



## **G. H. RAISONI COLLEGE OF ENGINEERING**

(An Autonomous Institute affiliated to Rashtrasant Tukdoji Maharaj Nagpur University, Nagpur)

Dual Accreditations NAAC "A+" Grade & NBA (Tier-I)

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### **Department of Artificial Intelligence**

### **Phase 2 : Skill Course – Fundamentals of Programming Using C**

#### **TAE – I**

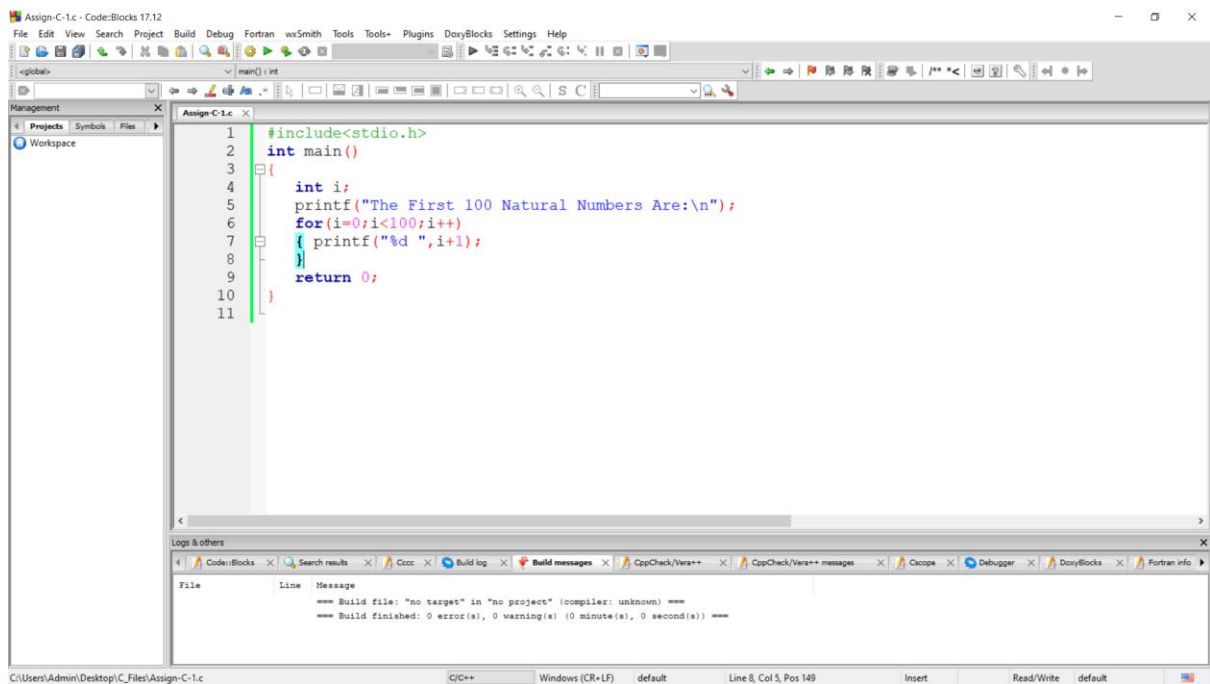
**Name-Gaurav Patil**

**Roll no.=54**

**Section=C**

**Submitted To: Prof. A. Thomas**

1) Write a C program to print the first 100 natural numbers

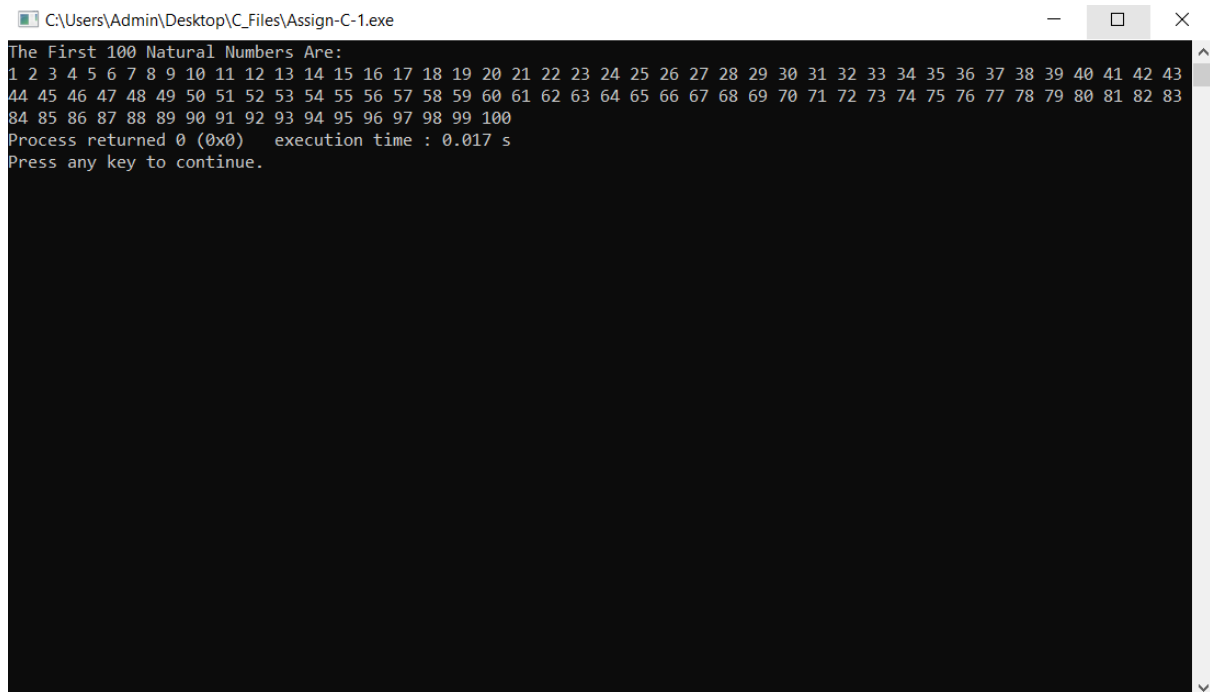


The screenshot shows a C code editor window titled "Assign-C-1.c - Code::Blocks 17.12". The code is as follows:

```
1 #include<stdio.h>
2 int main()
3 {
4     int i;
5     printf("The First 100 Natural Numbers Are:\n");
6     for(i=0;i<100;i++)
7     { printf("%d ",i+1);
8     }
9     return 0;
10 }
11
```

The bottom panel shows the "Log & others" tab with the following messages:

```
File Line Message
=== Build file: "no target" in "no project" (compiler: unknown) ===
=== Build finished: 0 error(s), 0 warning(s) (0 minute(s), 0 second(s)) ===
```



The screenshot shows a terminal window titled "C:\Users\Admin\Desktop\C\_Files\Assign-C-1.exe". The output of the program is as follows:

```
The First 100 Natural Numbers Are:
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43
44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83
84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
Process returned 0 (0x0)   execution time : 0.017 s
Press any key to continue.
```

2) Write a C program to find the sum of first n natural numbers

The image shows a C program in the Code::Blocks IDE and its execution output. The program calculates the sum of the first 100 natural numbers.

```
2  int total(int a)
3  {
4      int i, sum=0;
5      for(i=1; i<101; i++)
6      {
7          sum=sum+i;
8      }
9      return sum;
10 }
11
12 void main()
13 {
14     int a;
15     printf("The sum of First 100 Numbers are as Follows:\n");
16     a=total(100);
17     printf("The sum is = %d\n", a);
18 }
19
```

The execution output shows the program's results and execution details:

```
C:\Users\Admin\Desktop\C_Files\Assign-C-2.exe
The sum of First 100 Numbers are as Follows:
The sum is = 5050

Process returned 18 (0x12)   execution time : 0.011 s
Press any key to continue.
```

### 3) Write a C program to print if the entered number is even or odd

The image shows a screenshot of the Code::Blocks IDE with a C program to check if a number is even or odd. The program is saved as 'Assign-C-3.c' and is being compiled. The output window shows the program's execution with the input '9' and the output 'Its an Odd Number'.

```
#include<stdio.h>
void main()
{
    int a;
    printf("Enter the Number you want to classify as Even or Odd:\t");
    scanf("%d",&a);
    if (a%2==0) printf("Its an Even Number");
    else printf("Its an Odd Number");
}
```

Build messages:

```
==== Build file: "no target" in "no project" (compiler: unknown) ====
==== Build finished: 0 error(s), 0 warning(s) (0 minute(s), 0 second(s)) ====
```

Execution output:

```
Enter the Number you want to classify as Even or Odd: 9
Its an Odd Number
Process returned 17 (0x11)   execution time : 3.042 s
Press any key to continue.
```

4) Write a C program to find the sum of odd numbers and even numbers of n natural numbers

The image shows a C program in the Code::Blocks IDE and its execution output. The program calculates the sum of even and odd numbers up to a given number 'n'.

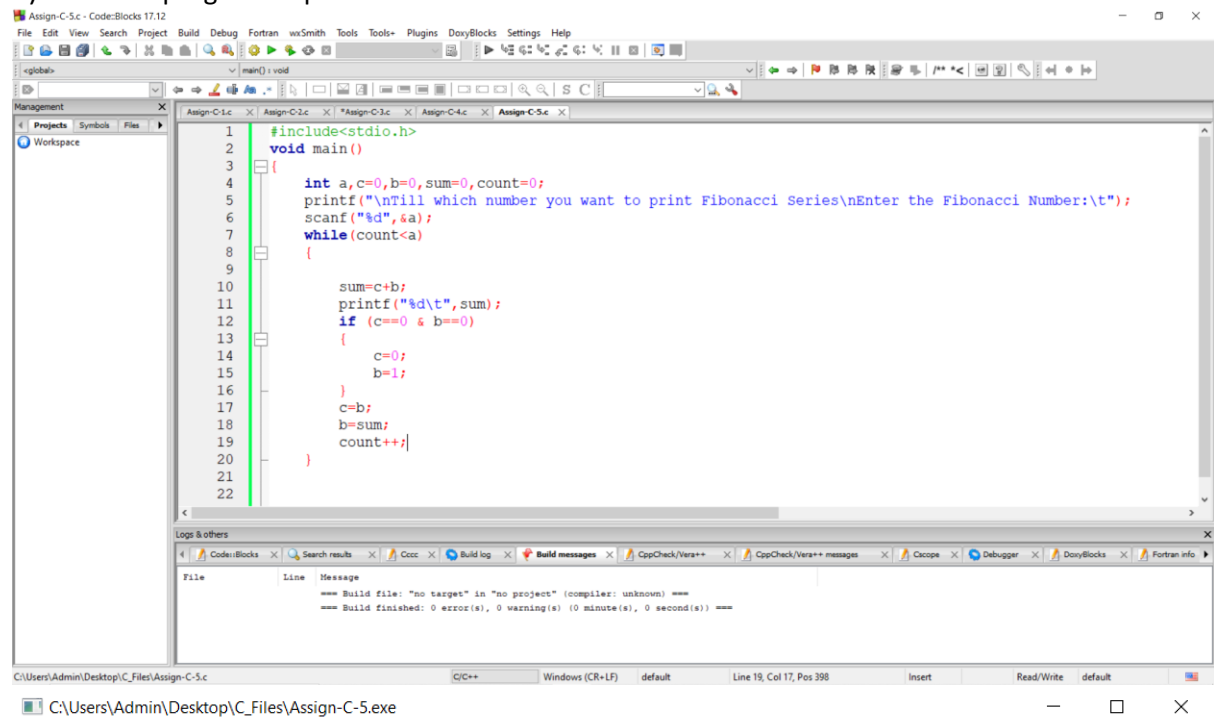
```
1 #include<stdio.h>
2 int total(int a)
3 {
4     int sum1=0, sum2=0, i;
5     for(i=0; i<=a; i++)
6     {
7         if(i%2==0)
8         {
9             sum1=sum1+i;
10        }
11        else
12        {
13            sum2=sum2+i;
14        }
15    }
16    printf("The sum of Even Numbers:\t %d\n", sum1);
17    printf("The sum of Odd Numbers:\t %d\n", sum2);
18    return 0;
19 }
20
21 void main()
22 {
23     int n;
24     printf("\nTill which number you want to find the sum of Even and Odd\nEnter the Number:\n");
25     scanf("%d", &n);
26     total(n);
27 }
```

The execution output shows the program running and displaying the sums for the input number 7:

```
Till which number you want to find the sum of Even and Odd
Enter the Number:
7
The sum of Even Numbers:      12
The sum of Odd Numbers:  16

Process returned 0 (0x0)   execution time : 4.217 s
Press any key to continue.
```

