

polynomial.h

```
struct node
{
int coeff,exp;
struct node *next;
};

struct node *ptr=NULL;
struct node *create(struct node *poly)
{
struct node *nw=NULL;
int n,i;
printf("\n How many terms : ");
scanf("%d",&n);
printf("\n Enter terms in decreasing order of exponent : \n");
for(i=0;i<n;i++)
{
nw=(struct node *)malloc(sizeof(struct node));
printf("Enter coefficient : ");
scanf("%d",&nw->coeff);
printf("Enter exponent : ");
scanf("%d",&nw->exp);
nw->next=NULL;
if(poly==NULL)
{
poly=nw;
ptr=nw;
}
else
{
ptr->next=nw;
ptr=nw;
}
}
return(poly);
}

void display(struct node *poly)
{
ptr=poly;
do
{
printf("%d",ptr->coeff);
printf("x^");
printf("%d",ptr->exp);
if(ptr->next!=NULL)
printf("+");
ptr=ptr->next;
}while(ptr!=NULL);
}
```

```

struct node *add(struct node *poly1,struct node *poly2,struct node *poly3)
{
    struct node *t1=NULL,*t2=NULL,*t3=NULL,*nw=NULL;
    t1=poly1;
    t2=poly2;
    while(t1!=NULL && t2!=NULL)
    {
        nw=(struct node *)malloc(sizeof(struct node));
        nw->next=NULL;
        if(t1->exp>t2->exp)
        {
            nw->coeff=t1->coeff;
            nw->exp=t1->exp;
            t1=t1->next;
        }
        else
        {
            if(t2->exp>t1->exp)
            {
                nw->coeff=t2->coeff;
                nw->exp=t2->exp;
                t2=t2->next;
            }
            else
            {
                nw->coeff=t1->coeff+t2->coeff;
                nw->exp=t1->exp;
                t1=t1->next;
                t2=t2->next;
            }
        }
        if(poly3==NULL)
            poly3=t3=nw;
        else
        {
            t3->next=nw;
            t3=nw;
        }
    }
    if(t1!=NULL)
        t3->next=t1;
    if(t2!=NULL)
        t3->next=t2;
    return(poly3);
}

```