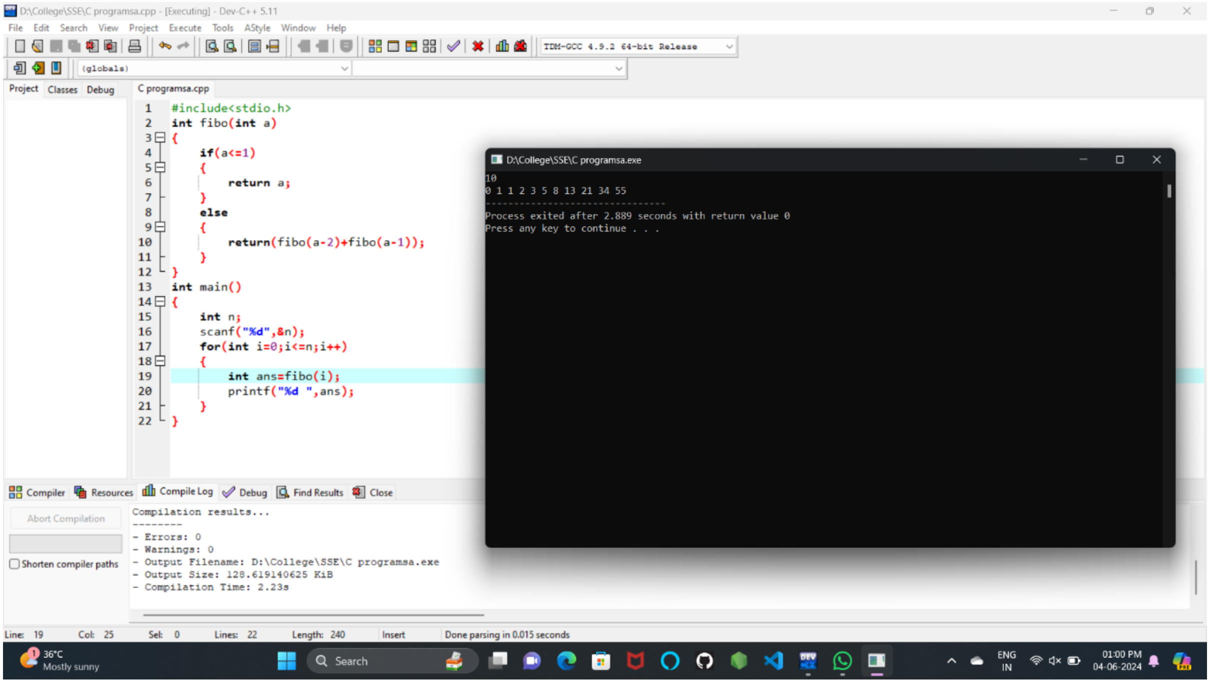
1.Write a program to Print Fibonacci Series using recursion


D:\College\SSE\C programsa.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug
C programsa.cpp
Compiler Resources Compile Log Debug Find Results Close
Abort Compilation
□ Shorten compiler paths
Line: 19 Col: 25 Sel: 0 Lines: 22 Length: 240 Insert Done parsing in 0.015 seconds
36°C Mostly sunny
Search
ENG IN
01:00 PM 04-06-2024
D:\College\SSE\C programsa.exe