## 5) Write a C program to print the Fibonacci



The screenshot shows a C code editor with the following code:

```
1 #include<stdio.h>
2 void main()
3 {
4     int a,c=0,b=0,sum=0,count=0;
5     printf("\nTill which number you want to print Fibonacci Series\nEnter the Fibonacci Number:\t");
6     scanf("%d",&a);
7     while(count<a)
8     {
9
10        sum=c+b;
11        printf("%d\t",sum);
12        if (c==0 & b==0)
13        {
14            c=0;
15            b=1;
16        }
17        c=b;
18        b=sum;
19        count++;
20    }
21
22 }
```

The build output shows:

```
File Line Message
=== Build file: "no target" in "no project" (compiler: unknown) ===
=== Build finished: 0 error(s), 0 warning(s) (0 minute(s), 0 second(s)) ===
```

```
Till which number you want to print Fibonacci Series
Enter the Fibonacci Number: 20
0    1    1    2    3    5    8    13    21    34    55    89    144    233    377
610  987  1597  2584  4181
Process returned 20 (0x14) execution time : 3.242 s
Press any key to continue.
```

6) Write a C program to print a pyramid of stars.

The screenshot displays the Code::Blocks IDE with a C program open. The program prompts the user to enter the number of rows 'a'. The output shows a series of asterisks forming a triangle, followed by the sum 20 and the execution time 1.980 s.

```

1  #include<stdio.h>
2  void main()
3  {
4      int i,j,b=1,a;
5      printf("Enter the rows i structure:\t");
6      scanf("%d",&a);
7      for (j=0;j<a;j++)
8      {
9          for (i=0;i<(a-j);i++)
10         {
11             printf(" ");
12         }
13         for (i=0;i<j*2-1;i++)
14         {
15             printf("*");
16             b=2;
17         }
18         printf("\n");
19     }
20 }

```

Build messages:

```

=====
Build file: "no target" in "no project" (compiler: unknown)
=====
Build finished: 0 error(s), 0 warning(s) (0 minute(s), 0 second(s))
=====

```

Process returned 20 (0x14) execution time : 1.980 s  
Press any key to continue.

## 7) Write a C program to find if the entered number is a palindrome

The image shows a screenshot of the Code::Blocks IDE with a C program to check for palindromes. The program is saved as 'Assign-C-7.c' and is being compiled. The output window shows the program's execution with the input '1221' and the output 'Palindrome'.

```
1 #include<stdio.h>
2 #include<math.h>
3 void main()
4 {
5
6     int a,b,sum=0,remainder,reverse=0;
7     printf("Enter the number whos has to checked for palindrome:\t\n");
8     scanf("%d",&a);
9     b=a;
10    while (a!=0)
11    {
12        remainder=a%10;
13        reverse=reverse*10+remainder;
14        a=a/10;
15    }
16    if(reverse==b) printf("Palindrome\n");
17    else printf("Not Palindrome\n");
18
19
20 }
21
```

Build messages:

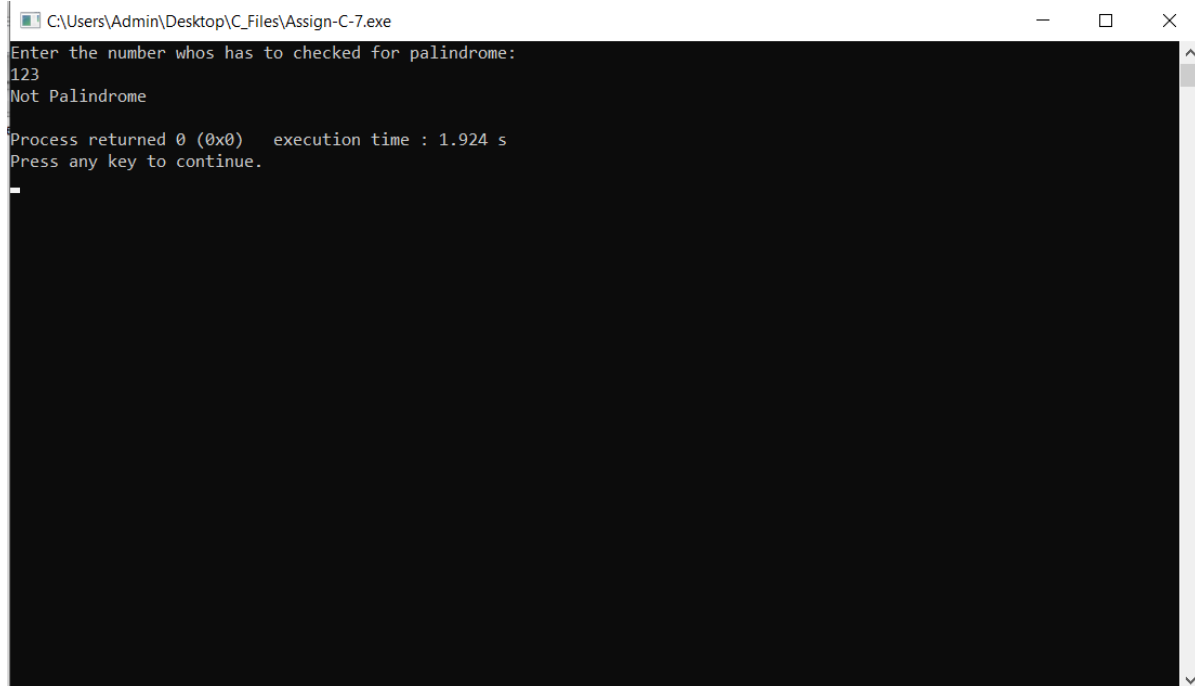
```
==== Build file: "no target" in "no project" (compiler: unknown) ====
==== Build finished: 0 error(s), 0 warning(s) (0 minute(s), 0 second(s)) ====
```

Execution output:

```
C:\Users\Admin\Desktop\C_Files\Assign-C-7.exe
Enter the number whos has to checked for palindrome:
1221
Palindrome

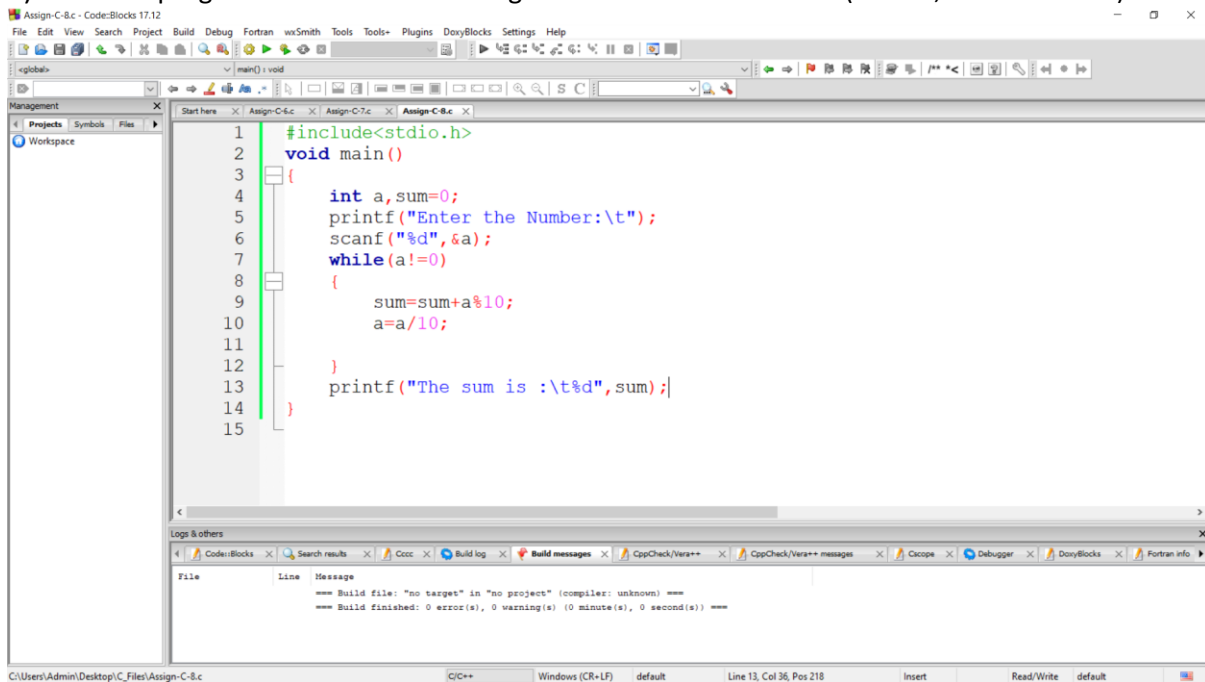
Process returned 0 (0x0)   execution time : 2.464 s
Press any key to continue.
```





```
C:\Users\Admin\Desktop\C_Files\Assign-C-7.exe
Enter the number whos has to checked for palindrome:
123
Not Palindrome
Process returned 0 (0x0)   execution time : 1.924 s
Press any key to continue.
```

8) Write a C program to find the sum of digits of the entered number. (n=123 , sum=1+2+3=6)



```
1 #include<stdio.h>
2 void main()
3 {
4     int a,sum=0;
5     printf("Enter the Number:\t");
6     scanf("%d",&a);
7     while(a!=0)
8     {
9         sum=sum+a%10;
10        a=a/10;
11    }
12    printf("The sum is :\t%d",sum);
13
14 }
15
```

Log & others

File	Line	Message
		== Build file: "no target" in "no project" (compiler: unknown) ==
		== Build finished: 0 error(s), 0 warning(s) (0 minute(s), 0 second(s)) ==

```
C:\Users\Admin\Desktop\C_Files\Assign-C-8.exe
Enter the Number:      123456
The sum is :      21
Process returned 15 (0xF)   execution time : 2.432 s
Press any key to continue.
```

9) Write a C program to print the factorial of a number

```
Assign-C-9.c - Code::Blocks 17.12
File Edit View Search Project Build Debug Fortran vimSmith Tools Tools+ Plugins DoryBlocks Settings Help
+global+
factorial(int a) : int
Management
Workspace
Start here | Assign-C-6.c | Assign-C-7.c | Assign-C-8.c | Assign-C-9.c
1  #include<stdio.h>
2  int factorial(int a)
3  {
4      if(a==0) return (1);
5
6      return (a*factorial(a-1));
7  }
8  void main()
9  {
10     int b,c;
11     printf("Enter the Number for which you have to calculate the Factorial:\t\n");
12     scanf("%d",&b);
13     c=factorial(b);
14     printf("The Factorial is :\t%d\n",c);
15 }
16

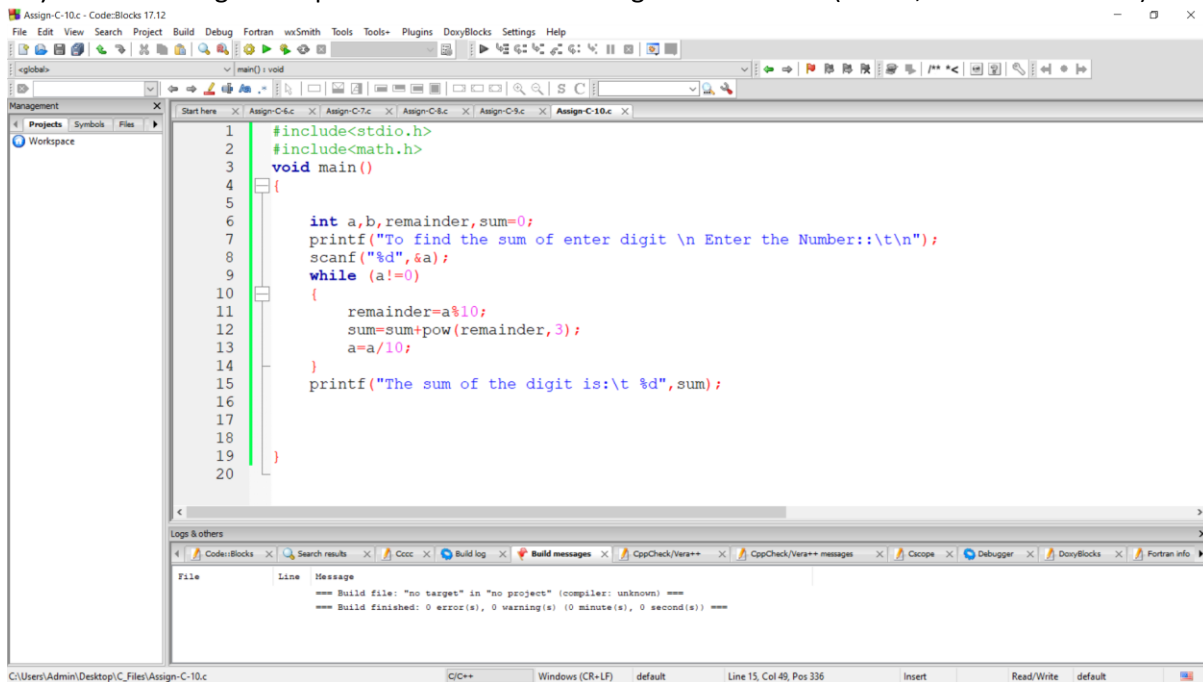
Log & others
Code::Blocks Search results Cccc Build log Build messages CppCheck/Ver++ CppCheck/Ver++ messages Cscope Debugger DoryBlocks Fortran info
File Line Message
=== Build file: "no target" in "no project" (compiler: unknown) ===
=== Build finished: 0 error(s), 0 warning(s) (0 minute(s), 0 second(s)) ===

C/C++ Windows (CR-LF) default Line 6, Col 26, Pos 97 Insert Read/Write default
```

```
C:\Users\Admin\Desktop\C_Files\Assign-C-9.exe
Enter the Number for which you have to calculate the Factorial:
5
The Factorial is :      120

Process returned 23 (0x17)   execution time : 2.191 s
Press any key to continue.
```

