

# Matrix multiplication:

```
#include<stdio.h>

#include<stdlib.h>

int main()
{
    int a[50][50],b[50][50],c[50][50],i,j,k,n;

    printf("enter the no.of rows and columns you want ");

    scanf("%d",&n);

    printf("enter the first matrix");

    for(i=0;i<n;i++)
    {
        for(j=0;j<n;j++)
        {
            scanf("%d",&a[i][j]);
        }
    }

    printf("enter the second matrix");

    for(i=0;i<n;i++)
    {
        for(j=0;j<n;j++)
        {
            scanf("%d",&b[i][j]);
        }
    }

    for(i=0;i<n;i++)
    {
        for(j=0;j<n;j++)
        {
            c[i][j]=0;

            for(k=0;k<n;k++)
```

```

        {
            c[i][j]+=a[i][j]+b[i][j];
        }
    }

}

for(i=0;i<n;i++)
{
    for(j=0;j<n;j++)
    {
        printf("%d\t",c[i][j]);

    }
    printf("\n");
}

return 0;
}

```

```

C:\Users\sivas\OneDrive\Documents\ds - matrix mutiplication.exe
enter the no.of rows and columns you want 3
enter the first matrix
1 2 3
4 5 6
7 8 9
enter the second matrix
9 8 7
6 5 4
3 2 1
30      30      30
30      30      30
30      30      30
-----
Process exited after 27.91 seconds with return value 0
Press any key to continue . . .

```

## Odd or even numbers from set of numbers:

```

#include<stdio.h>

int main()
{
    int n,i,a[50];

```

```

printf("enter the number of elements you want");

scanf("%d",&n);

for(i=1;i<=n;i++)
{
    scanf("%d",&a[i]);
}

printf("even numbers are: ");

for(i=1;i<=n;i++)
{
    if(a[i]%2==0)
        printf("%d ",a[i]);
}

printf("\nodd numbers are: ");

for(i=1;i<=n;i++)
{
    if(a[i]%2!=0)
        printf("%d ",a[i]);
}

return 0;
}

```

```

C:\Users\sivas\OneDrive\Documents\ds- odd or even in set of numbers.exe
enter the number of elements you want5
1 2 3 4 5
even numbers are: 2 4
odd numbers are: 1 3 5
.....
Process exited after 7.842 seconds with return value 0
Press any key to continue . . .