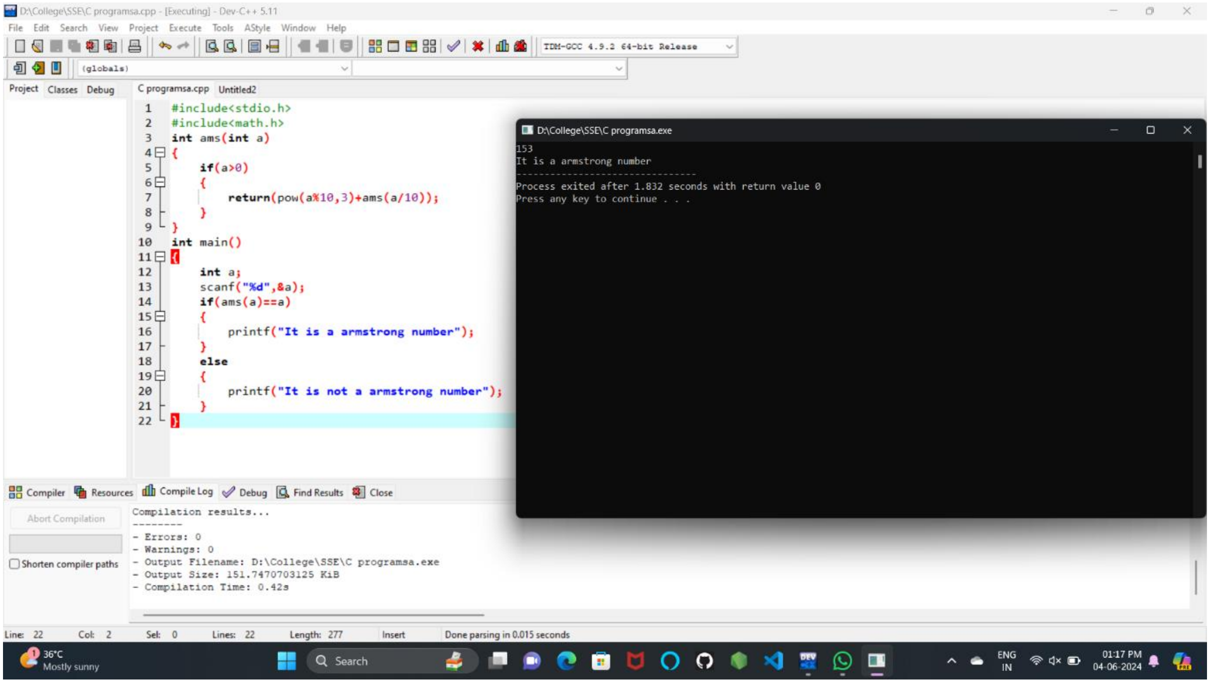
```c
#include<stdio.h>
int fibo(int a)
{
    if(a<=1)
    {
        return a;
    }
    else
    {
        return(fibo(a-2)+fibo(a-1));
    }
}
int main()
{
    int n;
    scanf("%d",&n);
    for(int i=0;i<=n;i++)
    {
        int ans=fibo(i);
        printf("%d ",ans);
    }
}
```

```
10
0 1 1 2 3 5 8 13 21 34 55
--------------------------------
Process exited after 2.889 seconds with return value 0
Press any key to continue . . .
```

```
Compilation results...
--------
- Errors: 0
- Warnings: 0
- Output Filename: D:\College\SSE\C programsa.exe
- Output Size: 128.619140625 KiB
- Compilation Time: 2.23s
```

Time complexity – (n+1)

2. Write a program to check the given no is Armstrong or not using recursive function


D:\College\SSE\C programsa.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug
C programsa.cpp Untitled2
Compiler Resources Compile Log Debug Find Results Close
Abort Compilation
□ Shorten compiler paths
Line: 22 Col: 2 Sel: 0 Lines: 22 Length: 277 Insert Done parsing in 0.015 seconds
36°C Mostly sunny
Search
ENG IN
01:17 PM 04-06-2024
D:\College\SSE\C programsa.exe

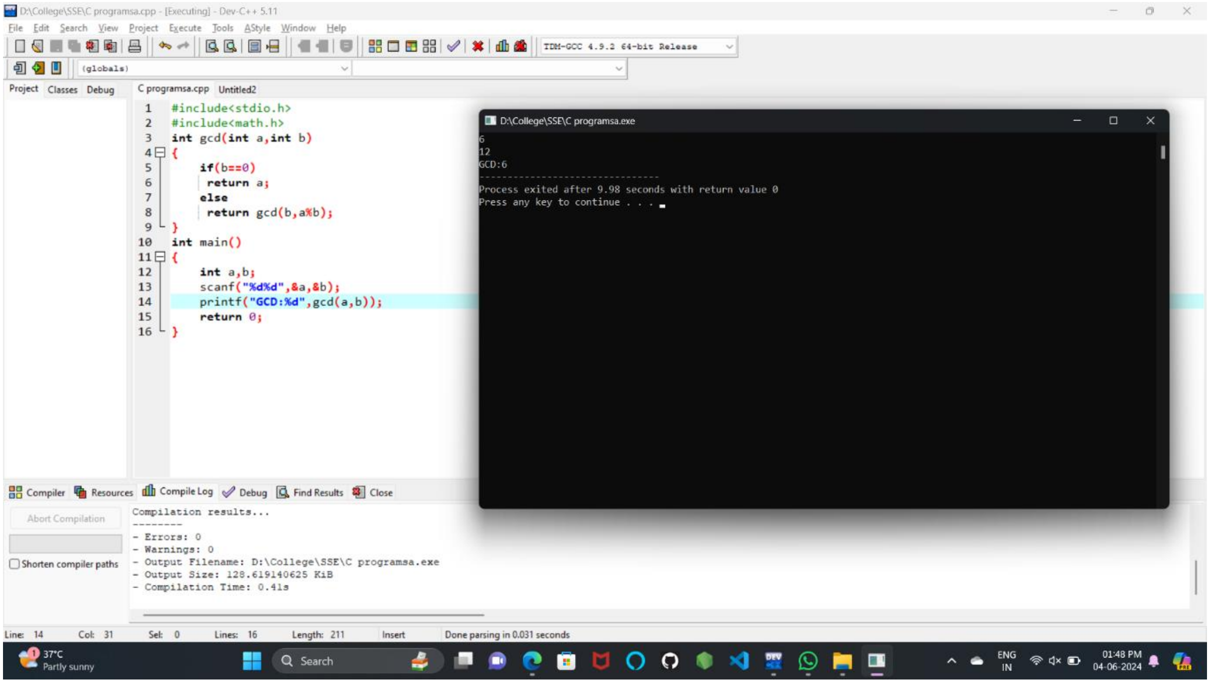
```c
#include<stdio.h>
#include<math.h>
int ams(int a)
{
    if(a>0)
    {
        return(pow(a%10,3)+ams(a/10));
    }
}
int main()
{
    int a;
    scanf("%d",&a);
    if(ams(a)==a)
    {
        printf("It is a armstrong number");
    }
    else
    {
        printf("It is not a armstrong number");
    }
}
```

```
153
It is a armstrong number
--------------------------------
Process exited after 1.832 seconds with return value 0
Press any key to continue . . .
```

```
Compilation results...
--------
- Errors: 0
- Warnings: 0
- Output Filename: D:\College\SSE\C programsa.exe
- Output Size: 151.7470703125 KiB
- Compilation Time: 0.42s
```

Time complexity – (n)

3. Write a program to find the GCD of two numbers using recursive function


D:\College\SSE\C programsa.cpp - [Executing] - Dev-C++ 5.11
TDM-GCC 4.9.2 64-bit Release
C programsa.cpp
Untitled2
D:\College\SSE\C programsa.exe

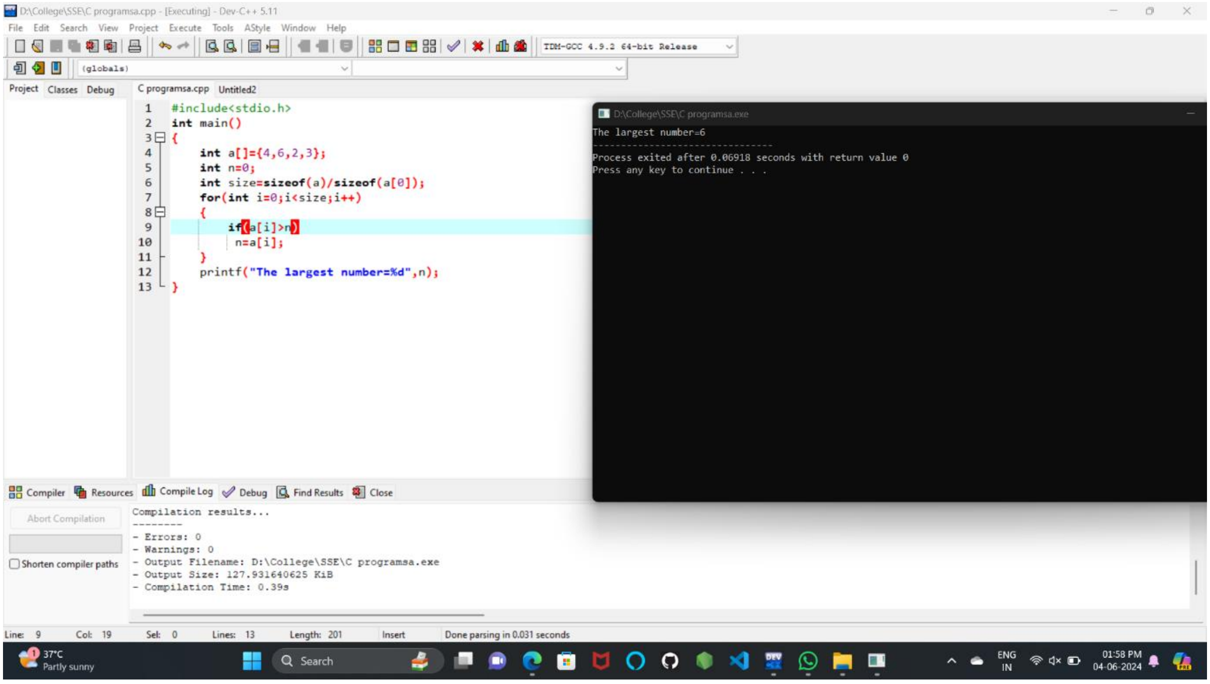
```c
#include<stdio.h>
#include<math.h>
int gcd(int a,int b)
{
    if(b==0)
     return a;
    else
     return gcd(b,a%b);
}
int main()
{
    int a,b;
    scanf("%d%d",&a,&b);
    printf("GCD:%d",gcd(a,b));
    return 0;
}
```

```
6
12
GCD:6
--------------------------------
Process exited after 9.98 seconds with return value 0
Press any key to continue . . .
```

```
Compilation results...
--------
- Errors: 0
- Warnings: 0
- Output Filename: D:\College\SSE\C programsa.exe
- Output Size: 128.619140625 KiB
- Compilation Time: 0.41s
```

Time complexity – (n)

4. Write a program to get the largest element of an array


D:\College\SSE\C programsa.cpp - [Executing] - Dev-C++ 5.11
TDM-GCC 4.9.2 64-bit Release
C programsa.cpp
Untitled2
D:\College\SSE\C programsa.exe

