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/*******************************************
Title : Water from Tap
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*******************************************/
#include<stdio.h>
#include<graphics.h>
#include<math.h>
#include<stdlib.h>
void bezier(int x[4],int y[4])
{
int i;
double t;
for(t=0.0;t<1.0;t+=0.0005)
{
double xt=pow(1-t,3)*x[0]+3*t*pow(1-
t,2)*x[1]+3*pow(t,2)*(1-t)*x[2]+pow(t,3)*x[3];
double yt=pow(1-t,3)*y[0]+3*t*pow(1-
t,2)*y[1]+3*pow(t,2)*(1-t)*y[2]+pow(t,3)*y[3];
putpixel(xt,yt,BLUE);
}
return;
}

void bezier1(int x[4],int y[4])
{
int i;
double t;
for(t=0.0;t<1.0;t+=0.0005)
{
double xt=pow(1-t,3)*x[0]+3*t*pow(1-
t,2)*x[1]+3*pow(t,2)*(1-t)*x[2]+pow(t,3)*x[3];
double yt=pow(1-t,3)*y[0]+3*t*pow(1-
t,2)*y[1]+3*pow(t,2)*(1-t)*y[2]+pow(t,3)*y[3];
putpixel(xt,yt,BLACK);
}
return;
}

void dda(float x0,float y0, float x1, float y1)
{
 float dx=x1-x0;
 float dy=y1-y0;
 float steps;
```

```
 int k;
 float xi,yi,x=x0,y=y0;
 if(x1==x0 && y1==y0)
 {
  putpixel(x,y,15);
  return;
 }
 if(abs(dx)>abs(dy))
  steps=abs(dx);
 else
  steps=abs(dy);
 xi=dx/steps;
 yi=dy/steps;
 putpixel(x,y,15);
 for(k=0;k<steps;k++)
 {
  x+=xi;
  y+=yi;
  putpixel(x,y,15);
 }
}

void dda1(float x0,float y0, float x1, float y1)
{
 float dx=x1-x0;
 float dy=y1-y0;
 float steps;
 int k;
 float xi,yi,x=x0,y=y0;
 if(x1==x0 && y1==y0)
 {
  putpixel(x,y,15);
  return;
 }
 if(abs(dx)>abs(dy))
  steps=abs(dx);
 else
  steps=abs(dy);
 xi=dx/steps;
 yi=dy/steps;
 putpixel(x,y,BLUE);
 for(k=0;k<steps;k++)
 {
  x+=xi;
  y+=yi;
```

```
  putpixel(x,y,BLUE);
 }
}

void dda2(float x0,float y0, float x1, float y1)
{
 float dx=x1-x0;
 float dy=y1-y0;
 float steps;
 int k;
 float xi,yi,x=x0,y=y0;
 if(x1==x0 && y1==y0)
 {
  putpixel(x,y,15);
  return;
 }
 if(abs(dx)>abs(dy))
  steps=abs(dx);
 else
  steps=abs(dy);
 xi=dx/steps;
 yi=dy/steps;
 putpixel(x,y,BLACK);
 for(k=0;k<steps;k++)
 {
  x+=xi;
  y+=yi;
  putpixel(x,y,BLACK);
 }
}

int main()
{
 int gdriver,gmode,ch;
 detectgraph(&gdriver,&gmode);
 initgraph(&gdriver, &gmode, "" );
 int f =0;
 int x1[4]={100,90,80,80},y;
 int y1[4]={150,140,200,300};
 dda(100,100,100,300);
 dda(100,300,250,300);
 dda(250,300,250,100);
 dda(300,300,400,300);
 dda(400,300,400,10);
 dda(400,10,300,10);
```

```
dda(300,10,300,300);
dda(300,30,200,30);
dda(200,30,200,70);
dda(200,70,210,70);
dda(210,70,210,70);
dda(210,50,300,50);
putpixel(100,150,BLACK);
putpixel(100,149,BLACK);
for(y=71;y<=299;y++)
{
 dda1(203,y,207,y);
 delay(10);
}
int i =299;
while(i>150)
{
  dda1(101,i,249,i);
  i--;
  delay(100);
}
while(i>100)
{
 x1[3]=(i-70);
 x1[2]=(i-70);
 x1[1]=(i-60);
 if(x1[3]>0)
 {
  bezier(x1,y1);
 }
 dda1(101,i,249,i);
 i--;
 delay(200);
 if(x1[3]>0)
  bezier1(x1,y1);
}
for(y=71;y<=100;y++)
 dda2(203,y,207,y);
while(i<=150)
{
 x1[3]=(i-70);
 x1[2]=(i-70);
 x1[1]=(i-60);
 if(x1[3]<80)
  bezier(x1,y1);
 if(x1[3]>80)
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```
    f++;
   dda2(101,i,249,i);
   i++;
   delay(200);
   if(x1[3]<80)
    bezier1(x1,y1);
   if(f==1)
   {
    bezier(x1,y1);
    f++;
   }
  }
  getch();
}
```