```

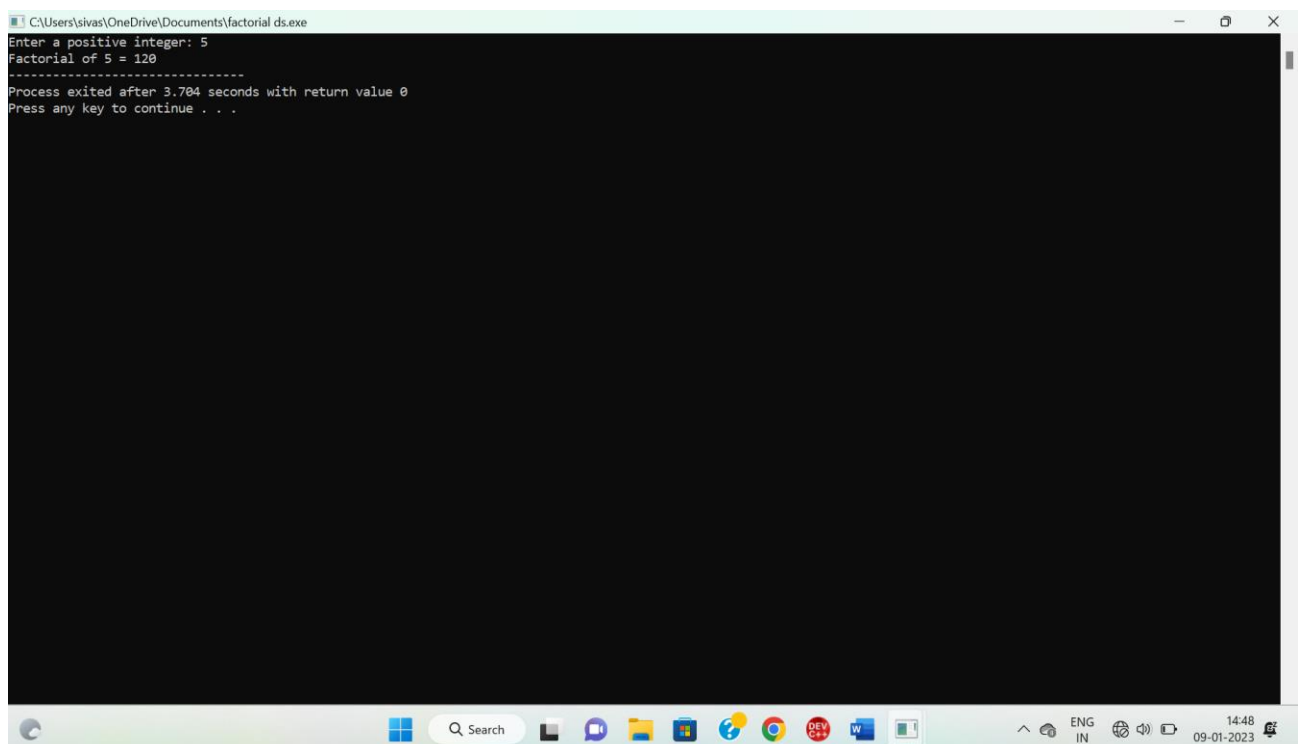
# Factorial of a number using recursion:

```
#include<stdio.h>

long int multiplyNumbers(int n);

int main()
{
    int n;
    printf("Enter a positive integer: ");
    scanf("%d",&n);
    printf("Factorial of %d = %ld", n, multiplyNumbers(n));
    return 0;
}

long int multiplyNumbers(int n)
{
    if (n>=1)
        return n*multiplyNumbers(n-1);
    else
        return 1;
}
```



The screenshot shows a Windows command prompt window titled "C:\Users\sivas\OneDrive\Documents\factorial ds.exe". The output of the program is as follows:

```
Enter a positive integer: 5
Factorial of 5 = 120
-----
Process exited after 3.704 seconds with return value 0
Press any key to continue . . .
```

The Windows taskbar at the bottom shows the Start button, a search bar, and several pinned applications including File Explorer, Microsoft Edge, and Visual Studio Code. The system clock in the bottom right corner indicates the time is 14:48 on 09-01-2023.

# Fibonacci series using recursion:

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

```
int main()
```

```
{
```

```
    int n1=0,n2=1,n3,i,n;
```

```
    printf("enter the upto number of elements you want");
```

```
    scanf("%d",&n);
```

```
    printf("\n%d %d ",n1,n2);
```

```
    for(i=2;i<n;++i)
```

```
    {
```

```
        n3=n1+n2;
```

```
        printf("%d ",n3);
```

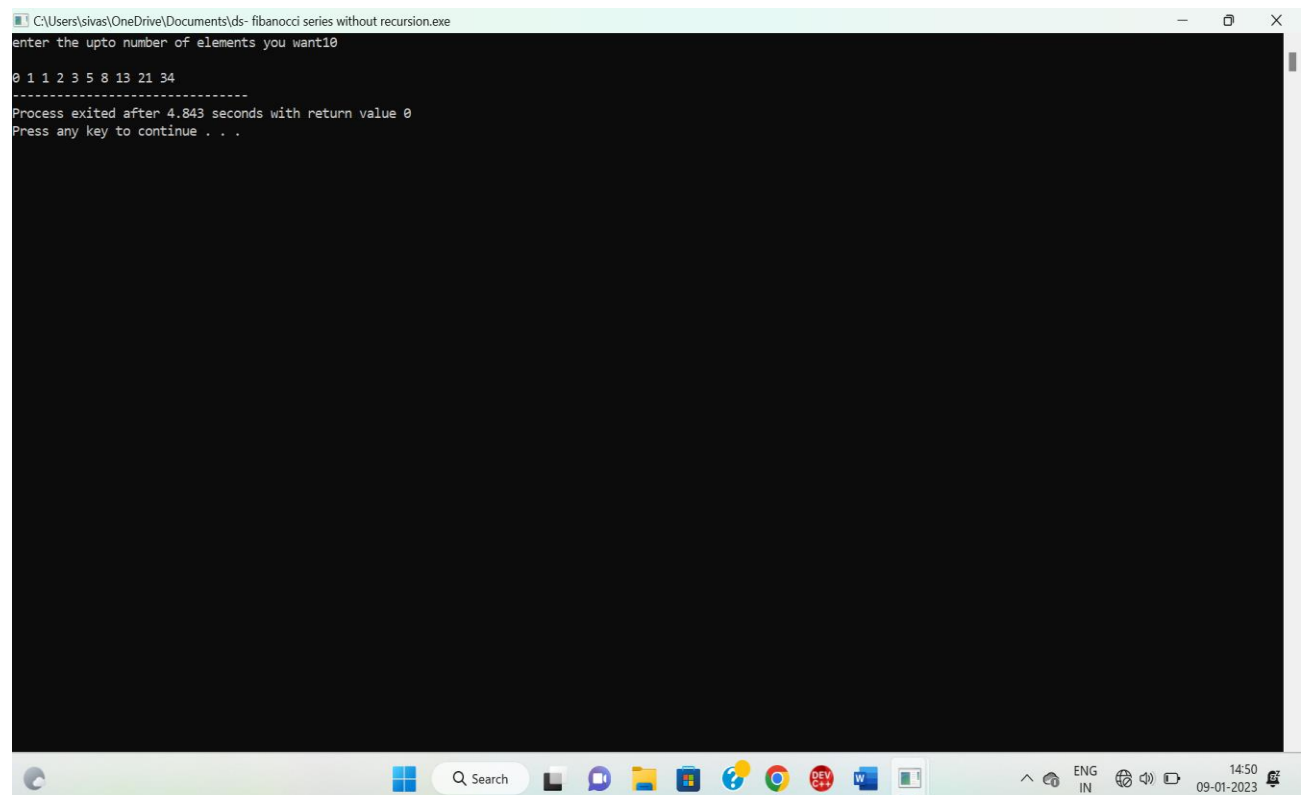
```
        n1=n2;
```

```
        n2=n3;
```

```
    }
```

```
    return 0;
```

```
}
```

