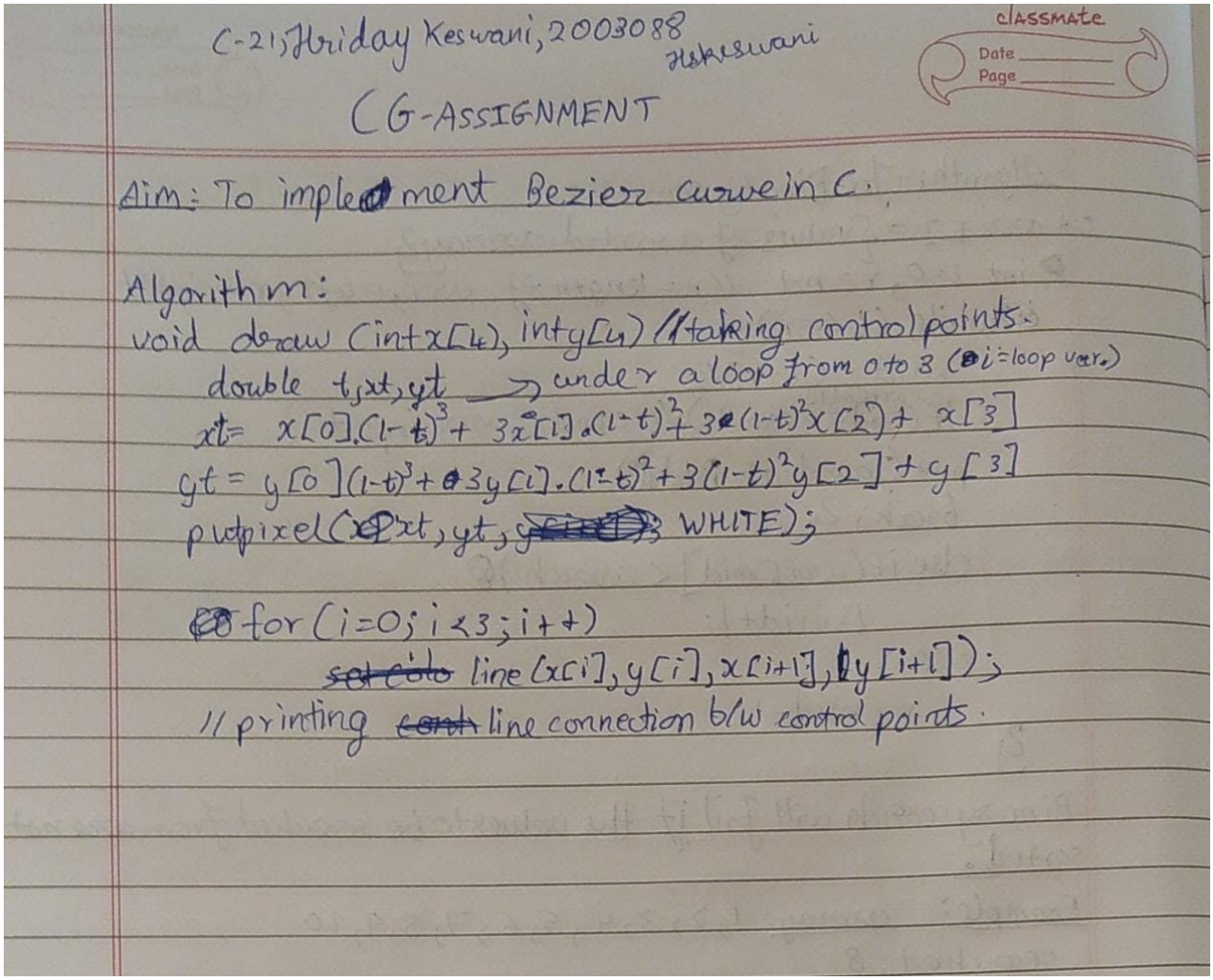
CG-Assignment
Bezier Curve

Program:
Writing a program to print Bezier Curve


C-21, Hriday Keswani, 2003088 Hskeswani

CG-ASSIGNMENT

Aim: To implement Bezier curve in C.

