

2. Write a program to calculate sum of first 50 natural numbers using recursive function.

```
#include<iostream>

using namespace std;

void add(int a,int b){
int sum=a+b;
    cout<<"sum ="<<sum<<endl;
}

void sub(int a,int b){
int sub=a-b;
    cout<<"sub ="<<sub<<endl;
}

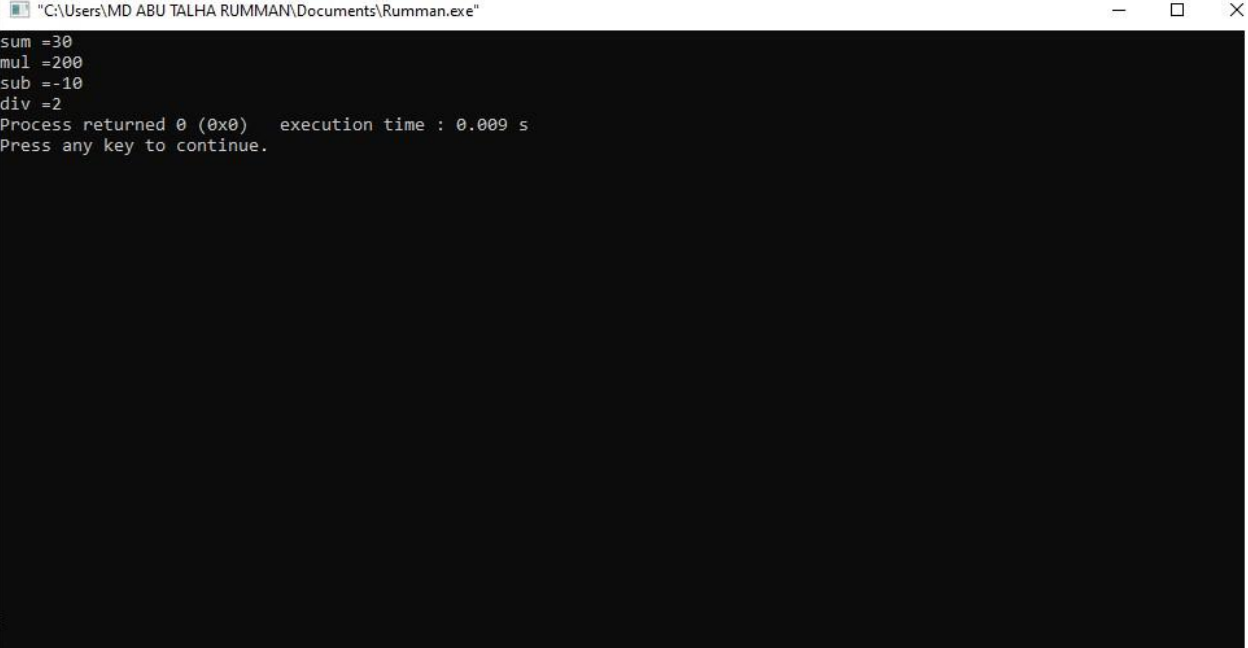
void mul(int a,int b){
int mul=a*b;
    cout<<"mul ="<<mul<<endl;
}

void division(int a,int b){
float div=(float)a/b;
cout<<"div ="<<div;
}

int main()

{
```

```
    add(10,20);  
    mul(10,20);  
    sub(10,20);  
    division(20,10); return  
    0;  
}
```



```
"C:\Users\MD ABU TALHA RUMMAN\Documents\Rumman.exe"  
sum =30  
mul =200  
sub =-10  
div =2  
Process returned 0 (0x0) execution time : 0.009 s  
Press any key to continue.
```

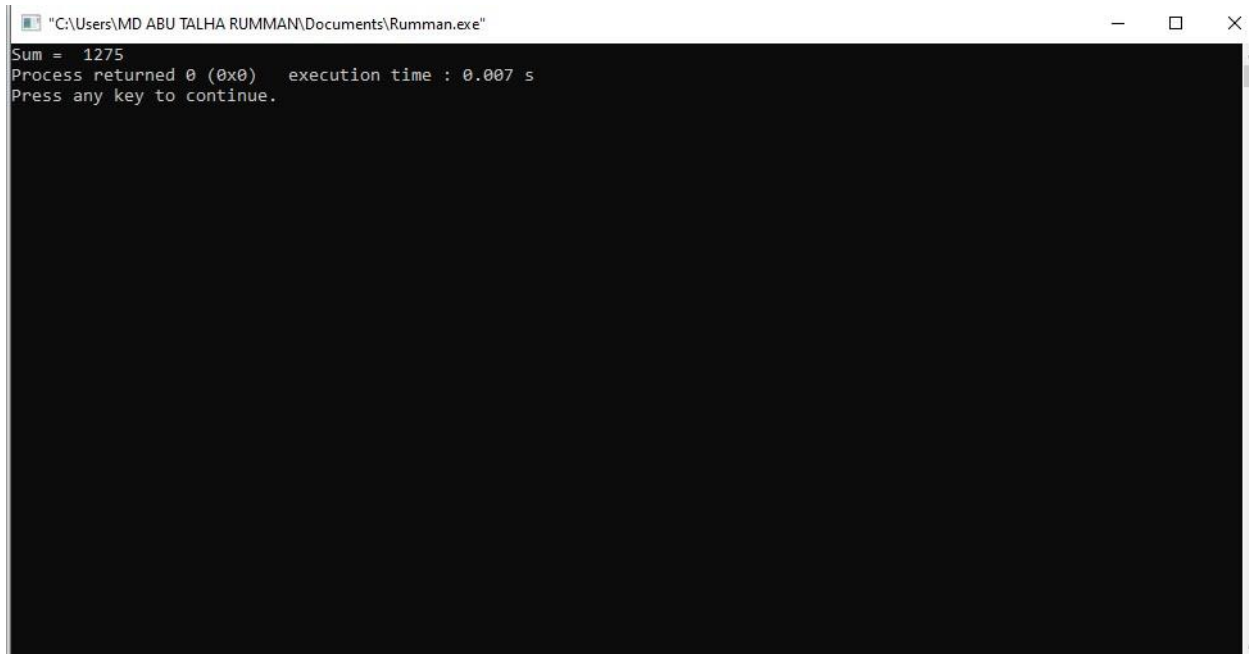
3. Write a program to calculate sum of first 50 natural numbers using recursive function.

```
#include<iostream>

using namespace std;

int add(int n); int main(){    int
number=50;    cout << "Sum = " <<
add(number); return 0;
}

int add(int n){
    if(n != 0)
        return n + add(n - 1);
return 0;
}
```



```
"C:\Users\MD ABU TALHA RUMMAN\Documents\Rumman.exe"
Sum = 1275
Process returned 0 (0x0)   execution time : 0.007 s
Press any key to continue.
```

