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CG ASSIGNMENT (1)

Q.1. Write a program to implement 2D scaling.

Program:-

```
#include<graphics.h>
#include<stdio.h>
#include<conio.h>
void main()
{
int x1, x2, y1, y2, sx, sy;
int gd = DETECT, gm;
initgraph(&gd, &gm, "C:\\TURBOC3\\BGI");
printf("Enter coordinates of line");
scanf("%d %d %d %d", &x1, &y1, &x2, &y2);
printf("line before scaling::");
line(x1, y1, x2, y2);
printf("Enter scaling factors::");
scanf("%d %d", &sx, &sy);
x1 = x1 * sx;
y1 = y1 * sy;
x2 = x2 * sx;
y2 = y2 * sy;
printf("line after scaling");
line(x1, y1, x2, y2);
getch();
closegraph();
}
```

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Output:

Enter coordinates of line 50 60 70 80
line before scaling::
Enter scaling factors::

Q.2. WAP for DDA line drawing algorithm.

Program:-

```
#include <graphics.h>
#include <conio.h>
void main()
{
  int gd = DETECT, gm;
  int x1 = 50, y1 = 60, x2 = 70, y2 = 80;
  int dx, dy, step, xinc, yinc, i;
  int x, y;
  initgraph(&gd, &gm, "C:\\TURBOC3\\BGI");
  dx = x2 - x1;
  dy = y2 - y1;
  if(dx > dy)
  {
   step = dx;
  }
   else
   {
    step = dy;
   }
  xinc = dx / step;
  yinc = dy / step;
  putpixel(x1, y1, WHITE);
  x = x1, y = y1;
  for(i=0; i<step; i++)
   {
     x = x + xinc;
     y = y + yinc;
```

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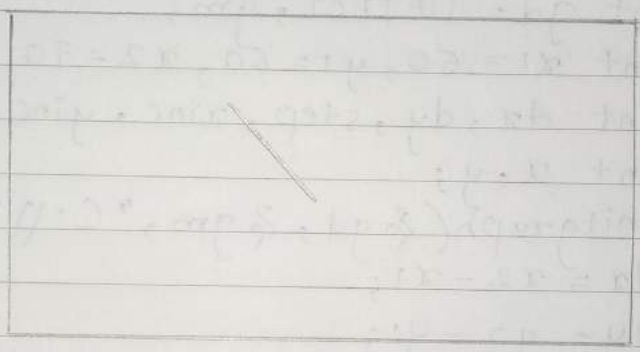
```
putpixel(x,y, WHITE);
// delay(100);
 }
 getch();
 closegraph();
}
```

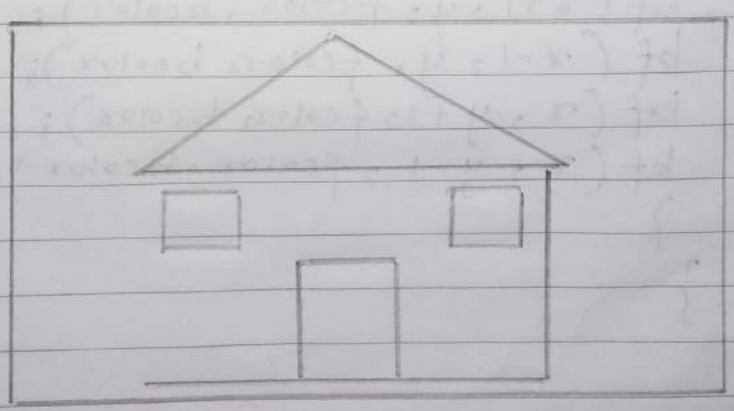


Q. 3. Write a program to draw a simple hut on the screen.

Program:-

```
#include<graphics.h>
#include<conio.h>
 void main()
{
 int gd = DETECT, gm;
 int tri[8] = { 250, 10, 30, 150, 520, 150, 250, 10 };
 initgraph(&gd, &gm, "C:\\TURBOC3\\BGI");
 rectangle( 50, 150, 500, 460);
 rectangle (70, 180, 150, 250);
 rectangle (400, 180, 480, 250);
 rectangle ( 220, 280, 350, 460);
  drawpoly( 4, tri);
  getch();
  closegraph();
  }
```

Output:



Q. 4. Write a program to fill a circle using flood fill algorithm.

Programs:-

```
#include <conio.h>
#include <dos.h>
void bf(int x, int y, int fc, int bc);
void main()
{
int gd = DETECT, gm, r=25, x=100, y=200;
initgraph(&gd, &gm, "C:\\TURBOC3\\BGI");
circle(x, y, r);
bf(x, y, 6, 15);
delay(10000);
closegraph();
}

void bf(int x, int y, int fcolor, int bcolor)
{
if(getpixel(x, y) != bcolor && getpixel(x, y) != fcolor)
{
putpixel(x, y, fcolor);
bf(x+1, y, fcolor, bcolor);
bf(x-1, y, fcolor, bcolor);
bf(x, y+1, fcolor, bcolor);
bf(x, y-1, fcolor, bcolor);
}
}
```

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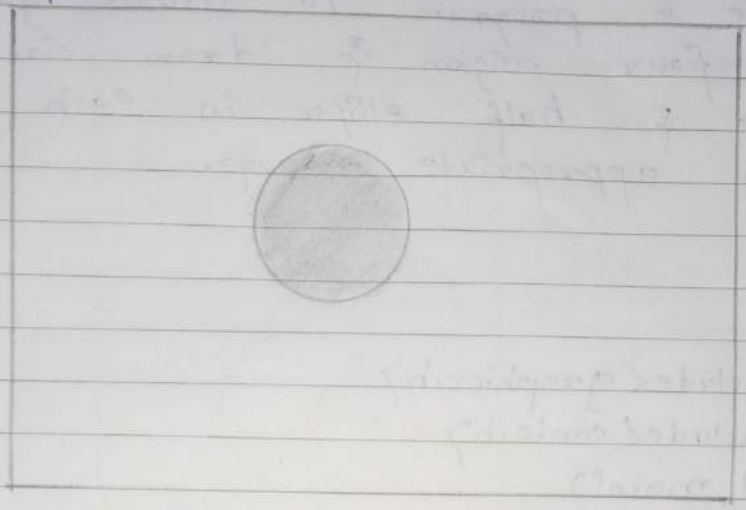
Output:



Q.5. Write a program to divide your screen into four region & draw circle, rectangle, ellipse & half ellipse in each region with appropriate message.

Program:-

```
#include<graphics.h>
#include<conio.h>
void main()
{
int gd = DETECT, gm;
int midx, midy, point;
initgraph(&gd, &gm, "C:\\TURBOC3\\BGI");
midx = getmaxx()/2;
midy = getmaxy()/2;
line(1, midy, 640, midy);
line(midx, 1, midx, 480);
rectangle(30, 40, 200, 120);
outtextxy(45, 150, " It's a Rectangle");
ellipse(500, 100, 0, 360, 100, 50);
outtextxy(450, 190, " It's a Ellipse");
arc(150, 350, 0, 360, 80);
outtextxy(100, 450, " It's a Circle");
ellipse(500, 350, 0, 180, 120, 50);
outtextxy(430, 400, " It's a Half Ellipse");
getch();
closegraph();
}
```

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Output: