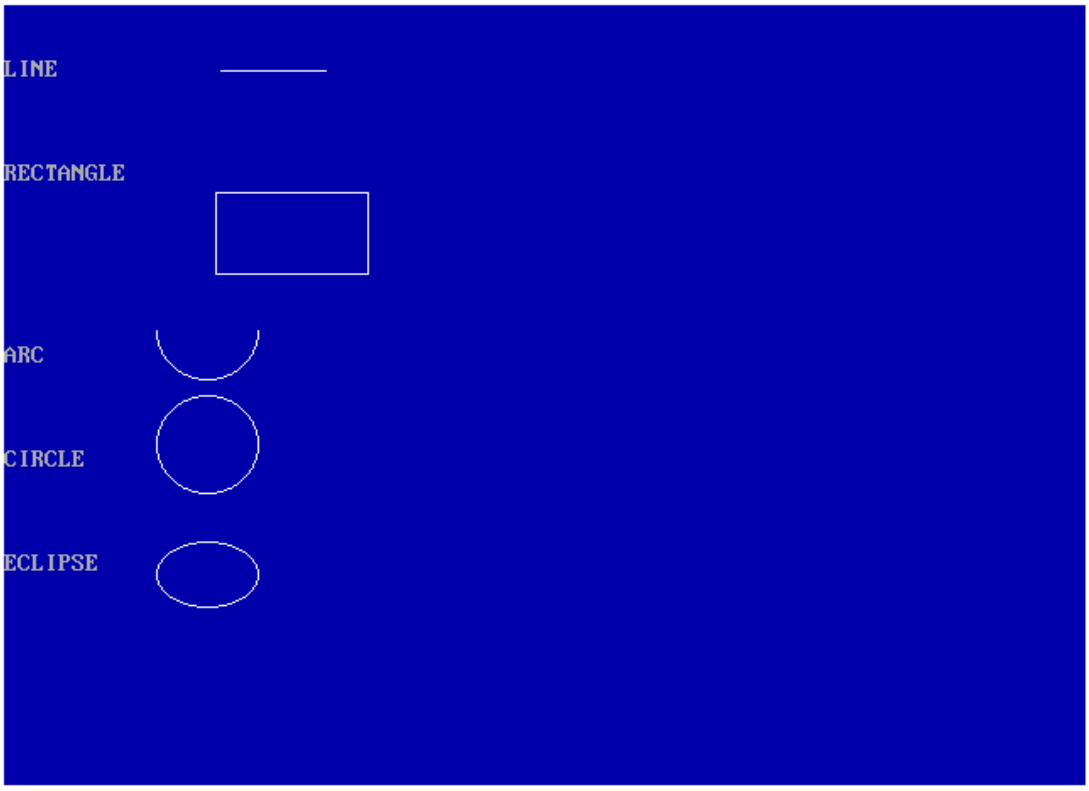
Lab Tasks

Computer Graphics

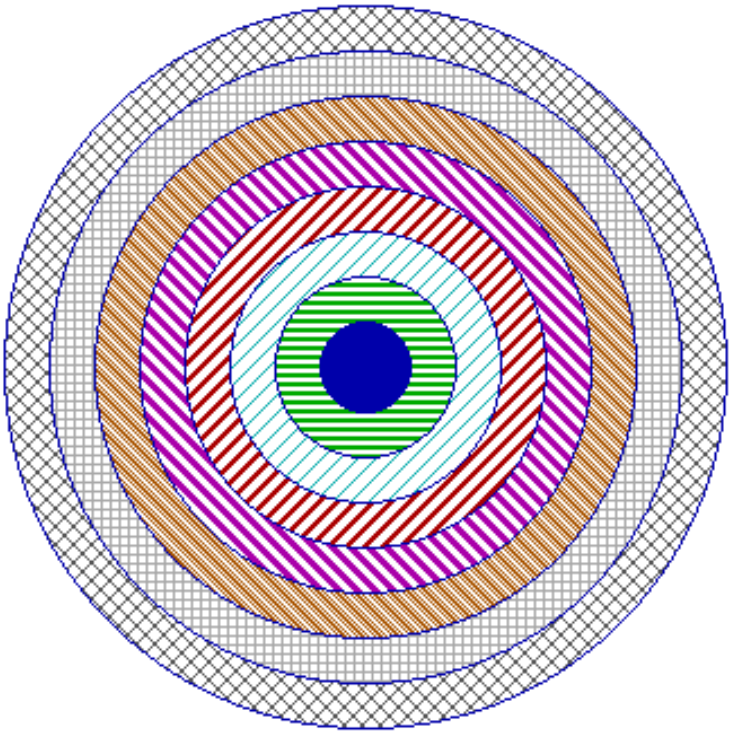
Task:- Write a Program to draw basic graphics construction like line, circle, arc, ellipse and rectangle.

```
#include<graphics.h>
#include<iostream.h>
#include<conio.h>
void main()
{
   int gd=DETECT,gm;
   initgraph (&gd,&gm,"c:\\tc\\bgi");
   setbkcolor(BLUE);
   cout<<"\t\t\t\n\nLINE";
   line(50,40,190,40);
   cout<<"\t\t\n\n\n\nRECTANGLE";
   rectangle(125,115,215,165);
   cout<<"\t\t\t\n\n\n\n\n\n\nARC";
   arc(120,200,180,0,30);
   cout<<"\t\n\n\n\nCIRCLE";
   circle(120,270,30);
   cout<<"\t\n\n\n\nECLIPSE";
   ellipse(120,350,0,360,30,20);
   getch();
}
```


