

LAB TASK 04- RECURSION

Problem 1:

Write a recursive program **primeFactors()** to find all prime factors of a given number *n*. A prime factor is an integer that is a factor and is also a prime.

Problem 2:

Write a recursive function **decimalToBinary()** to convert a decimal integer to a binary. For example, the decimal 78 will be “1001110”.

Problem 3:

- a) Write an iterative function **fibonacci()** that takes an integer *n* as parameter and prints the Fibonacci series till that number and finally return *n*th Fibonacci number, for example, when *n*=10 then Fibonacci numbers from 0 to 10 will be:

fib (0) = 0
fib (1) = 1
fib (2) = 1
fib (3) = 2
fib (4) = 3
fib (5) = 5
fib (6) = 8
fib (7) = 13
fib (8) = 21
fib (9) = 34
fib (10) = 55

We can see that each Fibonacci number is the sum of the two previous ones.

- b) Rewrite the solution to the problem in Task “a” using recursion. The name of the function should be **recFibonacci()**.

Problem 4:

Write a recursive function **isPalidrome()** to check if a string is Palindrome. A string is a palindrome if it reads the same forward and backwards.

Problem 5:

Write a recursive function **reverse(int num)** that reverses the digits in its argument. For example, given the integer 12789, the function returns 98721.