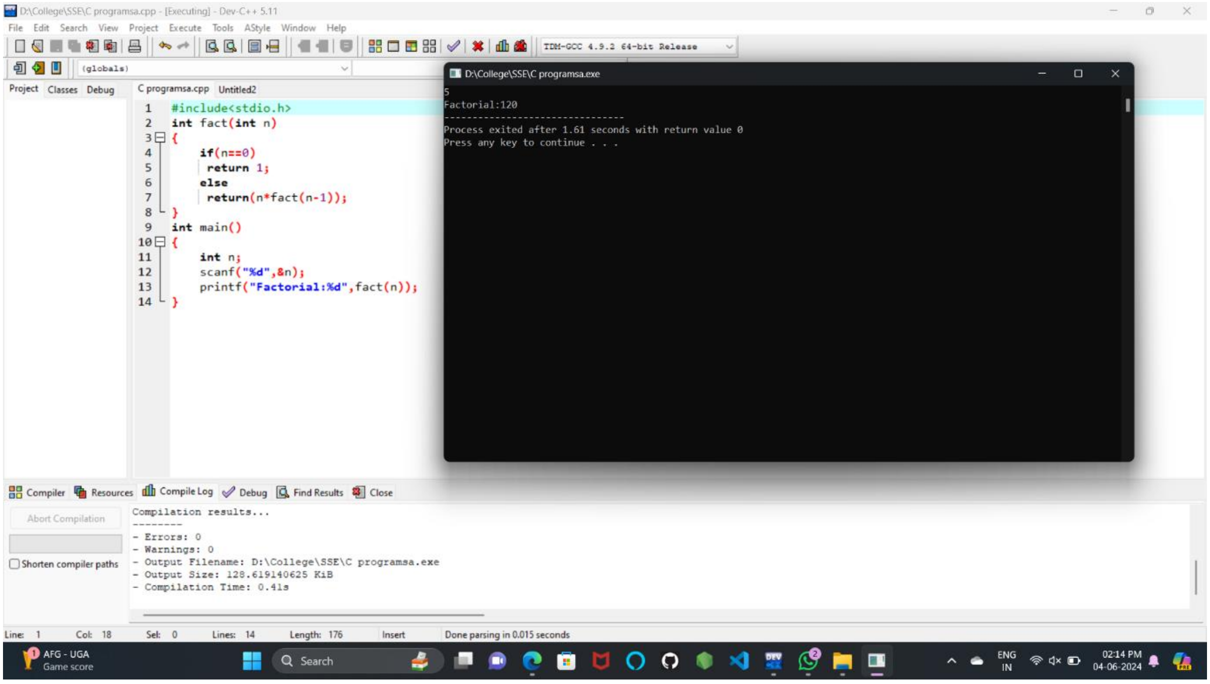
```c
#include<stdio.h>
int main()
{
    int a[]={4,6,2,3};
    int n=0;
    int size=sizeof(a)/sizeof(a[0]);
    for(int i=0;i<size;i++)
    {
        if(a[i]>n)
         n=a[i];
    }
    printf("The largest number=%d",n);
}
```

```
The largest number=6
--------------------------------
Process exited after 0.06918 seconds with return value 0
Press any key to continue . . .
```

```
Compilation results...
--------
- Errors: 0
- Warnings: 0
- Output Filename: D:\College\SSE\C programsa.exe
- Output Size: 127.931640625 KiB
- Compilation Time: 0.39s
```

Time complexity – (n)

5. Write a program to find the Factorial of a number using recursion


D:\College\SSE\C programsa.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug
C programsa.cpp Untitled2
D:\College\SSE\C programsa.exe
Compiler Resources Compile Log Debug Find Results Close
Abort Compilation
Shorten compiler paths

```c
#include<stdio.h>
int fact(int n)
{
    if(n==0)
     return 1;
    else
     return(n*fact(n-1));
}
int main()
{
    int n;
    scanf("%d",&n);
    printf("Factorial:%d",fact(n));
}
```

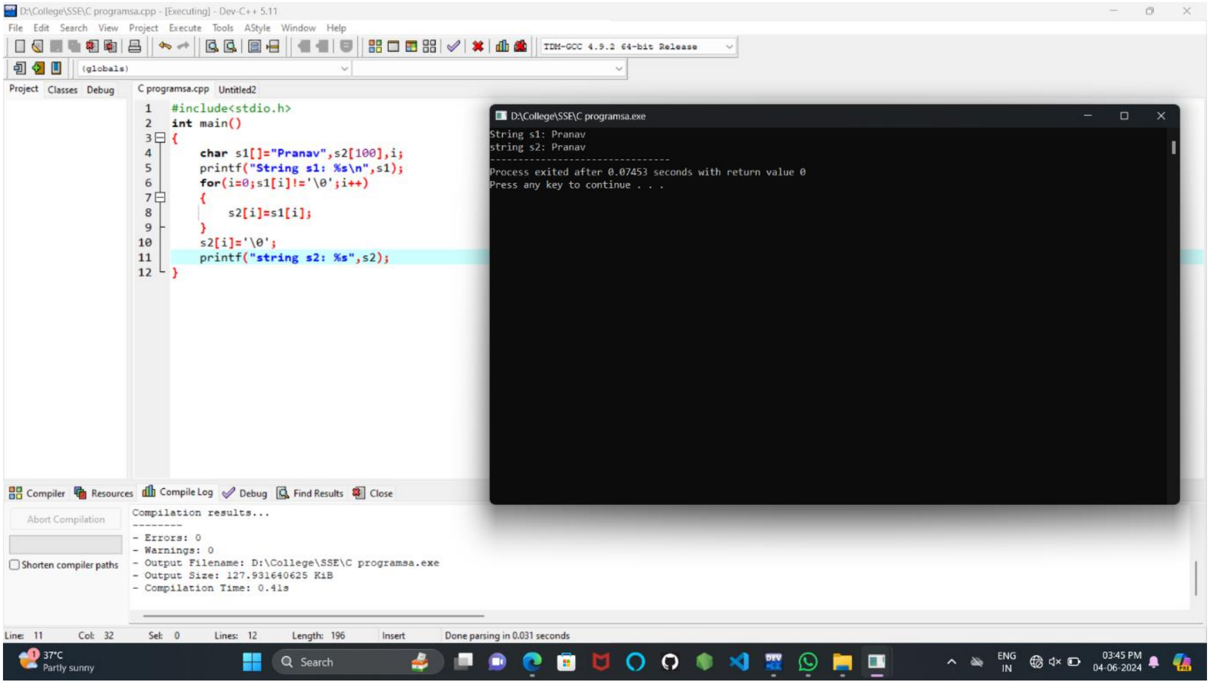
```
5
Factorial:120
--------------------------------
Process exited after 1.61 seconds with return value 0
Press any key to continue . . .
```

```
Compilation results...
--------
- Errors: 0
- Warnings: 0
- Output Filename: D:\College\SSE\C programsa.exe
- Output Size: 128.619140625 KiB
- Compilation Time: 0.41s
```

Line: 1 Col: 18 Sel: 0 Lines: 14 Length: 176 Insert Done parsing in 0.015 seconds

Time complexity – (n)

6. Write a program for to copy one string to another using recursion


D:\College\SSE\C programsa.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug
C programsa.cpp Untitled2
D:\College\SSE\C programsa.exe
Compiler Resources Compile Log Debug Find Results Close
Abort Compilation
Shorten compiler paths

```c
#include<stdio.h>
int main()
{
    char s1[]="Pranav",s2[100],i;
    printf("String s1: %s\n",s1);
    for(i=0;s1[i]!='\0';i++)
    {
        s2[i]=s1[i];
    }
    s2[i]='\0';
    printf("string s2: %s",s2);
}
```

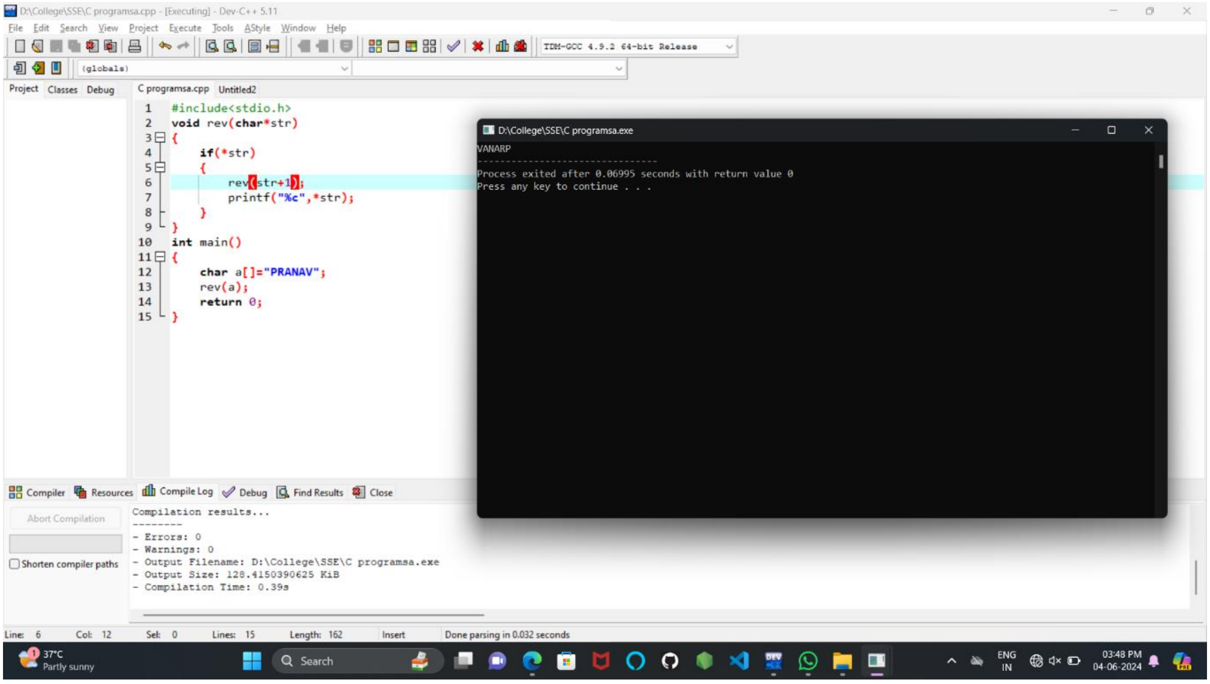
```
String s1: Pranav
string s2: Pranav
--------------------------------
Process exited after 0.07453 seconds with return value 0
Press any key to continue . . .
```

```
Compilation results...
--------
- Errors: 0
- Warnings: 0
- Output Filename: D:\College\SSE\C programsa.exe
- Output Size: 127.931640625 KiB
- Compilation Time: 0.41s
```

