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Introduction to Programming

Lab - 7

Paper - 1

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1. Goat Latin

Description:

Given a string sentence containing words separated by one or more spaces, transform it as follows:

For the i-th word (1-indexed):

- If it starts with a vowel (a,e,i,o,u, case-insensitive), append "ma".
- Otherwise, move all leading consonants to the end, then append "ma".
- Append 'a' repeated (number of vowels in the word + i) times.
- Preserve original letter casing and spaces.

Return the transformed sentence

Sample Test Cases

- Input: apple Output: applemaaaa
- Input: goat Output: oatgmaaaa
- Input: speak Output: eaksmaaaa
- Input: I Speak Goat Output: Imaa eakSpmaaaaa oatGmaaaaaaa
- Input: a e i o u Output: amaa emaa aa i aaa o aaaa u aaaaa

2. Recursive Factorial with Trailing Zero Count

- Write a C program using recursion to compute the factorial of a given positive integer n .
At the same time, count the number of trailing zeros in the decimal representation of $n!$.

Requirements

- Use a recursive function to compute the factorial.
- You can find the number of trailing zeros as you wish.

Input Format

- A single integer n ($1 \leq n \leq 12$)

Output Format

- Print the factorial of n
- Print the number of trailing zeros in $n!$

Sample Input:

10

Output:

Factorial of 10 is: 3628800

Number of trailing zeros in 10! is: 2

3.Finding HCF and LCM Using Separate Functions in C

Write a **C program** to find the **Highest Common Factor (HCF)** and the **Least Common Multiple (LCM)** of two given positive integers.

Requirements

1. Implement **two separate user-defined functions**:
 - o One function to compute the **HCF (GCD)** of two numbers.
 - o Another function to compute the **LCM** of the same two numbers.
2. The **main()** function should:
 - o Read two integers from the user.
 - o Call the HCF function and display the result.
 - o Call the LCM function and display the result.

Input Format

- Two positive integers **a** and **b**

Output Format

- Display the HCF of the two numbers
- Display the LCM of the two numbers

Sample Input

12 18

Sample Output

HCF = 6
LCM = 36