10) Write a C Program to print the sum of cube of digits of a number (n=123, sum =  $1+4+9 = 14$ )



```
1  #include<stdio.h>
2  #include<math.h>
3  void main()
4  {
5
6      int a,b,remainder,sum=0;
7      printf("To find the sum of enter digit \n Enter the Number::\t\n");
8      scanf("%d",&a);
9      while (a!=0)
10     {
11         remainder=a%10;
12         sum=sum+pow(remainder,3);
13         a=a/10;
14     }
15     printf("The sum of the digit is:\t %d",sum);
16
17
18
19
20 }
```

Log & others

File	Line	Message
		== Build file: "no target" in "no project" (compiler: unknown) ==
		== Build finished: 0 error(s), 0 warning(s) (0 minute(s), 0 second(s)) ==

C:\Users\Admin\Desktop\C\_Files\Assign-C-10.c C/C++ Windows (CR+LF) default Line 15, Col 49, Pos 336 Insert Read/Write default

```
C:\Users\Admin\Desktop\C_Files\Assign-C-10.exe
To find the sum of enter digit
Enter the Number::
123
The sum of the digit is:          36
Process returned 28 (0x1C)   execution time : 2.256 s
Press any key to continue.
```

11) Write a program that reads number until a negative number is read and prints the number of values read, the largest values, smallest value and the range

The screenshot shows the CodeBlocks IDE with a C program open. The program reads numbers until a negative number is entered, then prints the number of values read, the largest value, the smallest value, and the range. The program is compiled and the output is shown in the console.

```
1 #include<stdio.h>
2 void main()
3 {
4     int a,b=1,range=0,l=0,s=0;
5     while(b==1)
6     {
7         printf("Enter the value :\n");
8         scanf("%d",&a);
9         if (l==0){l=a;}
10        if(a==0)
11        {
12            printf("The Entered value:\t%d\n",a);
13            range=range+1;
14            printf("The Range is :\t%d\n",range);
15            if(a<1)
16            {
17                l=a;
18            }
19            printf("The Largest No. :\t%d\n",l);
20            if(a>0)
21            {
22                s=a;
23            }
24            printf("The smallest No. :\t%d\n",s);
25        }
26        else
27        {
28            break;
29        }
30        printf("\n");
31    }
32 }
```