Line: 11 Col: 32 Sel: 0 Lines: 12 Length: 196 Insert Done parsing in 0.031 seconds

Time complexity –

7. Write a program to print the reverse of a string using recursion


D:\College\SSE\C programsa.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug
C programsa.cpp Untitled2
Compiler Resources Compile Log Debug Find Results Close
Abort Compilation
□ Shorten compiler paths
Line: 6 Col: 12 Sel: 0 Lines: 15 Length: 162 Insert Done parsing in 0.032 seconds
37°C Partly sunny
Search
ENG IN
03:48 PM 04-06-2024

```c
#include<stdio.h>
void rev(char*str)
{
    if(*str)
    {
        rev(str+1);
        printf("%c",*str);
    }
}
int main()
{
    char a[]="PRANAV";
    rev(a);
    return 0;
}
```

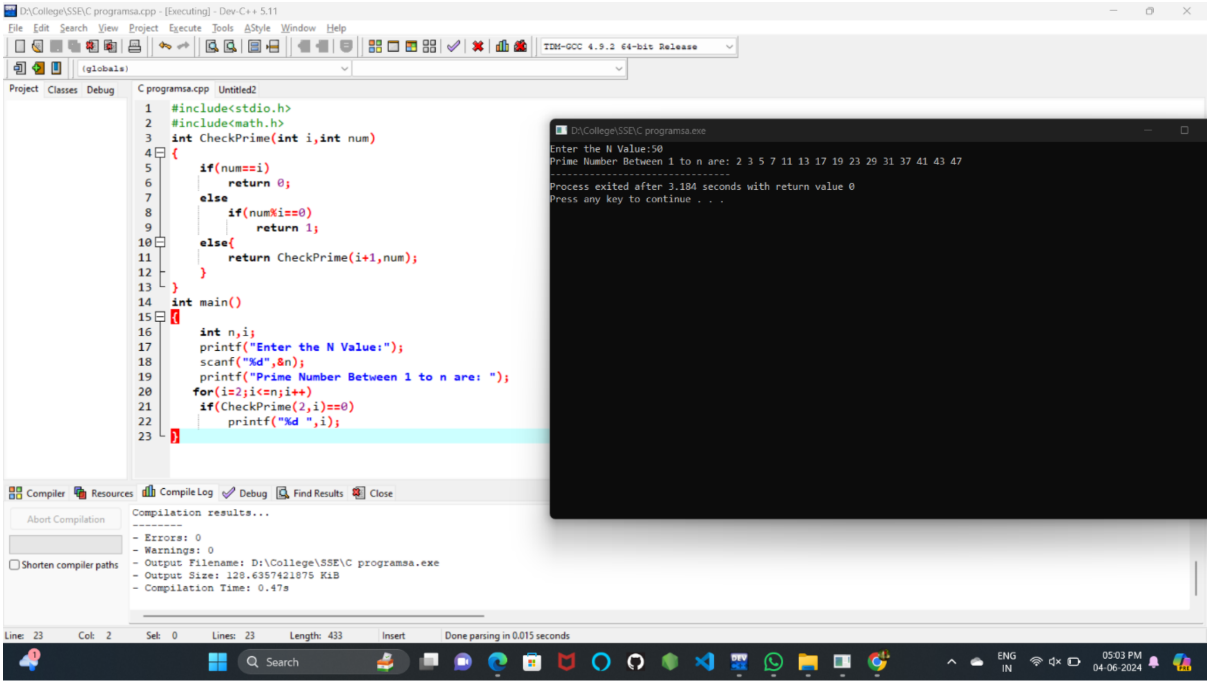
D:\College\SSE\C programsa.exe

```
VANARP
--------------------------------
Process exited after 0.06995 seconds with return value 0
Press any key to continue . . .
```

```
Compilation results...
--------
- Errors: 0
- Warnings: 0
- Output Filename: D:\College\SSE\C programsa.exe
- Output Size: 128.4150390625 KiB
- Compilation Time: 0.39s
```

