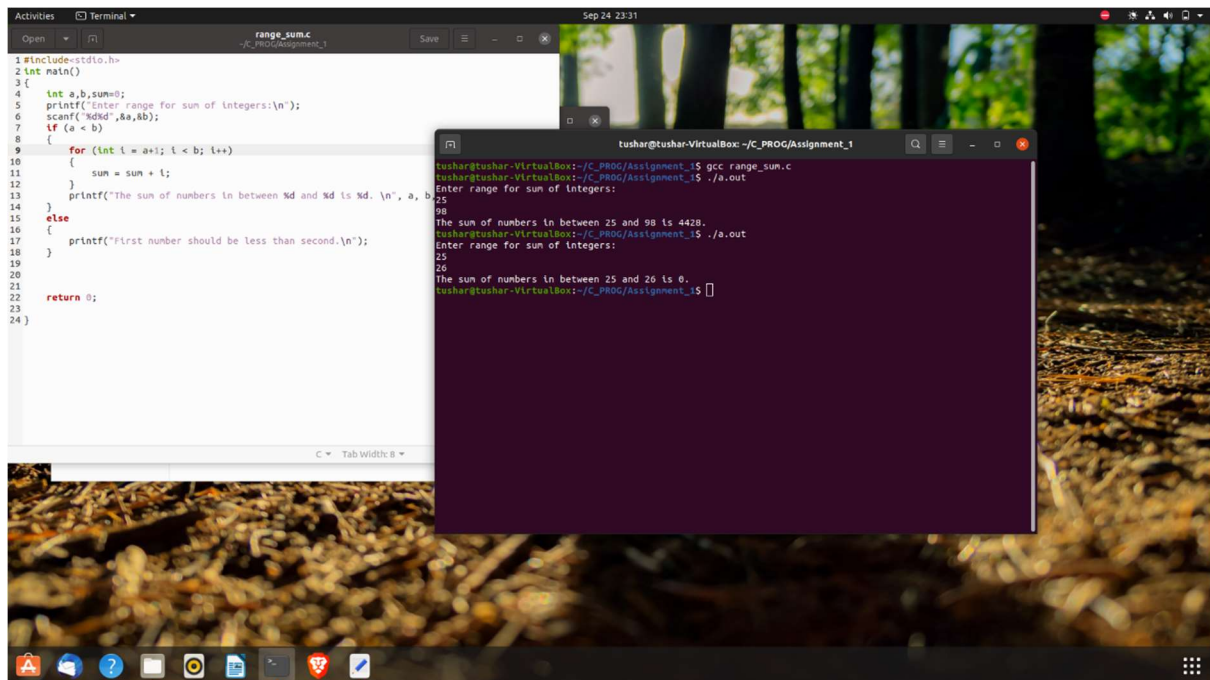
6. Write a program to find the sum of numbers in a given range.

Code:

```
#include<stdio.h>

int main()
{
    int a,b,sum=0;
    printf("Enter range for sum of integers:\n");
    scanf("%d%d",&a,&b);
    if (a < b)
    {
        for (int i = a+1; i < b; i++)
        {
            sum = sum + i;
        }
        printf("The sum of numbers in between %d and %d is %d. \n", a, b, sum);
    }
    else
    {
        printf("First number should be less than second.\n");
    }
    return 0;
}
```

Output:



The screenshot displays a Linux desktop environment with a background image of a forest path. In the foreground, there are two terminal windows. The left window, titled 'range_sum.c', shows the source code of a C program that calculates the sum of integers in a given range. The right window, titled 'tushar@tushar-VirtualBox: ~/C_PROG/Assignment_1', shows the compilation and execution of the program. The program prompts the user to enter a range, and the output shows the sum for the range 25 to 98 as 4428, and for the range 25 to 26 as 0.

```
1 #include<stdio.h>
2 int main()
3 {
4     int a,b,sum=0;
5     printf("Enter range for sum of integers:\n");
6     scanf("%d%d",&a,&b);
7     if (a < b)
8     {
9         for (int i = a+1; i < b; i++)
10        {
11            sum = sum + i;
12        }
13        printf("The sum of numbers in between %d and %d is %d. \n", a, b);
14    }
15    else
16    {
17        printf("first number should be less than second.\n");
18    }
19 }
20
21 return 0;
22
23
24 }
```

```
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ gcc range_sum.c
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out
Enter range for sum of integers:
25
98
The sum of numbers in between 25 and 98 is 4428.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out
Enter range for sum of integers:
25
26
The sum of numbers in between 25 and 26 is 0.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$
```