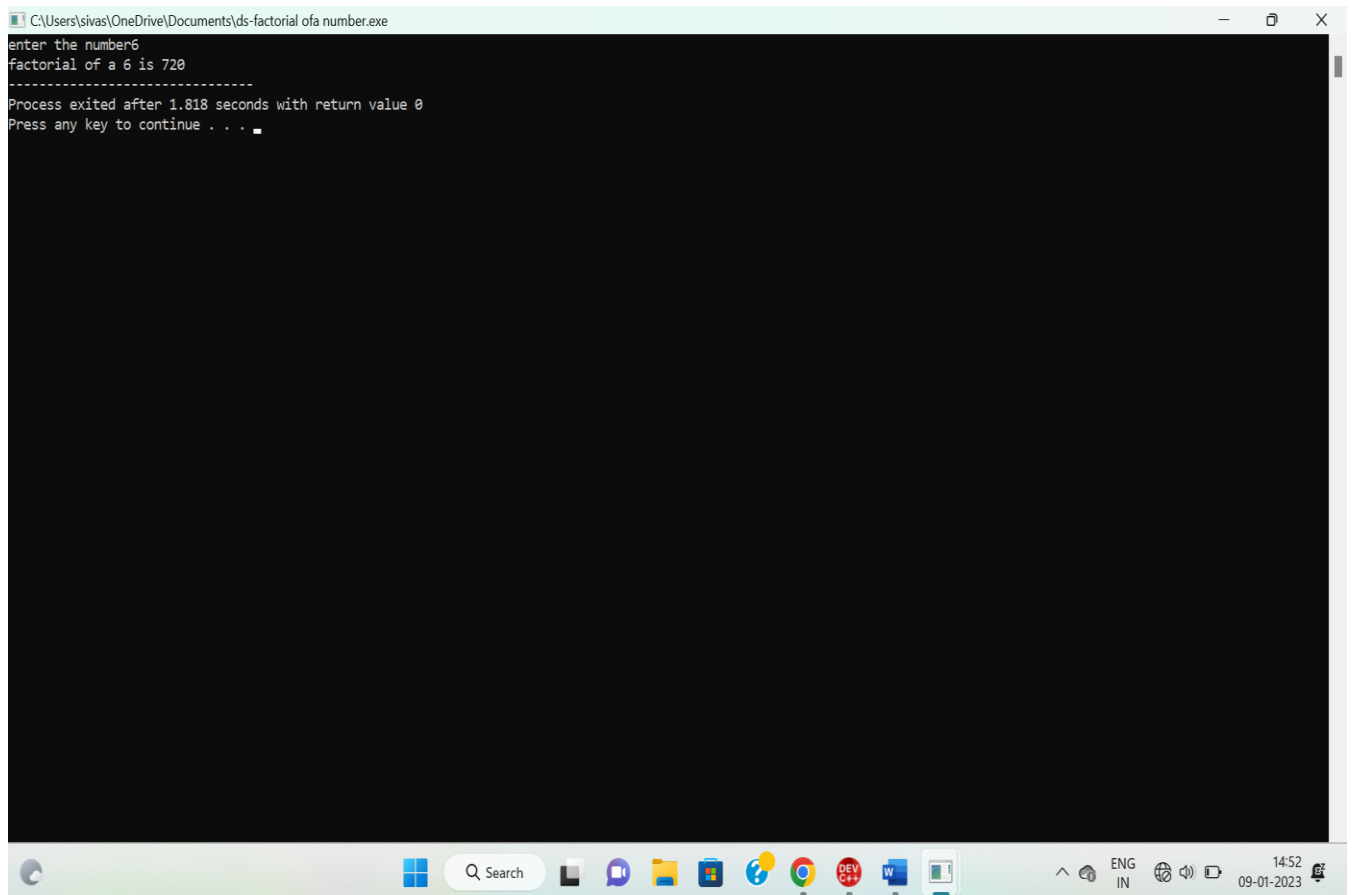


```
C:\Users\sivas\OneDrive\Documents\ds- fibonacci series without recursion.exe
enter the upto number of elements you want10
0 1 1 2 3 5 8 13 21 34
-----
Process exited after 4.843 seconds with return value 0
Press any key to continue . . .
```

# Factorial of a number without using recursion:

```
#include<stdio.h>

int main()
{
    int i,fact=1,n;
    printf("enter the number");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        fact=fact*i;
    }
    printf("factorial of a %d is %d",n,fact);
    return 0;
}
```



The screenshot shows a Windows command prompt window titled "C:\Users\sivas\OneDrive\Documents\ds-factorial of a number.exe". The user has entered the number 6, and the program has calculated the factorial of 6 as 720. The output is displayed as "factorial of a 6 is 720". Below the output, a message indicates that the process exited after 1.818 seconds with a return value of 0, and it prompts the user to press any key to continue. The Windows taskbar is visible at the bottom, showing the Start button, Search bar, and several open applications including File Explorer, Microsoft Edge, and Visual Studio Code. The system clock shows the time as 14:52 on 09-01-2023.

```
C:\Users\sivas\OneDrive\Documents\ds-factorial of a number.exe
enter the number6
factorial of a 6 is 720
-----
Process exited after 1.818 seconds with return value 0
Press any key to continue . . .
```

# Fibonacci series without recursion:

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

```
int main()
```

```
{
```

```
    int n1=0,n2=1,n3,i,n;
```

```
    printf("enter the upto number of elements you want");
```

```
    scanf("%d",&n);
```

```
    printf("\n%d %d ",n1,n2);
```

```
    for(i=2;i<n;++i)
```

```
    {
```

```
        n3=n1+n2;
```

```
        printf("%d ",n3);
```