Time complexity –

8. Write a program to generate all the prime numbers using recursion


D:\College\SSE\C programsa.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug
C programsa.cpp Untitled2
Compiler Resources Compile Log Debug Find Results Close
Abort Compilation
□ Shorten compiler paths
Line: 23 Col: 2 Sel: 0 Lines: 23 Length: 433 Insert Done parsing in 0.015 seconds
Search
ENG IN
05:03 PM 04-06-2024

```c
#include<stdio.h>
#include<math.h>
int CheckPrime(int i,int num)
{
    if(num==i)
        return 0;
    else
        if(num%i==0)
            return 1;
    else{
        return CheckPrime(i+1,num);
    }
}
int main()
{
    int n,i;
    printf("Enter the N Value:");
    scanf("%d",&n);
    printf("Prime Number Between 1 to n are: ");
   for(i=2;i<=n;i++)
    if(CheckPrime(2,i)==0)
        printf("%d ",i);
}
```

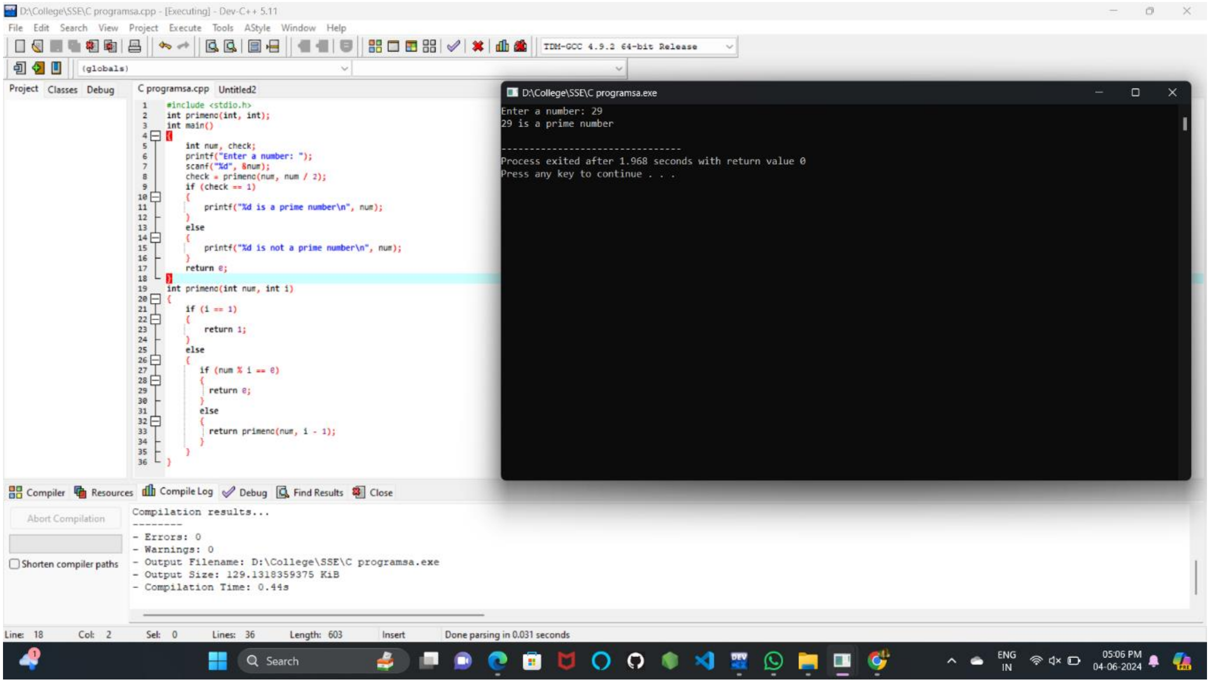
D:\College\SSE\C programsa.exe

```
Enter the N Value:50
Prime Number Between 1 to n are: 2 3 5 7 11 13 17 19 23 29 31 37 41 43 47
--------------------------------
Process exited after 3.184 seconds with return value 0
Press any key to continue . . .
```

```
Compilation results...
--------
- Errors: 0
- Warnings: 0
- Output Filename: D:\College\SSE\C programsa.exe
- Output Size: 128.6357421875 KiB
- Compilation Time: 0.47s
```

Time complexity –

9. Write a program to check a number is a prime number or not using recursion.


D:\College\SSE\C programsa.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug
C programsa.cpp Untitled2
D:\College\SSE\C programsa.exe
Compiler Resources Compile Log Debug Find Results Close
Abort Compilation
☐ Shorten compiler paths
Line: 18 Col: 2 Sel: 0 Lines: 36 Length: 603 Insert Done parsing in 0.031 seconds
Search
ENG IN
05:06 PM 04-06-2024

```c
#include <stdio.h>
int primeno(int, int);
int main()
{
    int num, check;
    printf("Enter a number: ");
    scanf("%d", &num);
    check = primeno(num, num / 2);
    if (check == 1)
    {
        printf("%d is a prime number\n", num);
    }
    else
    {
        printf("%d is not a prime number\n", num);
    }
    return 0;
}
int primeno(int num, int i)
{
    if (i == 1)
    {
        return 1;
    }
    else
    {
       if (num % i == 0)
       {
         return 0;
       }
       else
       {
         return primeno(num, i - 1);
       }
    }
}
```

