PROGRAM TO PERFORM 3D TRANSFORMATION.

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

int maxx,maxy,midx,midy;

void axis()

{

getch(); cleardevice();

line(midx,0,midx,maxy); line(0,midy,maxx,midy);

}

void main()

{

int gd,gm,x,y,z,ang,x1,x2,y1,y2; detectgraph(&gd,&gm); initgraph(&gd,&gm,"C:/TURBOC3/BGI"); setfillstyle(3,25);

maxx=getmaxx(); maxy=getmaxy(); midx=maxx/2; midy=maxy/2;

outtextxy(100,100,"ORIGINAL OBJECT");

line(midx,0,midx,maxy); line(0,midy,maxx,midy);

bar3d(midx+100,midy-20,midx+60,midy-90,20,5); axis();

outtextxy(100,20,"TRANSLATION");

printf("\n\n Enter the Translation vector: "); scanf("%d%d",&x,&y);

bar3d(midx+100,midy-20,midx+60,midy-90,20,5); bar3d(midx+(x+100),midy-(y+20),midx+(x+60),midy-(y+90),20,5); axis();

outtextxy(100,20,"SCALING"); printf("\n Enter the Scaling Factor: "); scanf("%d%d%d",&x,&y,&z);

bar3d(midx+100,midy-20,midx+60,midy-90,20,5);

bar3d(midx+(x\*100),midy-(y\*20),midx+(x\*60),midy-(y\*90),20\*z,5); axis();

outtextxy(100,20,"ROTATION"); printf("\n Enter the Rotation angle: "); scanf("%d",&ang);

x1=100\*cos(ang\*3.14/180)-20\*sin(ang\*3.14/180); y1=100\*sin(ang\*3.14/180)+20\*sin(ang\*3.14/180); x2=60\*cos(ang\*3.14/180)-90\*sin(ang\*3.14/180); y2=60\*sin(ang\*3.14/180)+90\*sin(ang\*3.14/180); axis();

printf("\n After rotating about z-axis\n"); bar3d(midx+100,midy-20,midx+60,midy-90,20,5); bar3d(midx+x1,midy-y1,midx+x2,midy-y2,20,5); axis();

printf("\n After rotating about x-axis\n"); bar3d(midx+100,midy-20,midx+60,midy-90,20,5); bar3d(midx+100,midy-x1,midx+60,midy-x2,20,5); axis();

printf("\n After rotating about y-axis\n"); bar3d(midx+100,midy-20,midx+60,midy-90,20,5); bar3d(midx+x1,midy-20,midx+x2,midy-90,20,5); axis();

closegraph();

}