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();
}
```