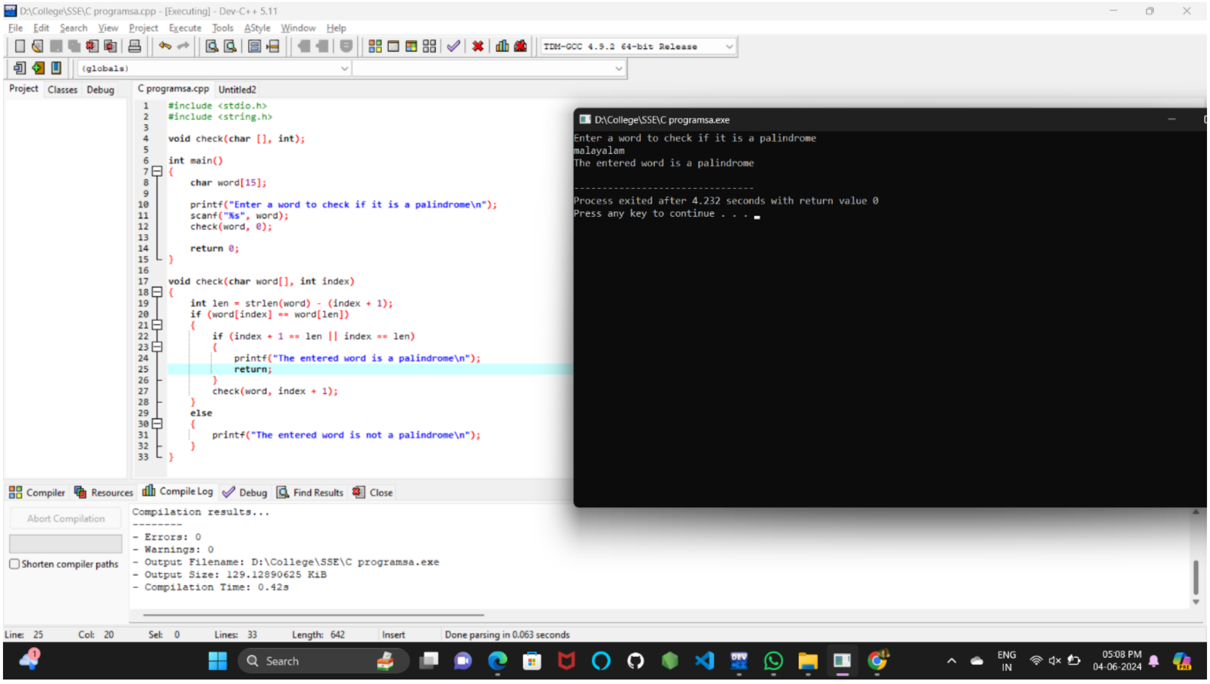
```
Enter a number: 29
29 is a prime number

--------------------------------
Process exited after 1.968 seconds with return value 0
Press any key to continue . . .
```

```
Compilation results...
--------
- Errors: 0
- Warnings: 0
- Output Filename: D:\College\SSE\C programsa.exe
- Output Size: 129.1318359375 KiB
- Compilation Time: 0.44s
```

Time complexity –

10. Write a program for to check whether a given String is Palindrome or not using recursion


D:\College\SSE\C programsa.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug
C programsa.cpp Untitled2
D:\College\SSE\C programsa.exe
Compiler Resources Compile Log Debug Find Results Close
Abort Compilation
☐ Shorten compiler paths
Line: 25 Col: 20 Sel: 0 Lines: 33 Length: 642 Insert Done parsing in 0.063 seconds
Search
ENG IN
05:08 PM 04-06-2024

```c
#include <stdio.h>
#include <string.h>

void check(char [], int);

int main()
{
    char word[15];

    printf("Enter a word to check if it is a palindrome\n");
    scanf("%s", word);
    check(word, 0);

    return 0;
}

void check(char word[], int index)
{
    int len = strlen(word) - (index + 1);
    if (word[index] == word[len])
    {
        if (index + 1 == len || index == len)
        {
            printf("The entered word is a palindrome\n");
            return;
        }
        check(word, index + 1);
    }
    else
    {
        printf("The entered word is not a palindrome\n");
    }
}
```

```
Enter a word to check if it is a palindrome
malayalam
The entered word is a palindrome

--------------------------------
Process exited after 4.232 seconds with return value 0
Press any key to continue . . .
```

```
Compilation results...
--------
- Errors: 0
- Warnings: 0
- Output Filename: D:\College\SSE\C programsa.exe
- Output Size: 129.12890625 KiB
- Compilation Time: 0.42s
```

Time complexity -