Recursion

Recursion is the process which allows you to call a function inside the same function

void recursion() {

recursion(); /\* function calls itself \*/

}

int main() {

recursion();

}

Some Example:

Number Factorial

The following example calculates the factorial of a given number using a recursive function −

[Live Demo](http://tpcg.io/os8QlL)

#include <stdio.h>

unsigned long long int factorial(unsigned int i) {

if(i <= 1) {

return 1;

}

return i \* factorial(i - 1);

}

int main() {

int i = 12;

printf("Factorial of %d is %d\n", i, factorial(i));

return 0;

}

When the above code is compiled and executed, it produces the following result −

Factorial of 12 is 479001600

Fibonacci Series(যে কোন সংখ্যা তার পূর্ববর্তী দুটি সংখ্যার যোগফলের সমান)

The following example generates the Fibonacci series for a given number using a recursive function −

[Live Demo](http://tpcg.io/GsweWK)

#include <stdio.h>

int fibonacci(int i) {

if(i == 0) {

return 0;

}

if(i == 1) {

return 1;

}

return fibonacci(i-1) + fibonacci(i-2);

}

int main() {

int i;

for (i = 0; i < 10; i++) {

printf("%d\t\n", fibonacci(i));

}

return 0;

}

When the above code is compiled and executed, it produces the following result −

0

1

1

2

3

5

8

13

21

34