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Program 12

Write a program to construct Bezier curve. control points are supplied through keyboard/mouse.

```
#include <iostream>
#include <math.h>
#include <gl/glut.h>

using namespace std;
float x, y, r, xc[4], yc[4];
int flag = 0;

void myInit()
{
    glClearColor(1,1,1,1);
    glColor3f(1,1,1);
    glPointSize(5);
    gluOrtho2D(0,500,0,500);
}

void drawPixel(float x, float y){
    glBegin(GL_POINTS);
    glVertex2f(x,y);
    glEnd();
}
```

Teacher's Signature

```
void display(){

    glClear(GL_COLOR_BUFFER_BIT);
    int i;
    double t;
    glColor3f(0,0,0);
    glBegin(GL_POINTS);

  for (t=0; t<1; t=t+0.005){

double xt=pow(1-t,3) * x1[0] +3*t*pow(1-t,2)* x[1]+3
     * pow(t,2) *(1-t) * x1[2] +pow(t,3) * x1[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];

          glVertex2f(xt,yt);
}
glColor3f(1,1,0);

 for (i=0;i<4;i++){

          glVertex2f(x1[i],y[i]);
          glEnd();
          glFlush();
}
```

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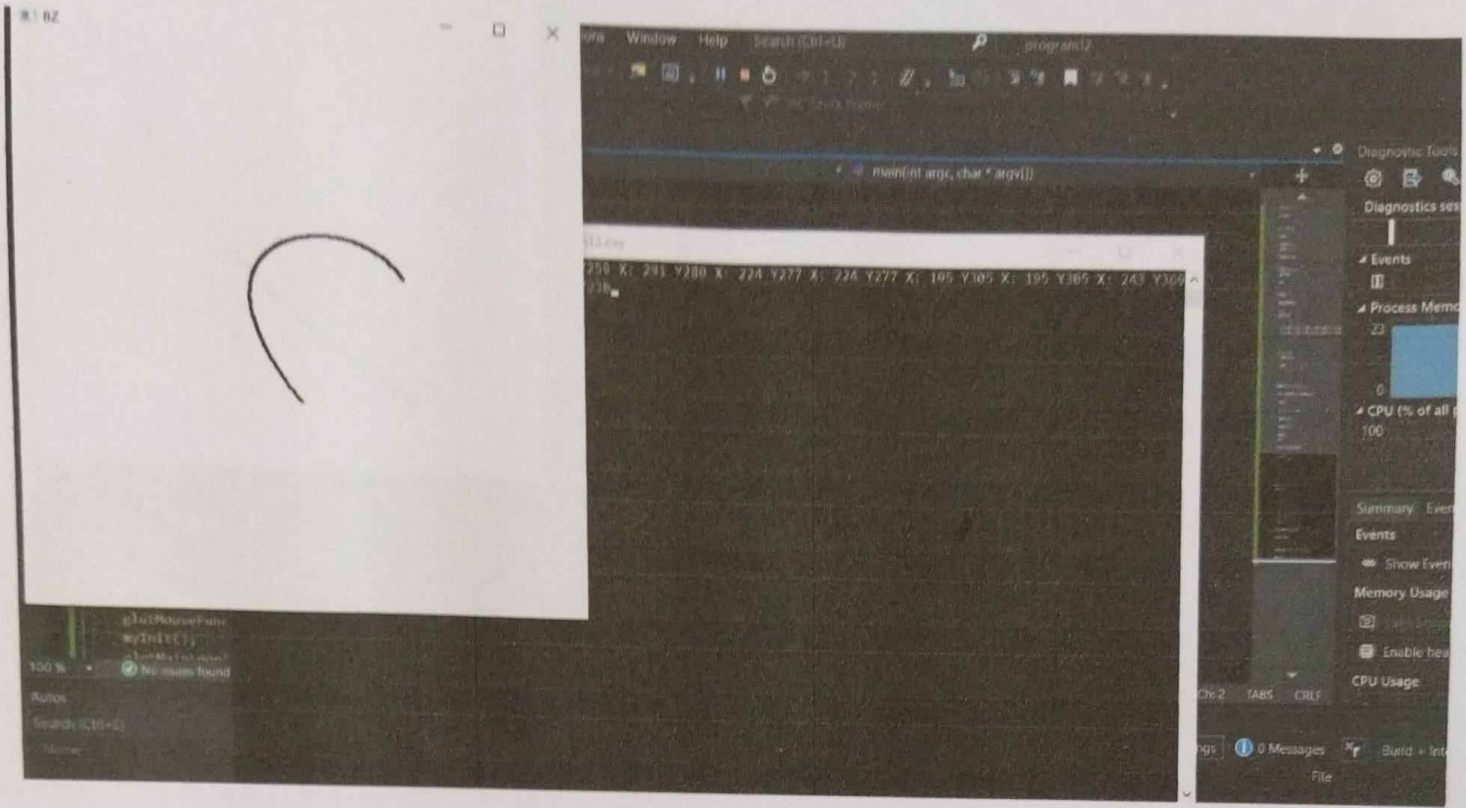
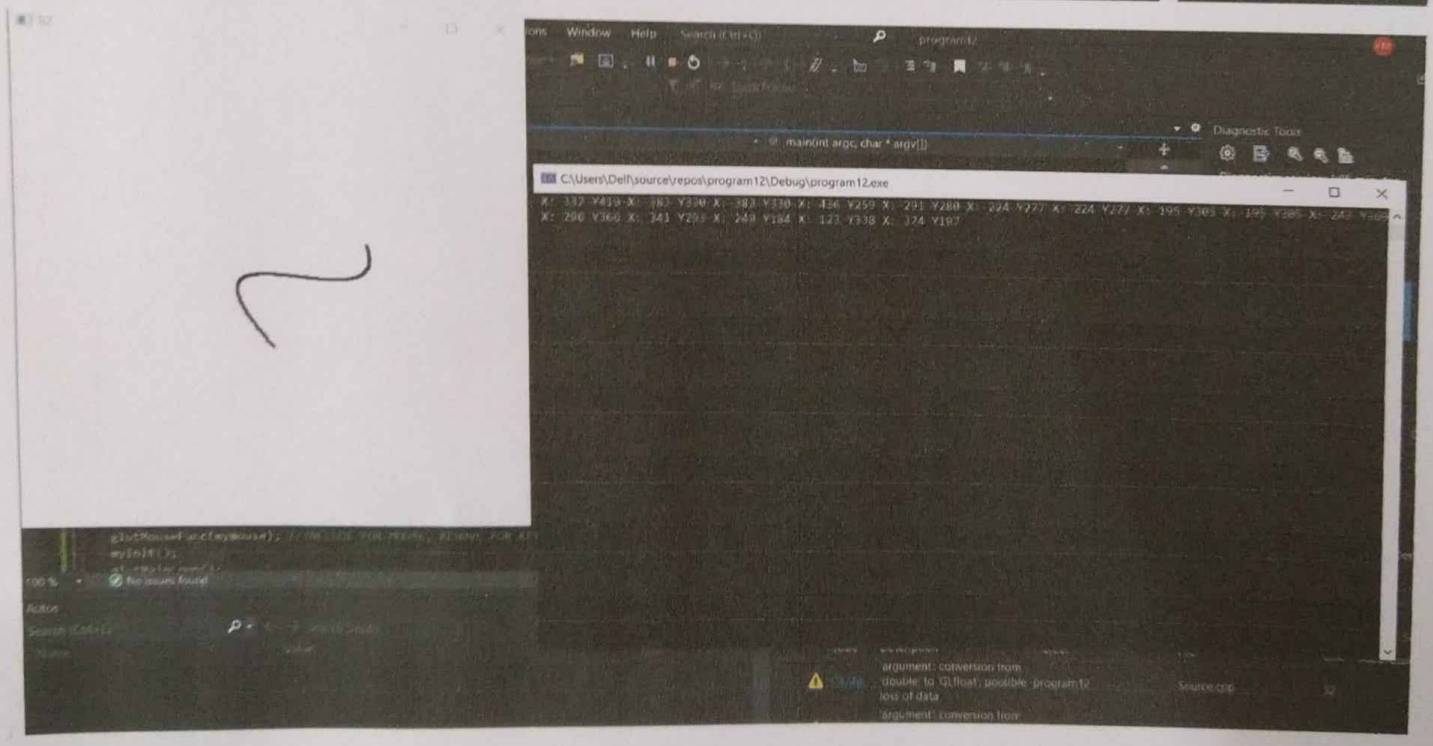
```
void mymouse (int btn, int state, int x, int y)
{
    if (btn == GLUT_LEFT_BUTTON && state == GLUT_DOWN &&
                                flag < 4)
    {
        x1[flag] = x;
        yc[flag] = 500 - y;
        cout << "x: " << x << "y: " << 500 - y;
        glPointSize(3);
        glColor3f (1, 1, 0);
        glBegin (GL_POINTS);
        glVertex2i (x, 500-y);
        glEnd();
        glFlush();
        flag++;
    }
    if (flag >= 4 && btn == GLUT_LEFT_BUTTON)
    {
        glColor3f (0, 0, 1);
        display();
        flag = 0;
    }
}

int main (int argc, char** argv[]) {
        glutInit(&argc, argv);
```

