**Capture The Flag (CTF) Challenge: Recursive Decoder**

**Challenge Name: Recursive Decoder**

**Description:**

A secret recursive function encodes numbers into characters. Your task is to decode the flag by analyzing the recursive pattern.

**Source Code:**

**#include <stdio.h>**

**#include <string.h>**

**#include <stdlib.h>**

**void decrypt(const char \*input) {**

**char \*token = strtok((char \*)input, ","); // Split by commas**

**while (token != NULL) {**

**int num = atoi(token); // Convert token to integer**

**if (num >= 1 && num <= 26) {**

**printf("%c", num + 'a' - 1); // Convert to letter**

**}**

**token = strtok(NULL, ","); // Get next token**

**}**

**}**

**int main() {**

**char input[] = "…"; // Hidden message**

**printf("Flag: SMVIT{");**

**decrypt(input);**

**printf("}\n");**

**return 0;**

**}**

**Task:**

* **Analyze the recursive function decrypt(input).**
* **The conversion follows this pattern:**

**1 → a, 2 → b, 3 → c, ..., 26 → z**

* **Determine the hidden word then convert every single charcter into digit using given pattern**
* **Ex:word apple input[]=”1,16,16,12,5”;**
* **Then put that digit into input[]=”..,..,”**
* **Then call decrypt(input).**

* **Get the appropriate flag**
* **Submit the flag in the format:**

**CTF{word}**

**Hint:**

* **The function processes the number digit by digit and converts it into letters.**
* **The conversion follows this pattern:**

**1 → a, 2 → b, 3 → c, ..., 26 → z**

* **The output is a 6-letter word related to cybersecurity.**
* **The word describes a person skilled in computer security.**
* **Often associated with CTFs, ethical hacking, and penetration testing.**

**Solution**

**Recursive Breakdown: The function decrypt(n) processes the number from left to right due to recursion.**

1. **Final Output: The letters form the word "hacker".**
2. **input[] = "8,1,3,11,5,18";**
3. **decrypt(input);**
4. **Correct Flag:**

**smvit{hacker}**