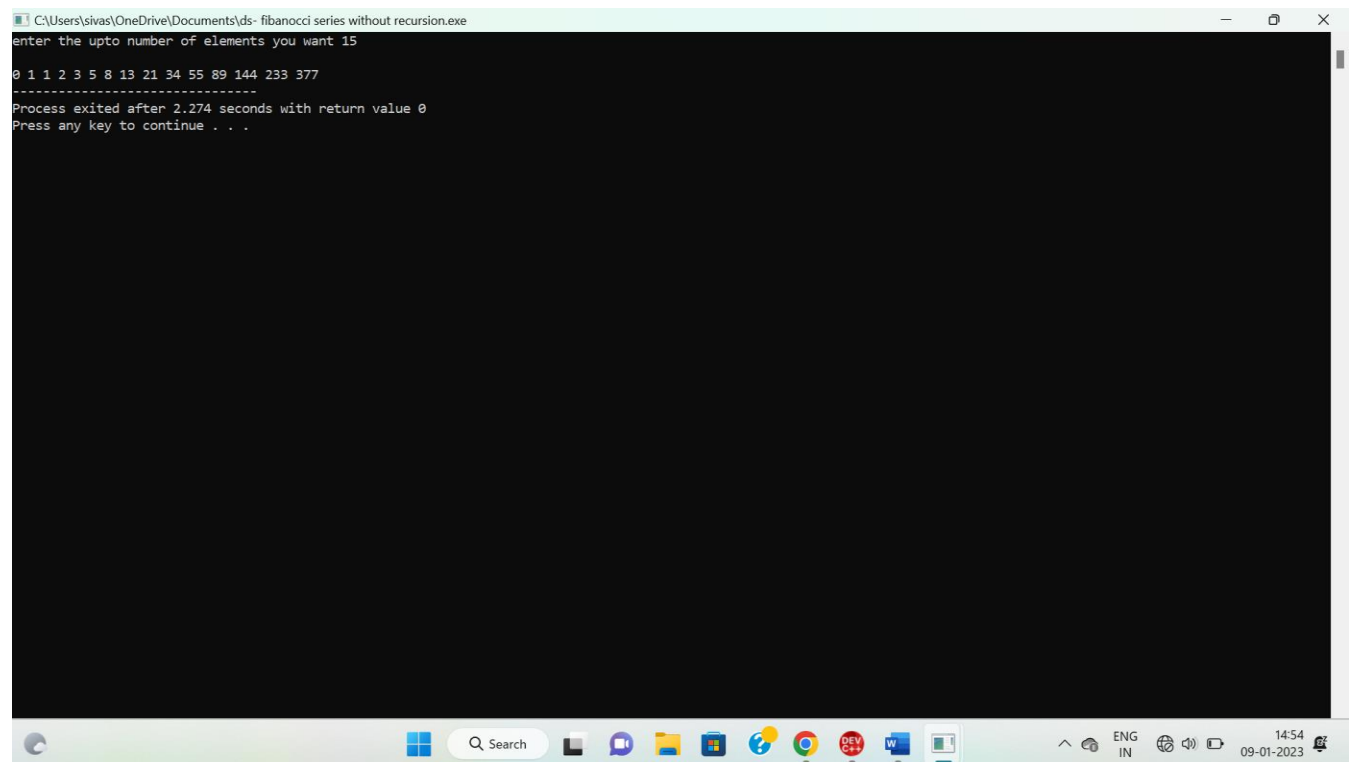
```
        n1=n2;
```

```
        n2=n3;
```

```
    }
```

```
    return 0;
```

```
}
```



```
C:\Users\sivas\OneDrive\Documents\ds- fibonacci series without recursion.exe
enter the upto number of elements you want 15
0 1 1 2 3 5 8 13 21 34 55 89 144 233 377
-----
Process exited after 2.274 seconds with return value 0
Press any key to continue . . .
```