

Write a program to print all permutations of a given string - GeeksforGeeks

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A permutation, also called an “arrangement number” or “order,” is a rearrangement of the elements of an ordered list S into a one-to-one correspondence with S itself. A string of length n has $n!$ permutation.

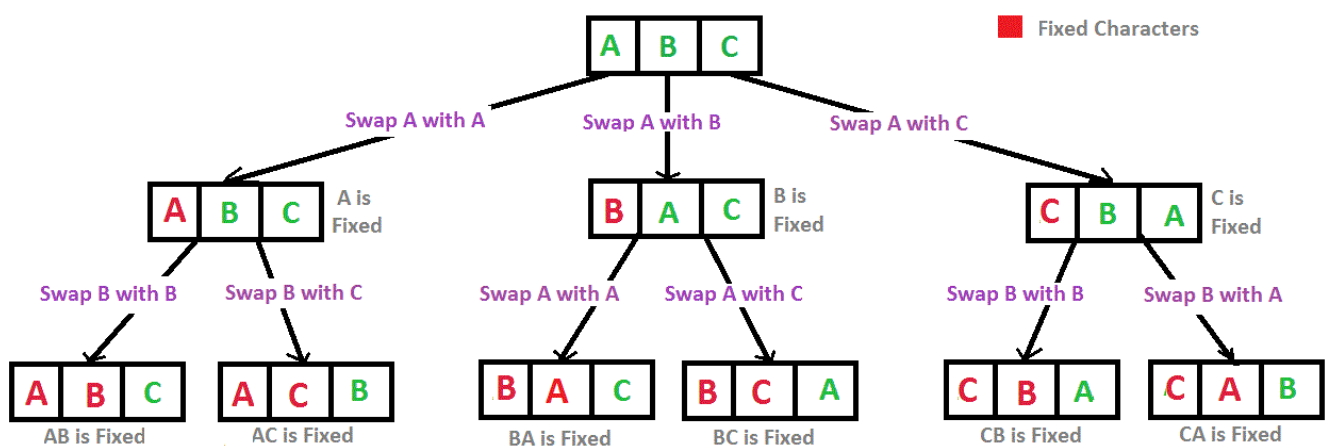
Source: Mathworld(<http://mathworld.wolfram.com/Permutation.html>)

Below are the permutations of string ABC.

ABC, ACB, BAC, BCA, CAB, CBA

[We strongly recommend that you click here and practice it, before moving on to the solution.](#)

Here is a solution using backtracking.



Recursion Tree for Permutations of String "ABC"

- C/C++
- Python

```
// C program to print all permutations with duplicates allowed#include<stdio.h>#include<string.h>/* Function to swap values at two pointers */void swap(char *x, char *y){    char temp;    temp = *x;    *x = *y;    *y = temp;}/* Function to print permutations of string    This function takes three parameters:
```

```
☐ 1. String
☐ 2. Starting index of the string
☐ 3. Ending index of the string. */
void permute(char *a, int l, int r)
{
☐ int i;
☐ if (l == r)
☐ printf("%s\n", a);
☐ else
☐ {
☐ for (i = l; i <= r; i++)
☐ {
☐ swap((a+l), (a+i));
☐ permute(a, l+1, r);
☐ swap((a+l), (a+i)); //backtrack
☐ }
☐ }
}/* Driver program to test above functions */
int main()
{
☐ char str[] = "ABC";
☐ int n = strlen(str);
☐ permute(str, 0, n-1);
☐ return 0;
}
```