

1999 Paper 1 Question 1

Foundations of Computer Science

This question has been translated from Standard ML to OCaml

A *permutation* of a list is any list that can be derived from it by re-arranging the elements. Write an OCaml function that returns the list of all the permutations of its argument. Explain your code clearly and carefully.

For example, applied to the list `[1; 2; 3]`, your function should return the list whose elements are `[1; 2; 3]`, `[2; 1; 3]`, `[2; 3; 1]`, `[1; 3; 2]`, `[3,1,2]` and `[3,2,1]`.

You may assume that the elements of the argument are distinct. The elements of the result may appear in any order.

[10 marks]