LINE
RECTANGLE
ARC
CIRCLE
ECLIPSE

Task 02: Write a Program to draw animation using increasing circles filled with different colors and patterns.

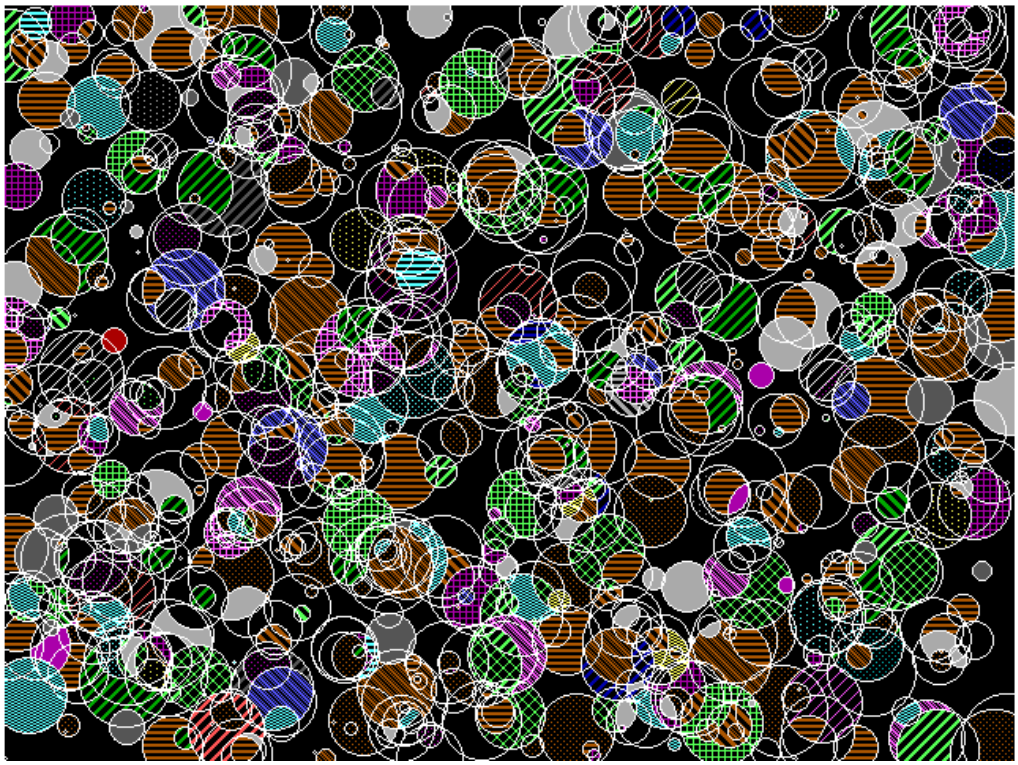
```
#include<iostream.h>
#include<graphics.h>
#include<conio.h>
void main()
{
   int gd=DETECT, gm, i, x, y;
   initgraph(&gd, &gm, "C:\\TC\\BGI");
   x=getmaxx()/3;
   y=getmaxx()/3;
   setbkcolor(WHITE);
   setcolor(BLUE);
   for(i=1;i<=8;i++)
        {
      setfillstyle(i,i);
      circle(x, y, i*20);
      floodfill(x-2+i*20,y,BLUE);
   }
   getch();
   closegraph();
}
```



Task 03: Program to make screen saver in that display different size circles filled with different colors and at random places.

```
#include<iostream.h>
#include<stdio.h>
#include<conio.h>
#include"graphics.h"
#include"stdlib.h"
void main()
{
   int gd=DETECT,gm,i=0,x,xx,y,yy,r;
   //Initializes the graphics system
   initgraph(&gd,&gm,"c:\\tc\\bgi");
   x=getmaxx();
   y=getmaxy();
   while(!kbhit())
   {
      i++;
    //   setfillstyle(random(i),random(30));

      circle(xx=random(x),yy=random(y),random(30));
      setfillstyle(random(i),random(30));
      floodfill(xx,yy,getmaxcolor());
```