4. Define a function named fact () to calculate factorial of a number n and the write a program that uses this function fact () to calculate combination and permutation. #include<stdio.h> long permutation(int n, int r); long combination(int n, int r); long factorial(int num);

```
int main(void){
    int n, r;

    printf("Enter n: ");
    scanf("%d", &n);

    printf("Enter r: ");
    scanf("%d", &r);

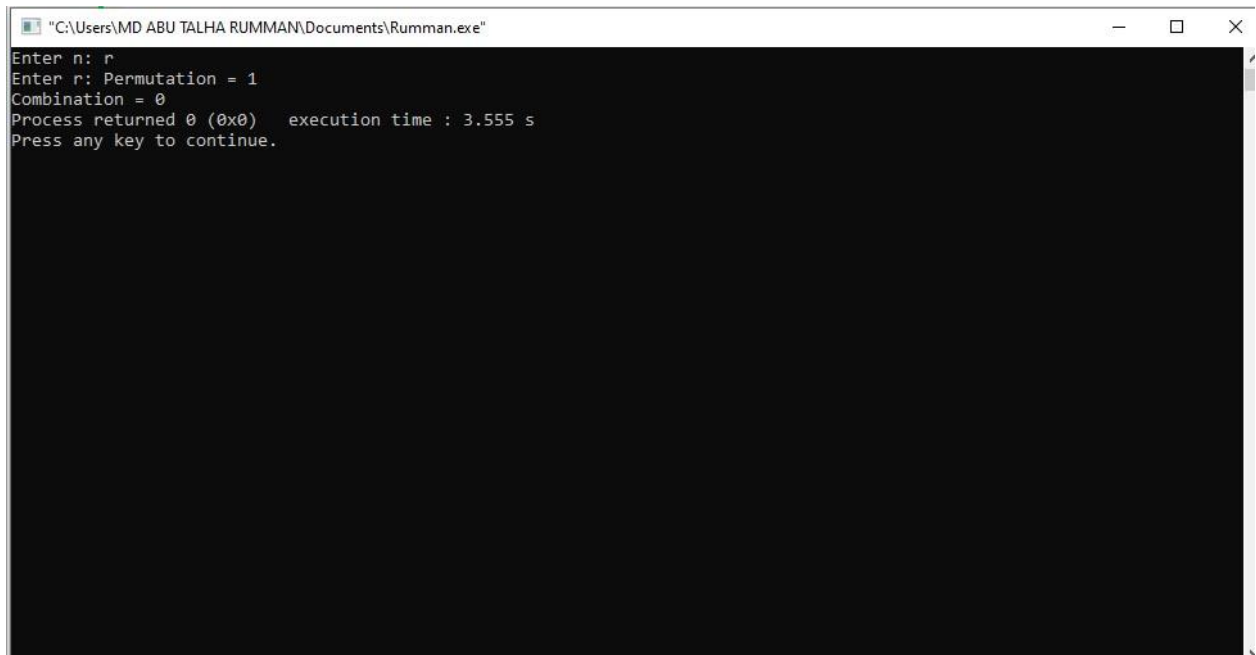
    printf("Permutation = %ld\n", permutation(n, r));
    printf("Combination = %ld", combination(n, r));

    return 0;
}

long permutation(int n, int r)
{
    return
}

long combination(int n, int r)
{
    return
}
```

```
long factorial(int num)
{
    long long fact = 1;
    while(num > 0)
    {
        fact *= num;
        num--;
    }
    return fact;
}
```



```
"C:\Users\MD ABU TALHA RUMMAN\Documents\Rumman.exe"
Enter n: r
Enter r: Permutation = 1
Combination = 0
Process returned 0 (0x0)   execution time : 3.555 s
Press any key to continue.
```

