#include<stdio.h>

#include<stdlib.h>

//----------------------------------------------------------

struct node

{

    int Coefficient;

    int Degree;

    struct node \*next;

};

//----------------------------------------------------------

struct node \*Create\_Node()

{

    struct node \*tmp;

    tmp = (struct node \*)malloc(sizeof(struct node));

    printf("Enter Coefficient\n");

    scanf("%d",&tmp->Coefficient);

    printf("Enter Degree\n");

    scanf("%d",&tmp->Degree);

    tmp->next = NULL;

    return tmp;

}

//----------------------------------------------------------

struct node \*Create\_Node\_C()

{

    struct node \*tmp;

    tmp = (struct node \*)malloc(sizeof(struct node));

    tmp->Coefficient = 0;

    tmp->Degree = 0;

    tmp->next = NULL;

    return tmp;

}

//---------------------------------------------------------------

struct node \*CreateLL\_C(int deg)

{

    struct node \*head = Create\_Node\_C();

    struct node \*tmp = head;

    struct node \*NewNode;

    for(int i=1;i<6;i++)

    {

        NewNode = Create\_Node\_C();

        tmp->next = NewNode;

        tmp = tmp->next;

    }

    return head;

}

//---------------------------------------------------------------

struct node \*CreateLL(int n)

{

    struct node \*head = Create\_Node();

    struct node \*tmp = head;

    struct node \*NewNode;

    for(int i=1;i<n;i++)

    {

        NewNode = Create\_Node();

        tmp->next = NewNode;

        tmp = tmp->next;

    }

    return head;

}

//-----------------------------------------------------------------

int main()

{

    int n1,n2,n3;

    struct node \*head1,\*head2,\*head3;

    printf("Enter the Number of Coefficients in the Polynomial 1\n");

    scanf("%d",&n1);

    printf("Enter the Number of Coefficients in the Polynomial 2\n");

    scanf("%d",&n2);

    int deg;

    if((head1->Degree)>=(head2->Degree))

    {

        deg = head1->Degree;

    }

    else

    {

        deg = head2->Degree;

    }

    printf("\n\n");

    head1 = CreateLL(n1);

    printf("\n\n");

    head2 = CreateLL(n2);

    printf("\n\n");

    head3 = CreateLL\_C(deg);

    struct node \*tmp1 = head1;

    struct node \*tmp2 = head2;

    struct node \*tmp3 = head3;

    while(tmp1 != NULL && tmp2 != NULL)

    {

        if(tmp1->Degree == tmp2->Degree)

        {

            tmp3->Degree = tmp1->Degree;

            tmp3->Coefficient = tmp1->Coefficient + tmp2->Coefficient;

            tmp1 = tmp1->next;

            tmp2 = tmp2->next;

            tmp3 = tmp3->next;

        }

        else if(tmp1->Degree > tmp2->Degree)

             {

                tmp3->Degree = tmp1->Degree;

                tmp3->Coefficient = tmp1->Coefficient;

                tmp1 = tmp1->next;

                tmp3 = tmp3->next;

             }

        else if(tmp1->Degree < tmp2->Degree)

        {

            tmp3->Degree = tmp2->Degree;

            tmp3->Coefficient = tmp2->Coefficient;

            tmp2 = tmp2->next;

            tmp3 = tmp3->next;

        }

    }

    while(tmp1 != NULL)

    {

        tmp3->Degree = tmp1->Degree;

        tmp3->Coefficient = tmp1->Coefficient;

        tmp3 = tmp3->next;

        tmp1 = tmp1->next;

    }

    while(tmp2 != NULL)

    {

        tmp3->Degree = tmp2->Degree;

        tmp3->Coefficient = tmp2->Coefficient;

        tmp3 = tmp3->next;

        tmp2 = tmp2->next;

    }

    tmp1 = head1;

    tmp2 = head2;

    tmp3 = head3;

    printf("Polynomial 1 : \n");

    while(tmp1 != NULL)

    {

        printf("Degree : %d\t Coefficient : %d\t Address : %d\n",tmp1->Degree,tmp1->Coefficient,&tmp1->next);

        tmp1 = tmp1->next;

    }

    printf("Polynomial 2 : \n");

    while(tmp2 != NULL)

    {

        printf("Degree : %d\t Coefficient : %d\t Address : %d\n",tmp2->Degree,tmp2->Coefficient,&tmp2->next);

        tmp2 = tmp2->next;

    }

    printf("Polynomial 3 : \n");

    while(tmp3 != NULL)

    {

        printf("Degree : %d\t Coefficient : %d\t Address : %d\n",tmp3->Degree,tmp3->Coefficient,&tmp3->next);

        tmp3 = tmp3->next;

    }

    while (head1 != NULL) {

        tmp1 = head1;

        head1 = head1->next;

        free(tmp1);

    }

    while (head2 != NULL) {

        tmp2 = head2;

        head2 = head2->next;

        free(tmp2);

    }

    while (head3 != NULL) {

        tmp3 = head3;

        head3 = head3->next;

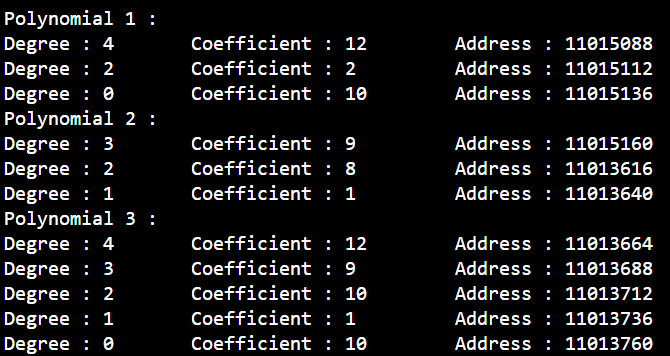
        free(tmp3);

    }

    return 0;

}

Output:



#include<stdio.h>

#include<stdlib.h>

//-----------------------------------------------------

struct node

{

    struct node \*prev;

    int Coefficient;

    int Degree;

    struct node \*next;

};

//-----------------------------------------------------

struct node \*Create\_Node\_C()

{

    struct node \*tmp = (struct node \*)malloc(sizeof(struct node));

    tmp->Coefficient = 0;

    tmp->Degree = 0;

    tmp->prev = NULL;

    tmp->next = NULL;

    return tmp;

}

//-----------------------------------------------------

struct node \*Create\_Node()

{

    struct node \*tmp = (struct node \*)malloc(sizeof(struct node));

    printf("Enter Coefficient: \n");

    scanf("%d", &tmp->Coefficient);

    printf("Enter Degree: \n");

    scanf("%d", &tmp->Degree);

    tmp->prev = NULL;

    tmp->next = NULL;

    return tmp;

}

//-----------------------------------------------------

struct node \*CreateLL(int n)

{

    struct node \*head = Create\_Node();

    struct node \*tmp = head;

    for (int i = 1; i < n; i++)

    {

        struct node \*NewNode = Create\_Node();

        tmp->next = NewNode;

        NewNode->prev = tmp;

        tmp = tmp->next;

    }

    return head;

}

//-----------------------------------------------------

int main()

{

    int n1, n2;

    struct node \*head1, \*tmp, \*t;

    printf("Enter the Number of Coefficients in Polynomial 1: \n");

    scanf("%d", &n1);

    head1 = CreateLL(n1);

    tmp = head1;

    printf("Enter the Number of Coefficients in Polynomial 2: \n");

    scanf("%d", &n2);

    for (int i = 0; i < n2; i++)

    {

        int b, d;

        printf("Enter Coefficient: \n");

        scanf("%d", &b);

        printf("Enter Degree: \n");

        scanf("%d", &d);

        while (tmp != NULL && tmp->Degree > d)

        {

            tmp = tmp->next;

        }

        if (tmp != NULL && tmp->Degree == d)

        {

            tmp->Coefficient += b;

        } else {

            struct node \*newNode = Create\_Node\_C();

            newNode->Coefficient = b;

            newNode->Degree = d;

            if (tmp == NULL)

            {

                tmp = head1;

                while (tmp->next != NULL)

                {

                    tmp = tmp->next;

                }

                tmp->next = newNode;

                newNode->prev = tmp;

            } else if (tmp->prev == NULL)

            {

                newNode->next = head1;

                head1->prev = newNode;

                head1 = newNode;

            } else

            {

                newNode->next = tmp;

                newNode->prev = tmp->prev;

                tmp->prev->next = newNode;

                tmp->prev = newNode;

            }

        }

    }

    tmp = head1;

    printf("Polynomial after Addition:\n");

    while (tmp != NULL)

    {

        printf("Degree: %d\t Coefficient: %d\t Address: %d\n", tmp->Degree, tmp->Coefficient, &tmp);

        tmp = tmp->next;

    }

    return 0;

}

Output:

