**Addition of two polynomial functions.**

#include<stdio.h>

#include<stdlib.h>

#include<math.h>

struct node{

float cf;

float px;

float py;

int flag;

struct node \*link;

};

typedef struct node \*node;

node getnode()

{

node x;

x=(node)malloc(sizeof(struct node));

if(x == NULL)

{

printf("out of memory\n");

exit(0);

}

return x;

}

node insert\_rear(float cf,float x,float y,node head)

{

node temp,cur;

int flag;

temp=getnode();

temp->cf=cf;

temp->px=x;

temp->py=y;

temp->flag=0;

cur=head->link;

while(cur->link!=head)

cur=cur->link;

cur->link=temp;

temp->link=head;

return head;

}

node read\_poly(node head)

{

int i;

float cf,px,py;

printf("Enter the coefficient as -999 to end the polynomial\n");

for (i=0;;i++)

{

printf("enter the %d term\n",i);

printf("Coeff:");

scanf("%f",&cf);

if(cf == -999)

break;

printf("pow x:");

scanf("%f",&px);

printf("pow y:");

scanf("%f",&py);

head=insert\_rear(cf,px,py,head);

}

return head;

}

void display(node head)

{

node temp;

if(head->link==head)

{

printf("polynomial does not exist\n");

return;

}

temp=head->link;

while(temp!=head)

{

printf("%5.2fx^%3.1fy^%3.1f",temp->cf,temp->px,temp->py);

temp=temp->link;

}

printf("\n");

}

node add\_poly(node h1,node h2,node h3)

{

node p1,p2;

int x1,x2,y1,y2,cf1,cf2,cf;

p1=h1->link;

while(p1!=h1)

{

x1=p1->px;

y1=p1->py;

cf1=p1->cf;

p2=h2->link;

while(p2!=h2)

{

x2=p2->px;

y2=p2->py;

cf2=p2->cf;

if(x1==x2 && y1==y2)

break;

p2=p2->link;

}

if(p2!=h2)

{

cf=cf1+cf2;

p2->flag=1;

if(cf!=0)

h3=insert\_rear(cf,x1,y1,h3);

}

else

h3=insert\_rear(cf1,x1,y1,h3);

p1=p1->link;

}

p2=h2->link;

while(p2!=h2)

{

if(p2->flag==0)

{

h3=insert\_rear(p2->cf,p2->px,p2->py,h3);

}

p2=p2->link;

}

return h3;

}

int main()

{

node h1,h2,h3;

h1=getnode();

h2=getnode();

h3=getnode();

h1->link=h1;

h2->link=h2;

h3->link=h3;

printf("Enter the first polynomial:\n");

h1=read\_poly(h1);

printf("Enter the second polynomial:\n");

h2=read\_poly(h2);

h3=add\_poly(h1,h2,h3);

printf("The first polynomial\n");

display(h1);

printf("The second polynomial\n");

display(h2);

printf("The sum of two polynomials\n");

display(h3);

}