5. Write a program that illustrates use of local, global and static variables.

Local:

```
#include <iostream>

using namespace std;

void test1()
{
    int x = 14;
    cout << x << endl;
}

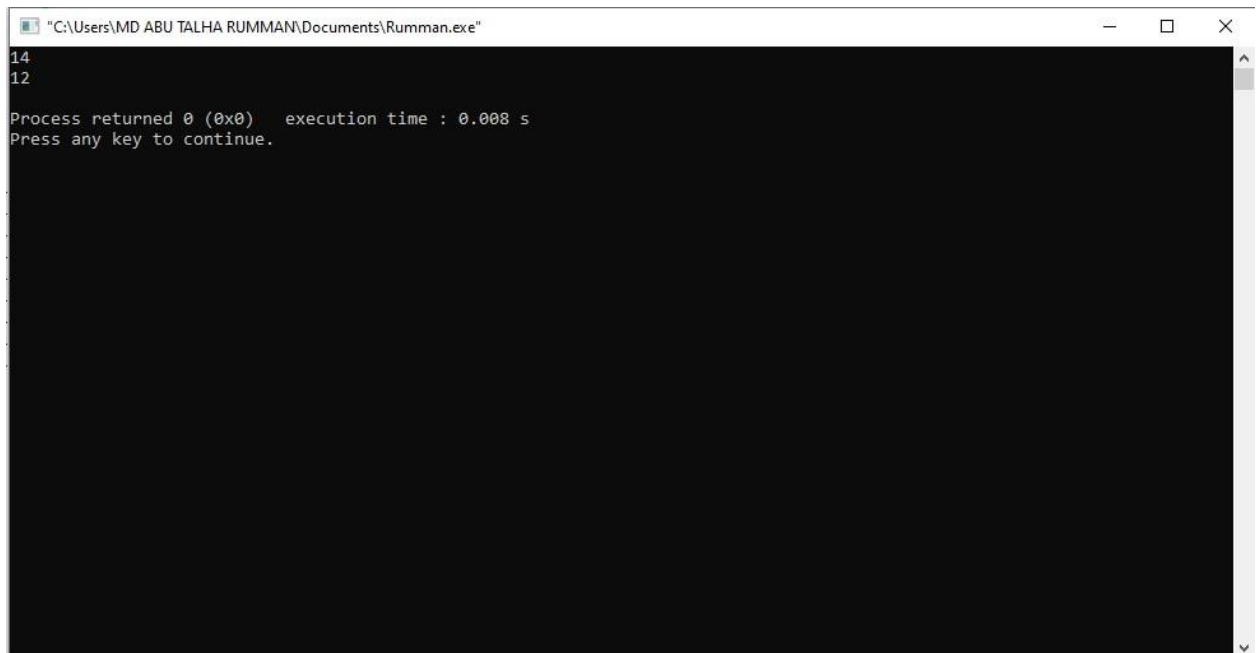
void test2()
{

    int x = 12;

    cout << x << endl;

}

int main()
{    test1();
    test2();
    return 0;
}
```



```
"C:\Users\MD ABU TALHA RUMMAN\Documents\Rumman.exe"
14
12
Process returned 0 (0x0) execution time : 0.008 s
Press any key to continue.
```

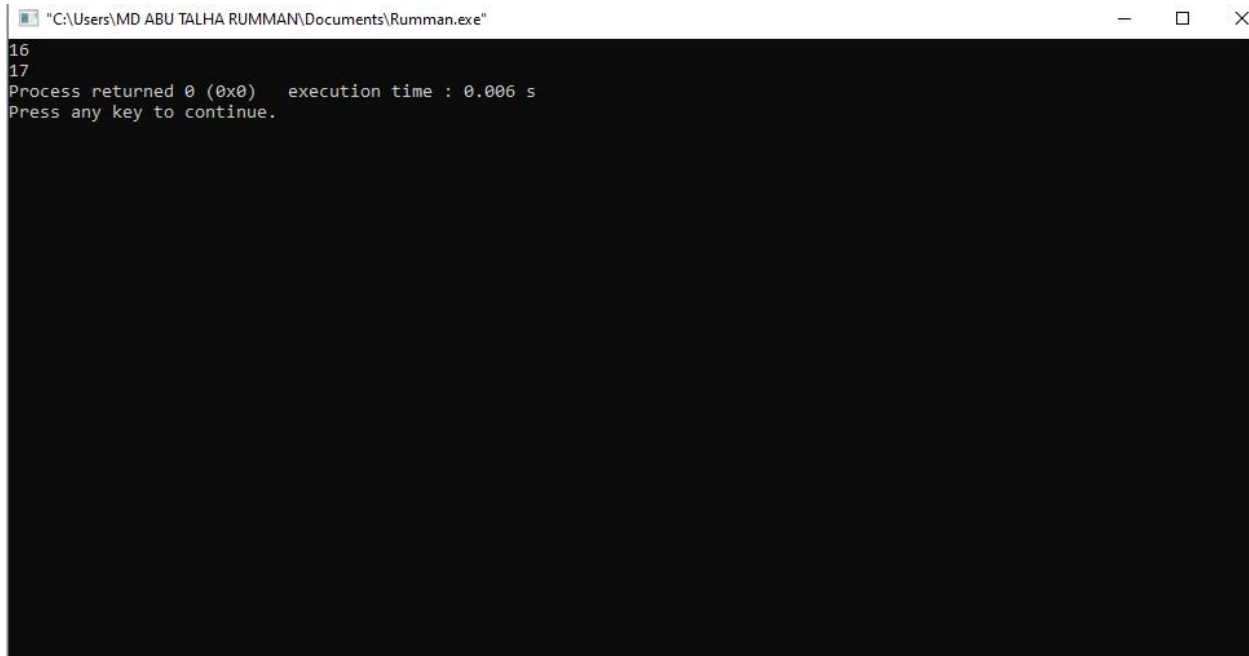
Global:

```
#include <iostream>
using namespace std;
```

```
int a = 15; void
test(); int main()
{
    ++a;
    cout << a << endl;
    test();
    return 0;
}
void test()
{
    ++a;
```

```
cout << a;
```

```
}
```



```
"C:\Users\MD ABU TALHA RUMMAN\Documents\Rumman.exe"
16
17
Process returned 0 (0x0)   execution time : 0.006 s
Press any key to continue.
```

