Applications of Stacks

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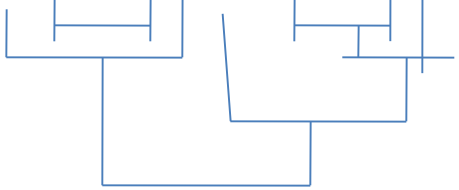
Postfix to Prefix Conversion

Consider Postfix Expression: ABC^+D*E5^+

Form the groups of tokens from left to right as follows:

A B C ^ + D * E 5 ^ +



Move the operators in each group in front of operands

+A^BC * D + ^E5

Now solve according to the priority

*+A^BCD + ^E5

We get the result as follows

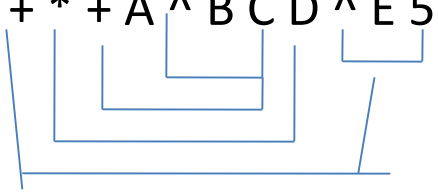
+*+A^BCD^E5

Prefix to Infix Conversion

Consider Prefix Expression: +*+A^BCD^E5

Form the groups of tokens from right to left as follows:

+ * + A ^ B C D ^ E 5



Move the operators in each group in between the operands
And we get the result as follows:

(A+B^C)*D+E^5

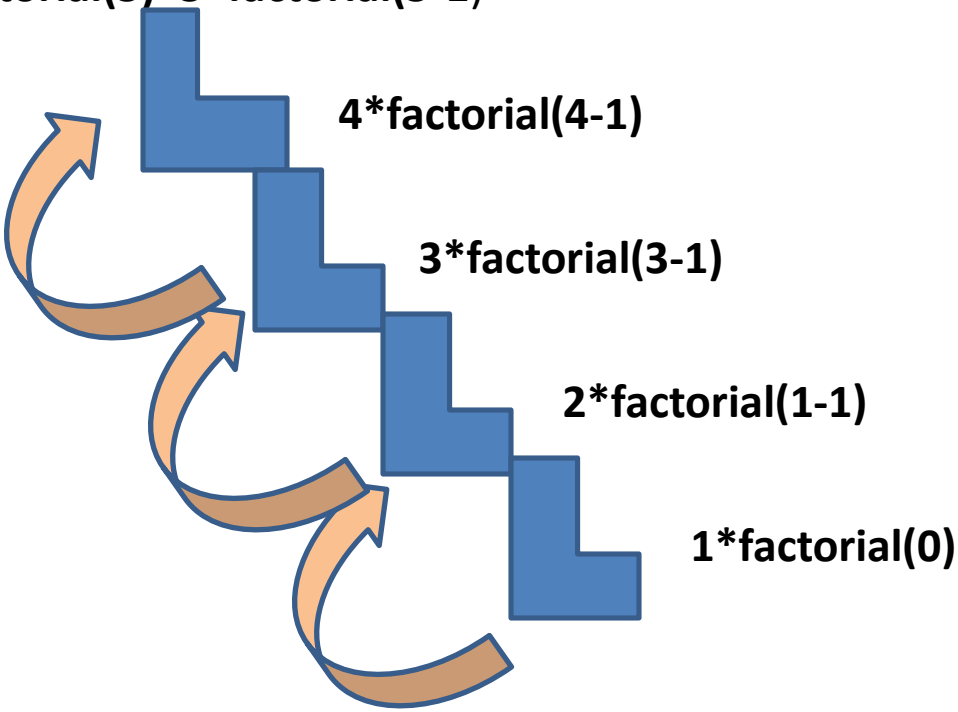
Recursion:

- When a function is defined in terms of itself, then it is called a ***recursion.***
- A *function calling itself*
- Its a fundamental concept in Mathematics
- For example, calculation of a factorial involves the recursive method.
- Factorial(n)= 1 if(n=0)
  n*fact(n-1) otherwise

Recursion (Continue)