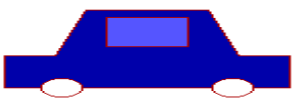
```
        // delay(200);
    }
    getch();
}
```



Task 04: Write a Program to make a moving colored car using inbuilt functions

```
//#include<iostream.h>
#include<graphics.h>
#include<conio.h>
int main()
{
   int gd=DETECT,gm, i, maxx, cy;
   initgraph(&gd, &gm, "C:\\TC\\BGI");
   setbkcolor(WHITE);
   setcolor(RED);
   maxx = getmaxx();
   cy = getmaxy()/2;
   for(i=0;i<maxx-140;i++)
      {
      cleardevice();
      line(0+i,cy-20, 0+i, cy+15);
      line(0+i, cy-20, 25+i, cy-20);
      line(25+i, cy-20, 40+i, cy-70);
      line(40+i, cy-70, 100+i, cy-70);
      line(100+i, cy-70, 115+i, cy-20);
      line(115+i, cy-20, 140+i, cy-20);
```

```
        line(0+i, cy+15, 18+i, cy+15);
        circle(28+i, cy+15, 10);
        line(38+i, cy+15, 102+i, cy+15);
        circle(112+i, cy+15,10);
        line(122+i, cy+15 ,140+i,cy+15);
        line(140+i, cy+15, 140+i, cy-20);
        rectangle(50+i, cy-62, 90+i, cy-30);
        setfillstyle(1,BLUE);
        floodfill(5+i, cy-15, RED);
        setfillstyle(1, LIGHTBLUE);
        floodfill(52+i, cy-60, RED);
        //delay(10);
         }
    getch();
    closegraph();
    return 0;
}
```



Task 05: Write a Program to implement Digital Clock.

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

struct time t;
void display(int,int,int);
void main()
{
    int i=0,gd=DETECT,gm,hr,min,sec;
    clrscr();
    initgraph(&gd,&gm,"c:\\tc\\bgi");
    setcolor(GREEN);
    settextstyle(4,0,7);

    while(!kbhit())
    {
       gettime(&t);
       hr=t.ti_hour;
```

```
        min=t.ti_min;
        sec=t.ti_sec;
        i++;

        display(100,100,hr);
        display(200,100,min);
        display(300,100,sec);
              sound(400);
        //delay(30);
        nosound();
       // delay(930);
        cleardevice();
    }
    getch();
}
void display(int x,int y,int num)
{

     char str[3];
     itoa(num,str,10);
```

```
    settextstyle(4,0,7);

    outtextxy(180,100,":");
    outtextxy(280,100,":");
    outtextxy(x,y,str);

    rectangle(90,90,380,200);
    rectangle(70,70,400,220);

    outtextxy(90,250,"Digital Clock");
}
```

Task 06: Write a Program to make puzzle game.

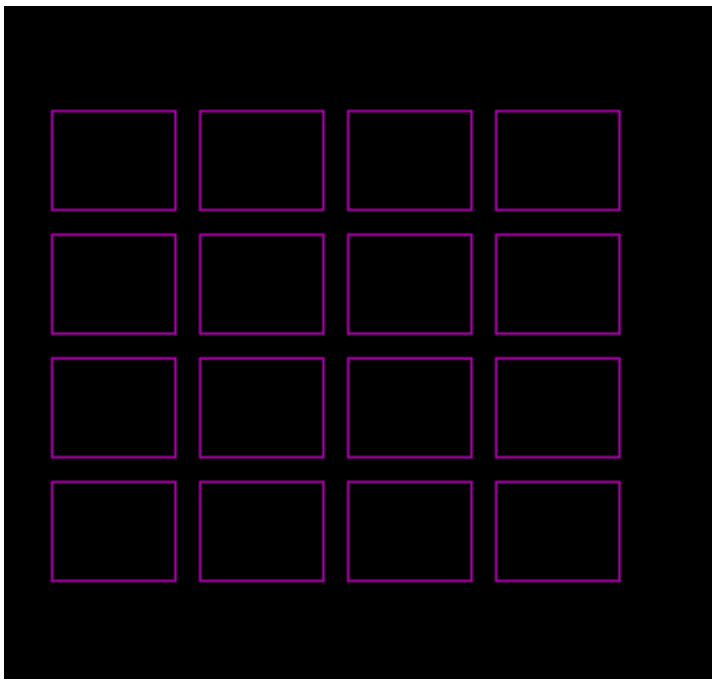
```
#include<iostream.h>
#include<dos.h>
#include<conio.h>
 #include<graphics.h>
#include<stdio.h>