Algorithm:
void draw (int x[4], int y[4]) // taking control points.
double t, xt, yt → under a loop from 0 to 3 (i = loop var.)
xt = x[0].(1-t)^3 + 3x[1].(1-t)^2 + 3(1-t)^2 x[2] + x[3]
yt = y[0](1-t)^3 + 3y[1].(1-t)^2 + 3(1-t)^2 y[2] + y[3]
putpixel(xt, yt, WHITE);

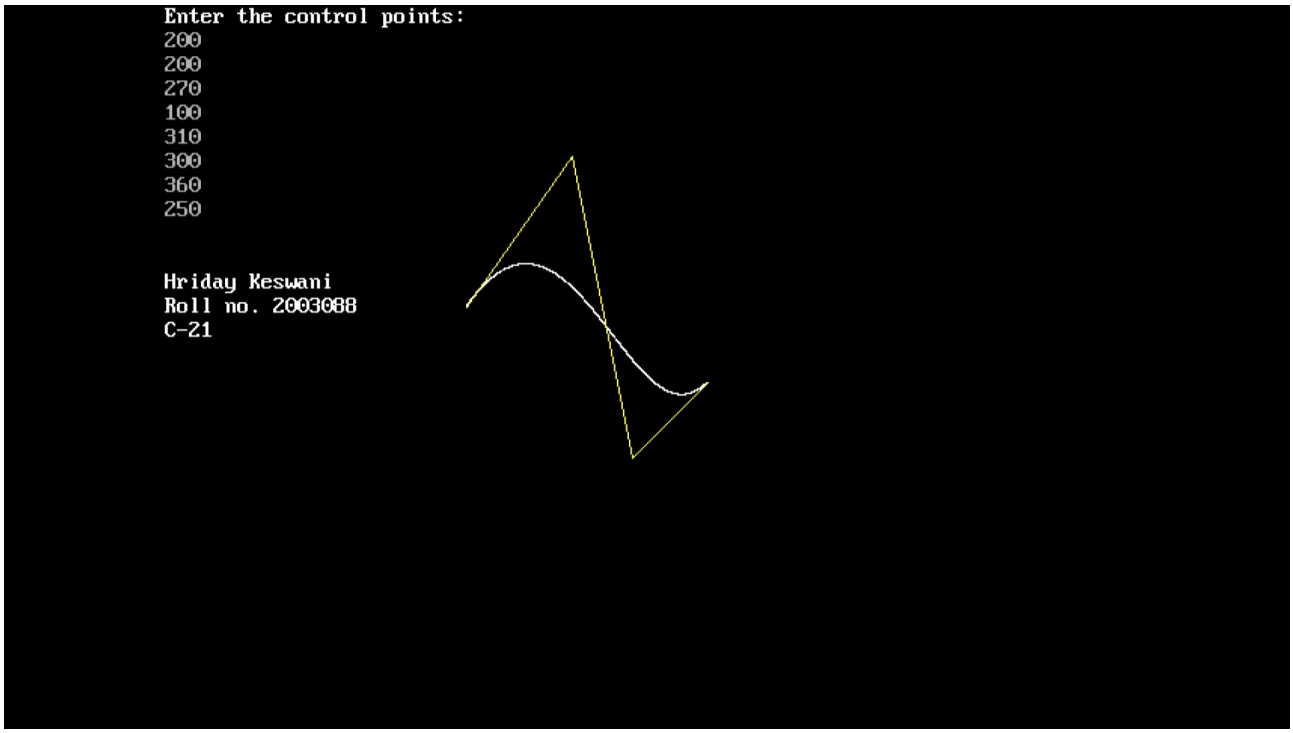
for (i=0; i<3; i++)
line(x[i], y[i], x[i+1], y[i+1]);
// printing line connection b/w control points.

Code:

```
#include<stdio.h>
#include<graphics.h>
#include<math.h>
#include<conio.h>

//int x[4]={200,100,80,70};
//int y[4]={200,150,75,60};

void bezier (int x[4],int y[4])
{
```

```
int i;
double t,xt,yt;

for (t = 0.0; t < 1.0; t += 0.0005)
{
     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];
     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,WHITE);
}

for (i=0; i<3; i++){
     setcolor(YELLOW);
     line(x[i], y[i], x[i+1], y[i+1]);
     setcolor(WHITE);
}

}

void main(){
int x[4];
int y[4];
int i;
int gd = DETECT,gm;
initgraph(&gd,&gm,"c:\\turboc3\\bgi");
printf("Enter the control points:\n");
for(i=0;i<4;i++){
     scanf("%d%d",&x[i],&y[i]);
}
bezier(x,y);
prtinf("\n\nHriday Keswani\nRoll no. 2003088\nC-21");
getch();
closegraph();
}
```

Output:


Enter the control points:
200
200
270
100
310
300
360
250
Hriday Keswani
Roll no. 2003088
C-21