- Function factorial(n) if defined in terms of itself for n>0
- Value of the function at n=0 is 1 and it is called as the base
- Recursion terminates on reaching the base
- This is shown in the following example:------

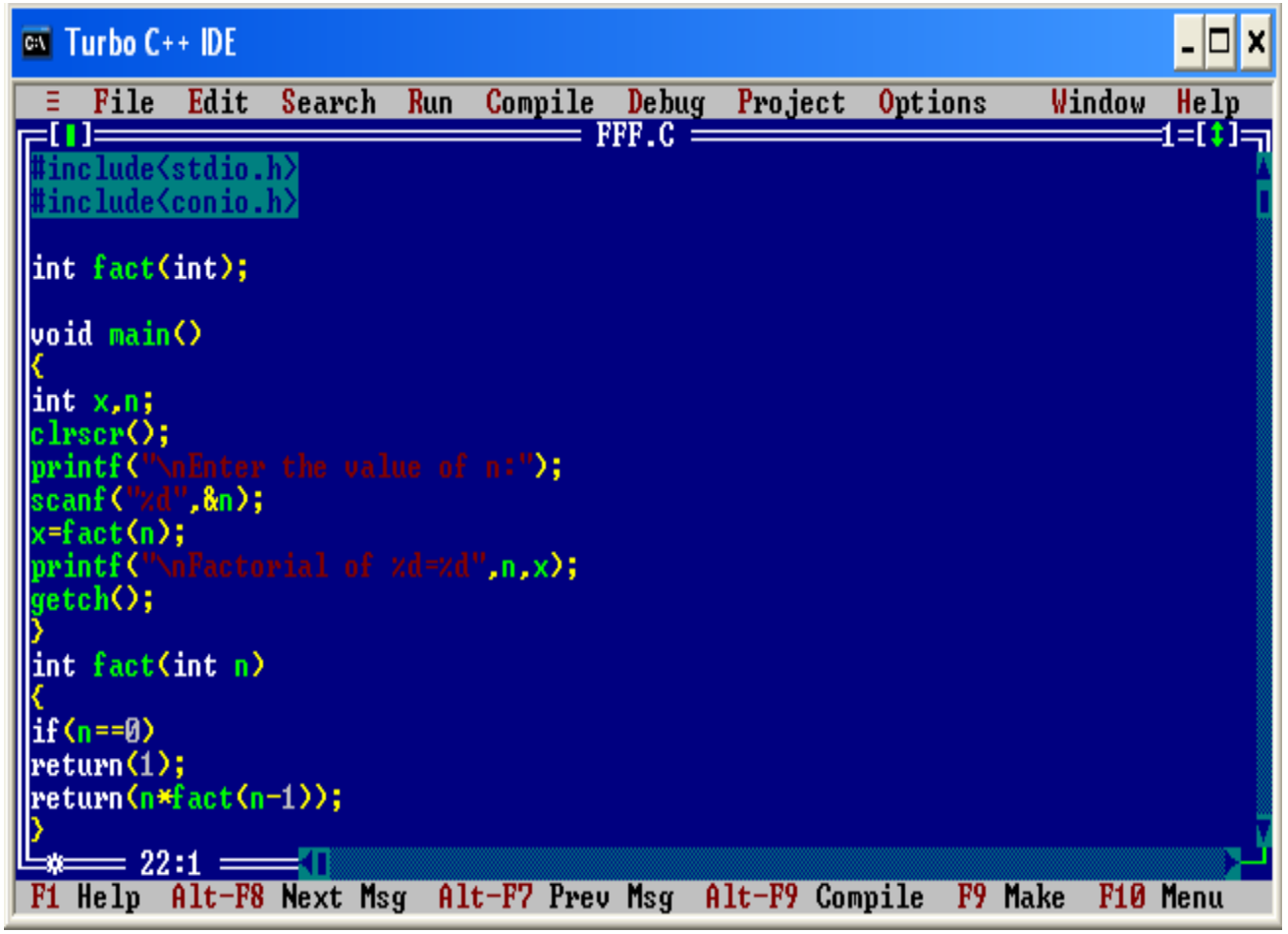
factorial(5)=5*factorial(5-1)



