

VIT - Vellore

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BCSE102P_Structured and Object Oriented Programming Lab_VL2024250502354

VIT V_Structured and OOP_Lab 5_COD_Hard_Inline Functions

Attempt : 1

Total Mark : 10

Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Suppose you are given a task to write a program that checks if a given number is an Armstrong number or not. Additionally, if the number is an Armstrong number, the program should print its factors. Write a code for the same using inline functions.

Function specifications:

inline bool isArmstrong(int number) - This calculates whether the given number is an Armstrong number or not.

inline void printFactors(int number) - This prints the factors of the given number.

Note: This is a sample question that can be asked in a TCS recruitment.

Answer

```
#include <iostream>
#include <vector>

using namespace std;

inline bool isArmstrong(int number) {
    int originalNumber = number;
    int sum = 0;
    int n = 0;
    int temp = number;
    while (temp != 0) {
        n++;
        temp /= 10;
    }
    temp = number;
    while (temp != 0) {
        int digit = temp % 10;
        int power = 1;
        for (int i = 0; i < n; ++i) {
            power *= digit;
        }
        sum += power;
        temp /= 10;
    }
    return sum == originalNumber;
}

inline void printFactors(int number) {
    for (int i = 1; i <= number; ++i) {
        if (number % i == 0) {
            cout << i << " ";
        }
    }
    cout << endl;
}

int main() {
```

```
int n;  
cin >> n;  
  
if (isArmstrong(n)) {  
    cout << n << " is an Armstrong number." << endl;  
    printFactors(n);  
} else {  
    cout << n << " is not an Armstrong number." << endl;  
}  
  
return 0;  
}
```

Status : Correct

Marks : 10/10