

Rajalakshmi Engineering College

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NeoColab_REC_CS23231_DATA STRUCTURES

REC_DS using C_Week 1_COD_Question 1

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Janani is a tech enthusiast who loves working with polynomials. She wants to create a program that can add polynomial coefficients and provide the sum of their coefficients.

The polynomials will be represented as a linked list, where each node of the linked list contains a coefficient and an exponent. The polynomial is represented in the standard form with descending order of exponents.

Input Format

The first line of input consists of an integer n , representing the number of terms in the first polynomial.

The following n lines of input consist of two integers each: the coefficient and the exponent of the term in the first polynomial.

The next line of input consists of an integer m , representing the number of terms in the second polynomial.

The following m lines of input consist of two integers each: the coefficient and the exponent of the term in the second polynomial.

Output Format

The output prints the sum of the coefficients of the polynomials.

Sample Test Case

Input: 3

2 2

3 1

4 0

3

2 2

3 1

4 0

Output: 18

Answer

// You are using GCC

```
#include<stdio.h>
```

```
#include<stdlib.h>
```

```
struct Node {
```

```
    int coe,expo;
```

```
    struct Node* next;
```

```
};
```

```
struct Node* createNode(int coeff,int exp){
```

```
    struct Node* newNode=(struct Node*)malloc(sizeof(struct Node));
```

```
    newNode->coe=coeff;
```

```
    newNode->expo=exp;
```

```
    newNode->next=NULL;
```

```
    return newNode;
```

```
}
```

```
void insertend(struct Node** head,int coeff, int exp){
```

```
    if(*head==NULL){
```

```
        *head=createNode(coeff,exp);
```

```
    }else{
```

```
        struct Node* temp= *head;
```

```
        while(temp->next!=NULL)
```

```

    temp=temp->next;
    temp->next=createNode(coeff,exp);
}
}
int addcoeff(struct Node*poly){
    int sum=0;
    while(poly !=NULL){
        sum +=poly->coe;
        poly=poly->next;
    }
    return sum;
}
void freelist(struct Node*head){
    while (head!=NULL){
        struct Node*temp=head;
        head=head->next;
        free(temp);
    }
}
int main(){
    struct Node* poly1=NULL,*poly2=NULL;
    int n,m,coeff,exp;
    scanf("%d",&n);
    for(int i=0;i<n;i++){
        scanf("%d %d",&coeff,&exp);
        insertend(&poly1,coeff,exp);
    }
    scanf("%d",&m);
    for(int i=0;i<m;i++){
        scanf("%d %d",&coeff,&exp);
        insertend(&poly2,coeff,exp);
    }
    printf("%d\n",addcoeff(poly1)+addcoeff(poly2));
    freelist(poly1);
    freelist(poly2);
    return 0;
}

```

Status : Correct

Marks : 10/10