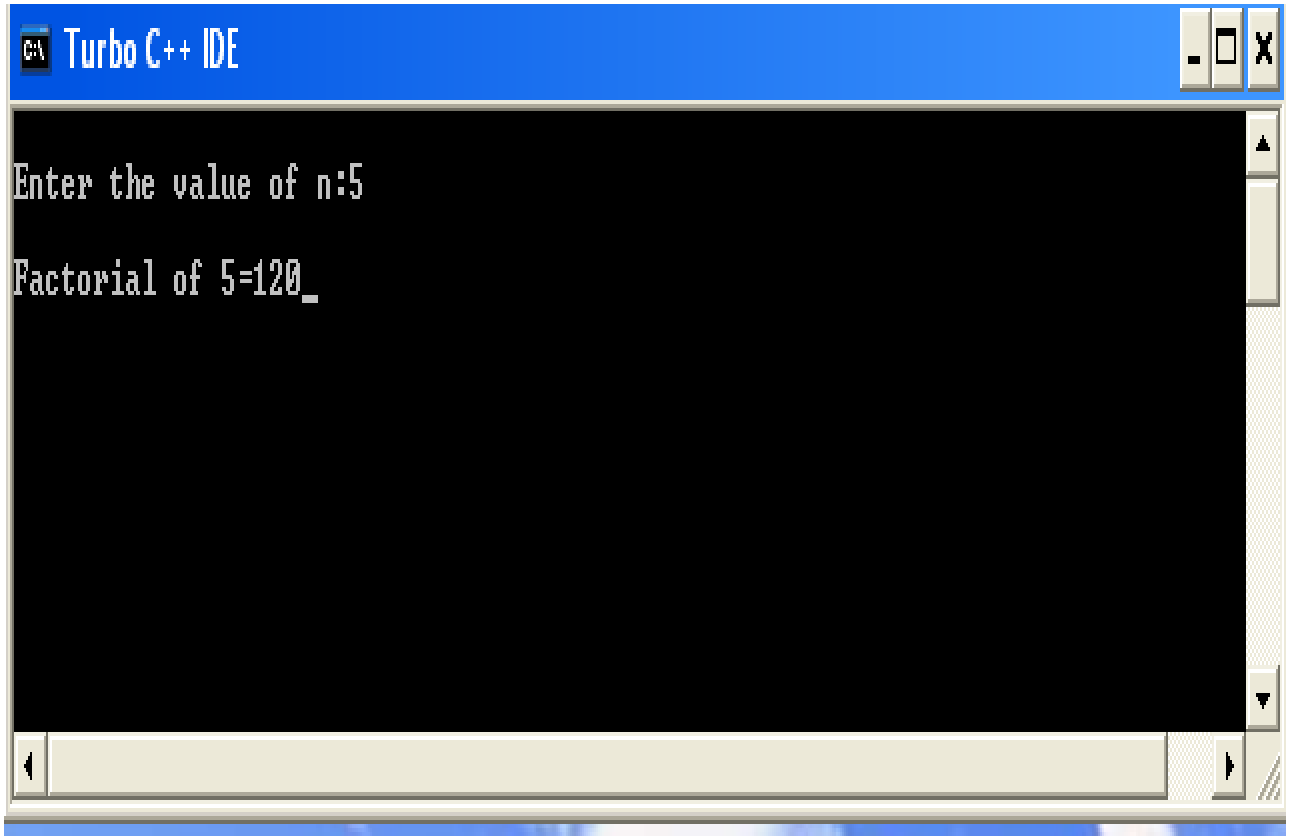
**** Recursion expands when n>0***

**** Its starts winding up on hitting the base***

C program to find the factorial of any number input through the keyboard.



Output Screen for Factorial program



Thank you!