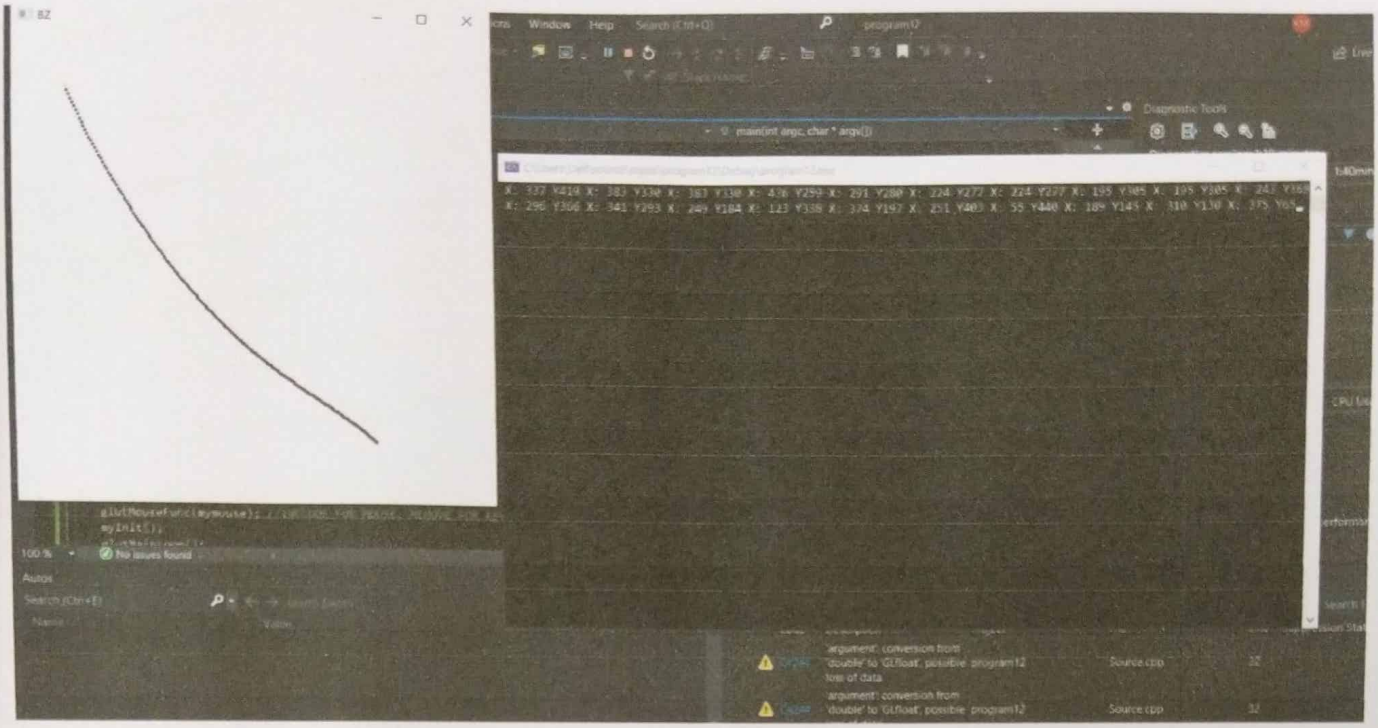
```
glutInitDisplayMode (GLUT_SINGLE | GLUT_RGB);
glutInitWindowSize (500, 500);
glutInitWindowPosition (0, 0);

  glutMouseFunc (mymouse);
  myInit();
  glutMainLoop();

}
```

```
glutInitDisplayMode (GLUT_SINGLE | GLUT_RGB);
glutInitWindowSize (500, 500);
glutInitWindowPosition (0, 0);

glutMouseFunc (mymouse);
myinit();
glutMainLoop();

}
```

OUTPUT:


Window
Help
program12
main(int argc, char * argv[])
Diagnostic Tools
Events
CPU
No issues found


Window
Help
program12
main(int argc, char * argv[])
Diagnostic Tools
C:\Users\Dell\source\repos\program12\Debug\program12.exe
No issues found
argument : conversion from
'double' to 'GLfloat', possible 'program12'
loss of data
'argument' : conversion from


BZ
Window
Help
Search (Ctrl+Q)
program12
Diagnostic Tools
main(int argc, char * argv[])
X: 337 Y418 X: 383 Y330 X: 383 Y330 X: 436 Y259 X: 291 Y280 X: 224 Y272 X: 224 Y277 X: 195 Y305 X: 195 Y305 X: 241 Y161
X: 296 Y306 X: 341 Y293 X: 249 Y184 X: 123 Y338 X: 374 Y197 X: 251 Y403 X: 55 Y440 X: 189 Y145 X: 310 Y130 X: 375 Y65
100 %
No issues found
Autos
Search (Ctrl+E)
Name
Value
argument: conversion from
double' to 'GLfloat', possible program12 Source.cpp 32
loss of data
argument: conversion from
double' to 'GLfloat', possible program12 Source.cpp 32