Static:

```
#include <iostream>
```

```
using namespace std;
```

```
void test()
```

```
{
```

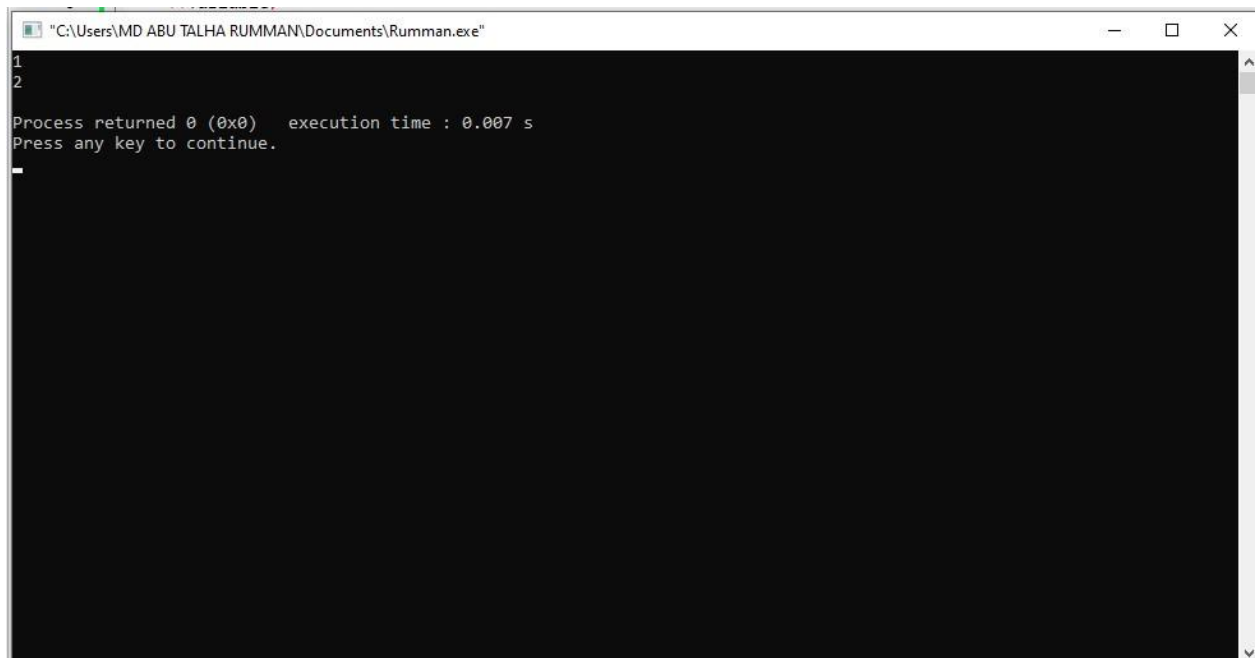
```
    static int variable = 0;
```

```
    ++variable;
```

```
    cout << variable << endl;
```



```
}  
  
int main()  
{  
    test ();  
    return 0;  
}
```



A screenshot of a Windows command prompt window. The title bar shows the file path "C:\Users\MD ABU TALHA RUMMAN\Documents\Rumman.exe". The window contains the following text: "1", "2", "Process returned 0 (0x0) execution time : 0.007 s", and "Press any key to continue.". A cursor is visible on the line "Press any key to continue.".