

1. Implement binary search using recursion.
2. Given an array compute sum of numbers recursively.
3. Suppose you have an array of integers. Write a recursive function that returns true if the array is sorted from smallest to largest, and false otherwise.
4. Count number of zeros in an integer.
5. Reverse a number using recursion
6. Reverse a string using recursion
7. Given k find the geometric Sum i.e. $1 + 1/2 + 1/4 + 1/8 + \dots + 1/(2^k)$
8. Given two strings check if one is reverse of the other.
9. Implement Selection Sort using recursion
10. Write a program to count all the possible paths from top left to bottom right of a $M \times N$ matrix with the constraints that from each cell you can either move only to right or down
11. Remove consecutive duplicates from a string recursively. For example, convert "aabccba" to "abcba".
12. A child is running up a staircase with n steps, and can hop either 1 step, 2 steps or 3 steps at a time. Implement a method to count how many possible ways the child can run up to the stairs.
13. Given a String print all the subsets. e.g. for input = abc you need to print a, b, c, ab, ac, bc, abc using recursion.