VIT - Vellore

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BCSE102P_Structured and Object Oriented Programming Lab_VL2024250502354

VIT V_Structured and OOP_Lab 5_COD_Hard_Functions with default Arguments

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1.   Problem Statement

In a small town library, the librarian wants to track the total number of books across different categories like "Science", "Fiction", and "History". Implement a program that calculates the total number of books by passing the objects of each category as arguments to a function.

Class Definition:

Category Class: Contains an integer attribute for the number of books and a constructor to initialize it.Function: The calculateTotalBooks function takes multiple Category objects as arguments and returns the total number of books.

Answer

```cpp
#include <iostream>
#include <vector>
using namespace std;
class Category {
public:
 int numBooks;
 Category(int books) : numBooks(books) {}
};
int calculateTotalBooks(const vector<Category>& categories) {
 int total = 0;
 for (const auto& category : categories) {
 total += category.numBooks;
 }
 return total;
}
int main() {
 int n;
 cin >> n;
 vector<Category> categories;

 for (int i = 0; i < n; i++) {
 int books;
 cin >> books;
 categories.emplace_back(books);
 }

 cout << "Total books: " << calculateTotalBooks(categories) << endl;
 return 0;
}
```

Status : Correct   *Marks : 10/10*