**Program: Bezier Curve**

#include<conio.h>

#include<stdio.h>

#include<graphics.h>

#include<math.h>

struct point

{

int x;

int y;

};

long int fact(int n)

{

int res=1,i=1;

for(i=2;i<=n;i++)

{

res=res\*i;

}

return res;

}

long int ncr(int n,int r)

{

int num=fact(n)/fact(n-r);

return num/fact(r);

}

float power(float x,int y)

{

int i;

float res=1;

for(i=1;i<=y;i++)

{

res=res\*x;

}

return res;

}

void bezier(struct point pts[],int n,float t,float res[])

{

int i;

float bin;

res[0]=res[1]=0;

for(i=0;i<=n;i++)

{

bin=ncr(n,i)\*power(1-t,n-i)\*power(t,i);

res[0]+=bin\*pts[i].x;

res[1]+=bin\*pts[i].y;

}

}

void main()

{

int gd=DETECT,gm,n,i;

float t;

float res[2];

struct point pts[50];

initgraph(&gd,&gm,"\\BGI");

printf("Enter the number of control points:\n ");

scanf("%d",&n);

for(i=0;i<n;i++)

{

printf("Enter the coordinates of point %d:\n ",i+1);

scanf("%d %d",&pts[i].x,&pts[i].y);

}

for(t=0.0;t<=1.0;t+=0.001)

{

bezier(pts,n-1,t,res);

putpixel(res[0],res[1],WHITE);

}

getch();

}

**Output:**



