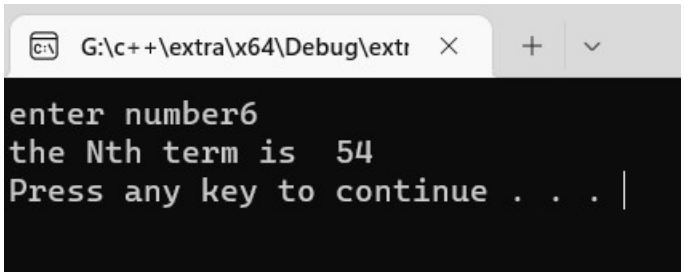
Task 1:

```
#include<iostream>
#include<cmath>
using namespace std;
int main()
{
	int N;
	cout << "enter number";
	cin >> N;
	if (N % 2 == 0)
	{
		N = (N * ((N / 2) + ((N % 2) * 2) + N));
	}

	else
	{
		N = (N * ((N / 2) + ((N % 2) * 2) + N));
	}
	cout << "the Nth term is  " << N<<endl;
	system("pause");
}
```

Or

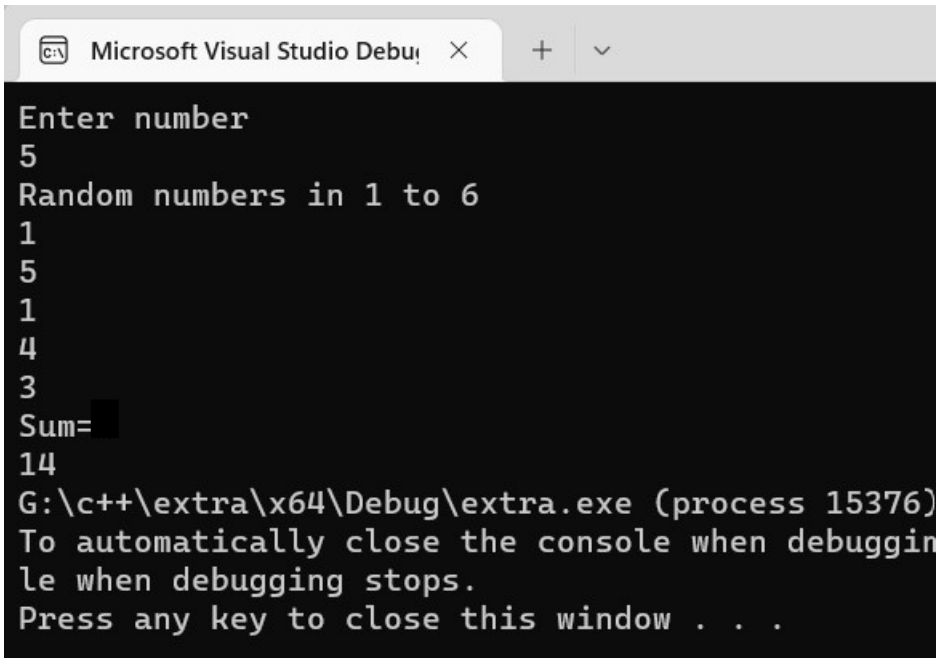
```
#include<iostream>
using namespace std;
int sum(int N)
{
	return (N * ((N / 2) + ((N % 2) * 2) + N));
}
int main()
{
	int N;
	cout << "Enter a number: ";
	cin >> N;
	cout << sum(N);
	system("pause");
}
```



Task 2:

```
#include <iostream>
#include <cstdlib>
#include <ctime>
using namespace std;
int random()
{
```

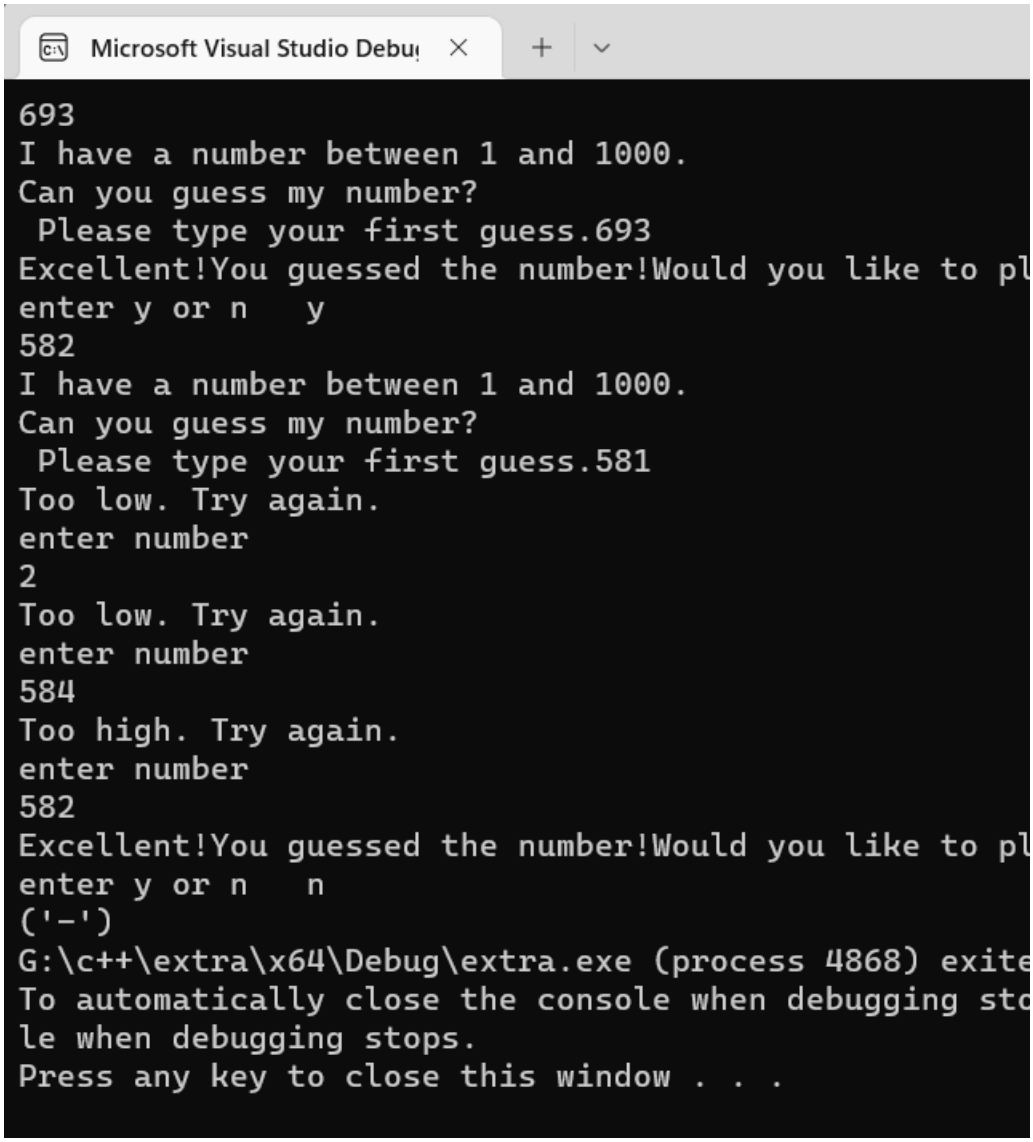
```
        return (rand() % 6) + 1;
}
int main()
{
        srand(time(0));
        int num, i, n,  sum = 0;
        cout << "Enter number "<<endl;
        cin >> num;
        cout << "Random numbers in 1 to 6 \n";

        for (i = 1; i <= num; i++)
        {

                n = random();
                cout << n << endl;
                sum =sum + n;

        }
        cout << "Sum= "<<endl << sum;
        }
```



Task 3:

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

void func()
{
        int num,n;
        num = (rand() % 1000) + 1;
        cout << num << endl;
        cout << "I have a number between 1 and 1000. \nCan you guess my number?  \n Please type your
first guess.";
```

