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1 struct Polynomial
2 {
3     int coeff;
4     int exp;
5 };
6
7 struct Polynomial first[15], second[15], result[15];
8
9 void display(struct Polynomial poly[], int terms)
10 {
11     int i;
12     printf("\n");
13     for(i = 0; i < terms ; i++)
14     {
15         printf("%dX^%d+ ", poly[i].coeff, poly[i].exp);
16     }
17 }
18
19 int readExpression(struct Polynomial poly[])
20 {
21     int terms, i;
22     printf("\nNumber of terms: ");
23     scanf("%d", &terms);
24     printf("\nEnter the coefficients and exponents in DESCENDING order");
25     for(i = 0 ; i<terms; i++)
26     {
27         printf("\nCoefficient :");
28         scanf("%d", &poly[i].coeff);
29         printf("Exponent :");
30         scanf("%d", &poly[i].exp);
31     }
32     return terms;
33 }
34
35 int addExpressions(int firstCount, int secondCount)
36 {
37     int i, j, k;
38     i = 0;
39     j = 0;
40     k = 0;
41     while(i < firstCount && j < secondCount)
42     {
43         if(first[i].exp == second[j].exp)
44         {
45             result[k].coeff = first[i].coeff + second[j].coeff;
46             result[k].exp = first[i].exp;
47             i++;
48             j++;
49             k++;
50         }
51         else if(first[i].exp > second[j].exp)
52         {
53             result[k].coeff = first[i].coeff;
54             result[k].exp = first[i].exp;
55             i++;
56             k++;
57         }
58         else
59         {

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60         result[k].coeff = second[i].coeff;
61         result[k].exp = second[j].exp;
62         j++;
63         k++;
64     }
65 }
66
67 while(i < firstCount)
68 {
69     result[k].coeff = first[i].coeff;
70     result[k].exp = first[i].exp;
71     k++;
72     i++;
73 }
74
75 while(j < secondCount)
76 {
77     result[k].coeff = second[j].coeff;
78     result[k].exp = second[j].exp;
79     k++;
80     j++;
81 }
82 return k;
83 }
84
85 int main()
86 {
87     int firstCount, secondCount, resultCount;
88     printf("\nFirst Expression:\n");
89     firstCount = readExpression(first);
90     printf("\nSecond Expression:\n");
91     secondCount = readExpression(second);
92     printf("\nFirst Expression");
93     display(first, firstCount);
94     display(second, secondCount);
95     resultCount = addExpressions(firstCount, secondCount);
96     printf("\nResultant Expression:\n");
97     display(result, resultCount);
98     return 0;
99 }

```