The console output shows the program's execution:

```
File Line Message
== Build file: "no target" in "no project" (compiler: unknown) ==
== Build finished: 0 error(s), 0 warning(s) (0 minute(s), 0 second(s)) ==
```

```
C:\Users\Admin\Desktop\C_Files\Assign-C-11.exe

Enter the value : 1
The Entered value: 1
The Range is : 1
The Largest No. : 1
The smallest No. : 1

Enter the value : 3
The Entered value: 3
The Range is : 2
The Largest No. : 3
The smallest No. : 1

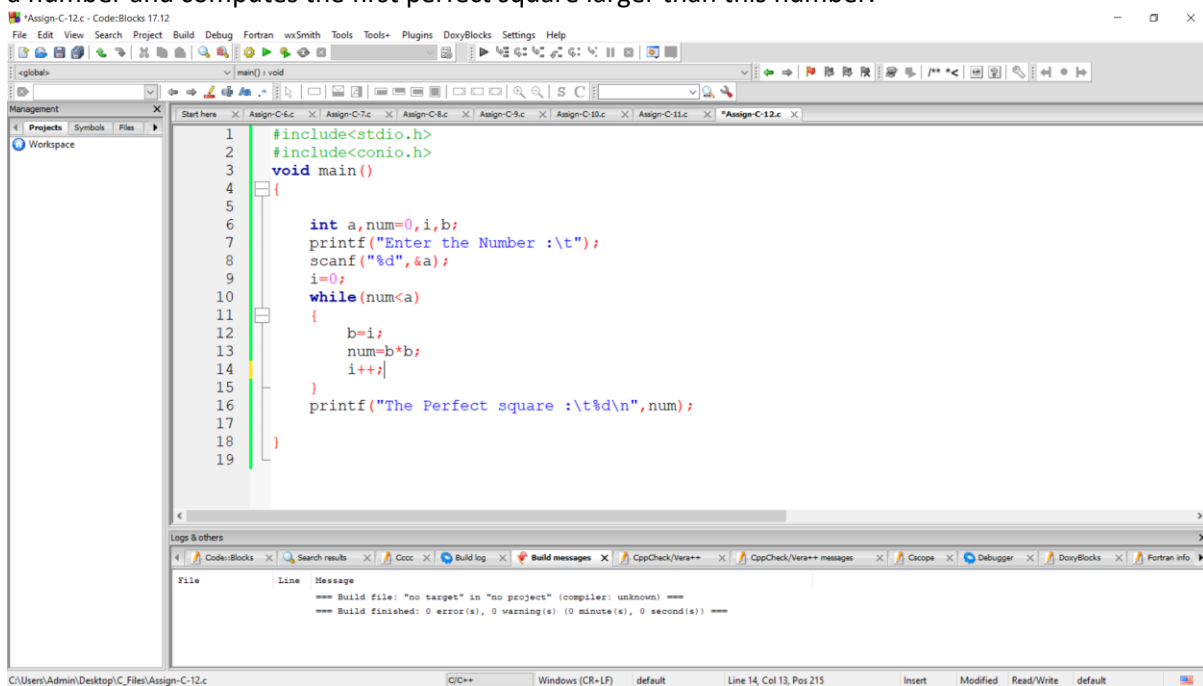
Enter the value : 6
The Entered value: 6
The Range is : 3
The Largest No. : 6
The smallest No. : 1

Enter the value : 8
The Entered value: 8
The Range is : 4
The Largest No. : 8
The smallest No. : 1

Enter the value : -49

Process returned -49 (0xFFFFFFFF) execution time : 10.390 s
Press any key to continue.
```

12) A perfect square is an integer which is the square of another integer. Write a program that reads a number and computes the first perfect square larger than this number.



```
*Assign-C-12.c - Code::Blocks 17.12
File Edit View Search Project Build Debug Fortran wsSmith Tools Tools+ Plugins DoryBlocks Settings Help

<global>
main() : void

Management
Workspace

1 #include<stdio.h>
2 #include<conio.h>
3 void main()
4 {
5
6     int a,num=0,i,b;
7     printf("Enter the Number :\t");
8     scanf("%d",&a);
9     i=0;
10    while (num<a)
11    {
12        b=i;
13        num=b*b;
14        i++;
15    }
16    printf("The Perfect square :\t%d\n",num);
17
18 }
19

Log & others
Code::Blocks Search results Cccc Build log Build messages CppCheck/Ver++ CppCheck/Ver++ messages Cscope Debugger DoryBlocks Fortran info

File Line Message
==== Build file: "no target" in "no project" (compiler: unknown) ====
==== Build finished: 0 error(s), 0 warning(s), 0 minute(s), 0 second(s) ====

C:\Users\Admin\Desktop\C_Files\Assign-C-12.c C/C++ Windows (CR-LF) default Line 14, Col 13, Pos 215 Insert Modified Read/Write default
```

```
C:\Users\Admin\Desktop\C_Files\Assign-C-12.exe
Enter the Number :    45
1  0
2  1
3  4
4  9
5 16
6 25
7 36
8 49
The Perfect square :    49

Process returned 24 (0x18)   execution time : 2.369 s
Press any key to continue.
```