int a[5][5];
int t[16]={0,4,11,12,7,1,15,5,13,6,10,3,2,14,8,9};
int test[16]={1,2,3,4,5,6,7,8,9,10,11,12,13,14,15};

struct pos
     {
       int h,v;
     }
    p[4][4];
 int row=4,col=4;

void game(int); //MOVEMENT
void rec();   //DRAWING RECTANGLE
void print();   //PRINTING NUMBERS INITIALLY
int getkey();   // TO TRACE KEY PRESSED
inline void space()
   {
        cout<<"";
   }
inline void print(int r,int c)
   {
         cout<<a[r][c];
   }
void init();   //TO STORE CO-ORDINATES
int stop();     // STOPING CRITERION
void gopr(int,int);   //TO PRINT NUMBER IN GAME

 void main()
{
     int gm=DETECT,gd=DETECT;
     initgraph(&gm,&gd,"c:\\tc\\bgi");
```

```
      int d,cr=1;
      init();
      rec();
      print();

      while(cr!=16)
    {
          d=getkey();
       game(d);
      cr=stop();
  }

  settextstyle(10,0,1);
  outtextxy(400,300,"You are winner!");
  getch();

}
void rec()
{
        setcolor(5);

        for(int i=0;i<200;i+=50)
     {
        for(int j=0;j<240;j+=60)
        rectangle(j+100,i+100,j+50,i+60);
     }

  }

   void pri()
  {
         int k=1;
         for(int x=0,i=6;x<4;x++,i+=3)
    {
         for(int y=0,j=10;y<4&&k<16;y++,j+=7,k++)
        {

         gotoxy(p[x][y].h,p[x][y].v);
         cout<<a[x][y];
        }
```

```
  }

 }

    int getkey()
 {
    union REGS i,o;
    while(!kbhit());
     i.h.ah=0;
    int86(22,&i,&o);
    return(o.h.ah);
 }

   void init()
{
         int k=1;
         for(int x=0,i=6;x<4;x++,i+=3)
    {
         for(int y=0,j=10;y<4;y++,j+=7)
       {
          p[x][y].h=j;
          p[x][y].v=i;
          a[x][y]=t[k++];
        }
    }

  }

   void game(int s)
 {
     int r=row-1;
     int c=col-1;

      if(s==77 &&c!=0)  //right
    {
      col--;

       a[r][c]=a[r][c-1];
            gopr(r,c-1);
            space();
```

```
            gopr(r,c);
            print(r,c-1);
           }
          if(s==80 && r!=0)   //down
    {
       row--;
            a[r][c]=a[r-1][c];
            gopr(r-1,c);
            space();
            gopr(r,c);
            print(r-1,c);
         }

        if(s==75 && c!=3)     //left
   {
        a[r][c]=a[r][c+1];
      col++;
      gopr(r,c+1);
           space();
           gopr(r,c);
             print(r,c+1);

   }

      if(s==72 &&r!=3)     //up
   {

      a[r][c]=a[r+1][c];
            row++;
            gopr(r+1,c);
            space();
            gopr(r,c);
            print(r+1,c);

         }
}

   void gopr(int x, int y)
     {
    gotoxy(p[x][y].h,p[x][y].v);
```

```
   }


       int stop()
{
      int k=0,d=1;
      for(int x=0;x<4;x++)
  {
      for(int y=0;y<4;y++)
     {
 if(a[x][y]==test[k])
   d++;
        k++;
      }
  }
   return d;
}
```



Task 09: Write a Program to implement bouncing ball using sine wave form.

```
#include <iostream.h>
#include<stdio.h>
#include<graphics.h>
#include<conio.h>
#define HEIGHT getmaxy()
#define WIDTH getmaxx()
#define GROUND 450
#define MAXHEIGHT 420
void main()
{
        int x,y=0,t=MAXHEIGHT,c=1;
        int gd=DETECT,gm;
       initgraph(&gd,&gm,"C:\\TC\\BGI");
      for(x=40;x<=getmaxx();x=x+2)
 {
     //Draw Ground
     rectangle (0,MAXHEIGHT,getmaxx(),MAXHEIGHT+5);
     floodfill (5,MAXHEIGHT+3,WHITE);
```

```
    //Draw Ball
   pieslice(x,y,0,360,20);
   //floodfill(x,y,RED);    delay(100);
   if(y>MAXHEIGHT-20)
    {
        c=0;
        t=t-40;
    }
    if(y<=(MAXHEIGHT-t))
   {
         c=1;
    }
       if(t>=40)
      y=y+(c? 15:-15);
      cleardevice();
      //Exit upon keypress
      if(kbhit())
      break;
}
getch();
}
```