TWO POLYNOMIAL ADDITION

CODE:

```
#include<stdio.h>
#include<stdlib.h>
typedef struct node
{
int co,exp;
struct node*next;
}node;
node*create(int co,int exp)
{
node*newnode=(node*)malloc(sizeof(node));
newnode->co=co;
newnode->exp=exp;
newnode->next=NULL;
return newnode;
}
void insert(node**poly,int co,int ex)
{
node*p=create(co,ex);
if(*poly==NULL)
{
*poly=p;
return;                                                    }
node*tem=*poly;
while(tem->next!=NULL)
tem=tem->next;
tem->next=p;
}
node*sum(node*p1,node*p2)
{
node*add=NULL;
while(p1!=NULL && p2!=NULL)
```

```
{
if(p1->exp > p2->exp)
{
insert(&add,p1->co,p1->exp);
p1=p1->next;
}
else if(p1->exp < p2->exp)
{
insert(&add,p2->co,p2->exp);
p2=p2->next;
}
else if(p1->exp==p2->exp)
{
insert(&add,(p1->co+p2->co),p1->exp);
p1=p1->next;
p2=p2->next;
}                                                                    }
while(p1!=NULL)
{
insert(&add,p1->co,p1->exp);
p1=p1->next;
}
while(p2!=NULL)
{
insert(&add,p2->co,p2->exp);
p2=p2->next;
}
return add;
}
void display(node*p)
{
while(p!=NULL)
{
printf("%dx^%d",p->co,p->exp);
```

```
p=p->next;
if(p!=NULL)
printf(" + ");                                                    }
printf("\n");
}
int main()
{
int n,co,exp;
node*poly1=NULL;
node*poly2=NULL;
node*add=NULL;
for(int j=0;j<2;j++)
{
printf("\nEnter no.of terms in a polynomial:");
scanf("%d",&n);
for(int i=0;i<n;i++)
{
printf("Enter the value of co-efficient and power of term%d:",i+1);
scanf("%d%d",&co,&exp);
if(j==0)
insert(&poly1,co,exp);
else
insert(&poly2,co,exp);
}                                                                 }
printf("\nFirst polynomial:");
display(poly1);
printf("\nSecond polynomial:");
display(poly2);
add=sum(poly1,poly2);
printf("\nAddition of two polynomial:");
display(add);
}
```