```
	cin >> n;
	while (n != num)
	{

		if (n < num)
		{
			cout << "Too low. Try again."<<endl;
		}
		else if (n > num)
		{
			cout << "Too high. Try again."<<endl;
		}
		cout << "enter number   "<<endl;
		cin >> n;
	}

	cout << "Excellent!You guessed the number!";



}
int main()
{
	srand(time(0));
	char ch;
	do
	{
		func();

		cout << "Would you like to play again(y or n) ?"<<endl;
		cout << "enter y or n   ";
		cin >> ch;
		if (ch == 'n')
		{
			cout << "('-')";
			break;
		}

	} while (true);
}
```



or

```
#include <iostream>
#include <cstdlib>
#include <ctime>
using namespace std;
int main()
{
	int n,num;
	char ch;
	srand(time(0));
	n = (rand() % 1000) + 1;
	cout << n<<endl;
	cout << "I have a number between 1 and 1000.\nCan you guess my number?\n Please type your first guess.\n ";
	cin >> num;
	while (num != n)
	{

		if (num < n)
		{
```

```
                cout << "Too low. Try again.\n";
            }
            else if (num > n)
            {
                cout << "Too high. Try again.\n";
            }
            cout << "enter number   ";
            cin >> num;
        }

        while (num == n)
        {
            cout << "Excellent!You guessed the number!Would you like to play again(y or n)
?\n";
            cout << "enter y or n   ";
            cin >> ch;
            if (ch == 'n')
            {
                cout << "have a nice day.";
                break;
            }
            else if(ch=='y')
            {
                srand(time(0));
                n = (rand() % 1000) + 1;
                cout << n << endl;
                cout << "enter number";
                cin >> num;

            }
        }
}
```

Task 4:

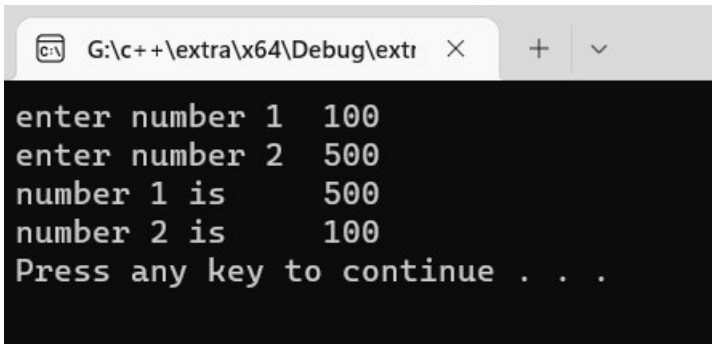
```
#include<iostream>
using namespace std;
void swap(int &x, int &y)
{
        int n3=0;
        n3 = x;
        x = y;
        y = n3;
        cout << "number 1 is     " << x<<endl;
        cout << "number 2 is     " << y<<endl;
}

int main()
{
        int x, y;
```

```
        cout<< "enter number 1  ";
        cin >> x;
        cout << "enter number 2  ";
        cin >> y;
        swap(x, y);
        system("pause");
}
```

Or

```
#include<iostream>
#include<cmath>
using namespace std;
void swap(int &x, int &y)
{
        int n3=0;
        n3 = x;
        x = y;
        y = n3;

}

int main()
{
        int x, y;
        cout<< "enter number 1  ";
        cin >> x;
        cout << "enter number 2  ";
        cin >> y;
                swap(x, y);
        cout << "number 1 is     " << x<<endl;
        cout << "number 2 is     " << y<<endl;
```

```
	system("pause");
}
```



Task 5:

```
#include<iostream>
using namespace std;
void fac(int x)
{
	int fact=1;
	for (int i = 1; i <= x; i++)
	{
		if (x == 0)
		{
			fact = 1;

		}
		else
		{
			fact = fact * i;
		}

	}
	cout << "factorial is     " << fact<<endl;
}

int main()
{
	int x;
	cout<< "enter number 1  ";
	cin >> x;
	fac(x);
	system("pause");
}
```