7. Write a program to calculate the sum of the digits of a given number.

Code:

```
#include<stdio.h>

int main()
{
    int n, sum = 0;

    printf("Enter the number: \n");

    scanf("%d",&n);

    int number = n;

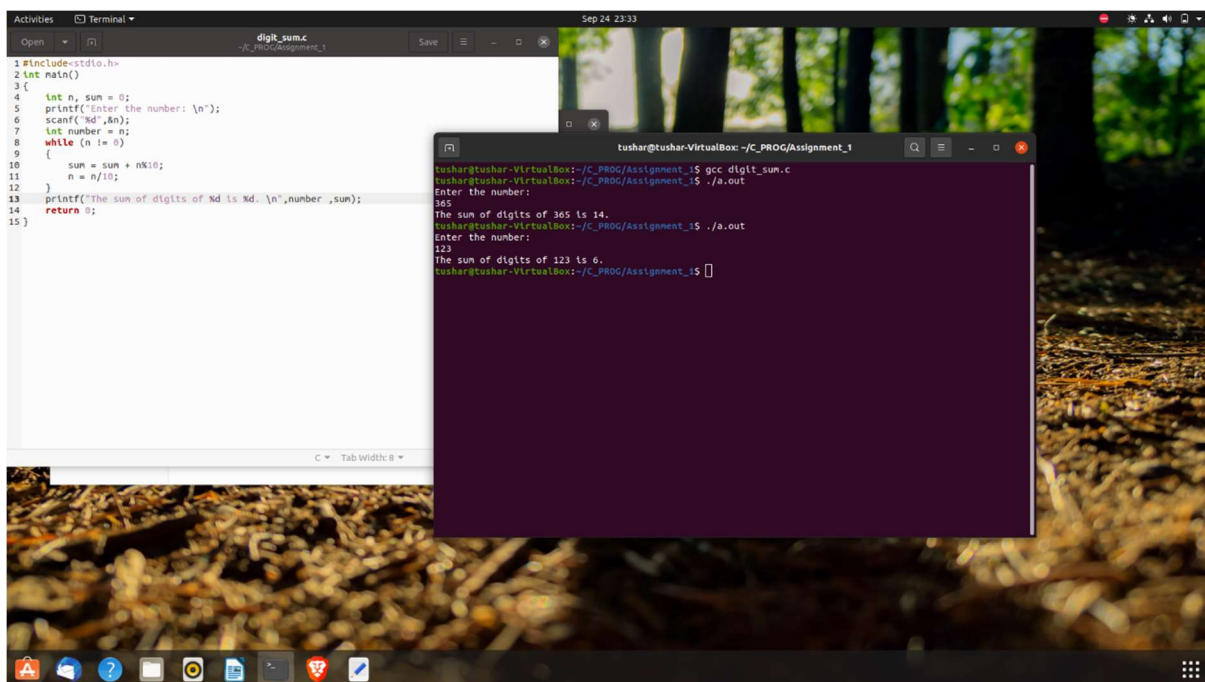
    while (n != 0)
    {
        sum = sum + n%10;

        n = n/10;
    }

    printf("The sum of digits of %d is %d. \n",number ,sum);

    return 0;
}
```

Output:



```
Activities Terminal
Open digit_sum.c -/C_PROG/Assignment_1 Save
1 #include<stdio.h>
2 int main()
3 {
4     int n, sum = 0;
5     printf("Enter the number: \n");
6     scanf("%d",&n);
7     int number = n;
8     while (n != 0)
9     {
10        sum = sum + n%10;
11        n = n/10;
12    }
13    printf("The sum of digits of %d is %d. \n",number ,sum);
14    return 0;
15 }

tushar@tushar-VirtualBox:~/C_PROG/Assignment_1
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ gcc digit_sum.c
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out
Enter the number:
365
The sum of digits of 365 is 14.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$ ./a.out
Enter the number:
123
The sum of digits of 123 is 6.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_1$
```