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(Computer Graphics)
TBC 602
Date 16/06/2021

Q.1 Ans => DDA Algorithm:

Step 1: Start Algorithm
Step 2: Declare $x, y, x_2, y_2, dx, dy, x, y$ as integer variables.

Step 3 => enter value of x_1, y_1, x_2, y_2.
Step 4 => calculate $dx = x_2 - x_1$
Step 5 => calculate $dy = y_2 - y_1$
Step 6 => If ABS (dx) > ABS (dy) Then step = abs (dx) else

Step 7 => Xinc = dx/step
Yinc = dy/step
assign y = y1

Step 8 => set pixel (x, y)
Step 9 => x = x + inc
y = y + yinc
set Pixels (Round (x) Round (y))

Step 10 => Repeat step 9 until x = x_2

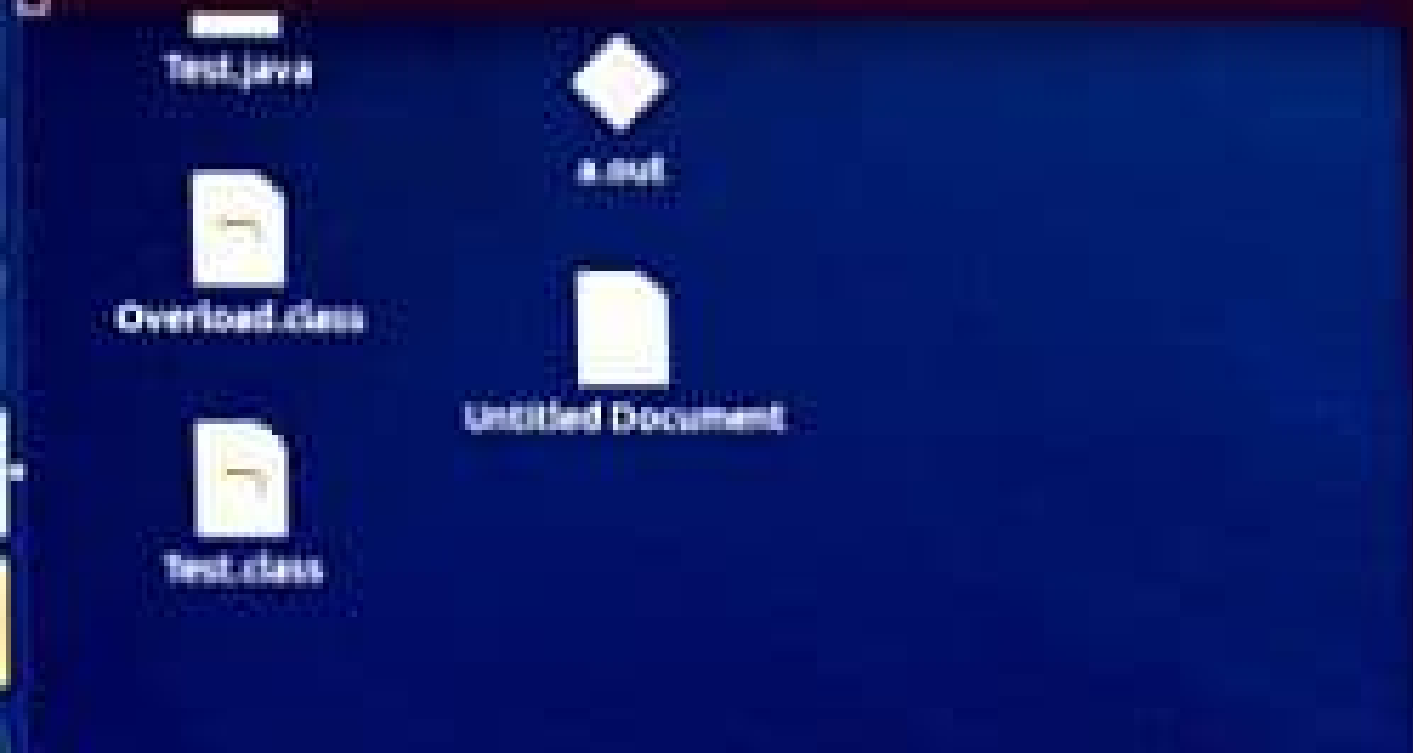
Step 11 => end Algorithm

```
#include<graphics.h>
#include<conio.h>
#include<stdio.h>
Void main()
{ int gd=DETECT,gm,i;
float x,y,dx,dy,steps
int x0,x1,y0,y1;
  initgraph (&gd,&gm," ");
 setbkcolor(white);
            x0=100,y0=200,x1=500,y1=300;
          dx=(float)(x1-x0);
          dy=(float)(y1-y0);
          if(dx>=dy)
          { step=dx;
        } else { step=dy;
                 }

          dx=dx/steps;
          dy=dy/steps;
          x=x0;
          y=y0;
          i=1;
          while(i<=steps)
          {
```

```
PutPixel (x,y RED);
    x += dx;
    y += dy;
    i = i+1;
    }
    getch();
    closegraph();
}
```

```
(base) adminglabs-pc:~$ touch dda.c
(base) adminglabs-pc:~$ gedit dda.c
(base) adminglabs-pc:~$ gcc dda.c -lgraph -o dda
dda.c: In function 'main':
dda.c:36:18: error: request for member 'rou' in something not a structure
on
 putpixel(rou[x].rou[y],RED);
                  ^
dda.c:36:1: error: too few arguments to function 'putpixel'
 putpixel(rou[x].rou[y],RED);
 ^
In file included from dda.c:2:0:
/usr/local/include/graphics.h:72:6: note: declared here
 void putpixel(int x, int y, int color);
      ^
(base) adminglabs-pc:~$ gcc dda.c -lgraph -o dda
(base) adminglabs-pc:~$ ./dda
[xcb] Unknown sequence number while processing queue
[xcb] Most likely this is a multi-threaded client and XInitThreads has n
called
[xcb] Aborting, sorry about that.
dda: ../../src/xcb_io.c:274: poll_for_event: Assertion '!xcb_xlib_thread
ge_list' failed.
```



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Q.3 Ans ⇒ Traffic light Animation -

```
#include<graphics.h>
int main()
{ int gd = DETECT, gm;
int graph(&gd, &gm, "NULL");
/* ROAD */
Line (0, 200 getmaxy() 200);
Line (0, 360 getmaxx() 360);
/* zebra crossing */
Setcolor (WHITE)
rectangle (150, 210, 260, 230);
flood fill (152, 220, WHITE);
rectangle (150, 240, 260, 260);
flood fill (152, 241, WHITE);
rectangle (150, 270, 260, 290);
flood fill (152, 271, WHITE);
rectangle (150, 300, 260, 320);
flood fill (152, 301, WHITE);
rectangle (150, 330 260, 350);
flood fill (152, 331, WHITE);
```

```
/* Traffic Light */
Set color (WHITE);
Rectangle (140, 200, 145, 130);
Setcolor (RED)
Circle (142, 82, 6);
floodfill (142, 100, 82, RED);
Setcolor (YELLOW);
Circle (142, 100, 6);
floodfill (142, 100, YELLOW);
Setcolor (GREEN);
Circle (142, 118, 6);
floodfill (143, 118, GREEN);
Setcolor (WHITE);
rectangle (150, 180, 250, 300);
rectangle (250, 180 420, 300);
Rectangle (180, 250, 220, 300);
Lin (200, 100, 150, 180);
Lin (200, 100, 250, 180);
Lin (200, 100, 370, 100);
Line (370, 100, 420, 180);
Setcolor (BROWN);
floodfill (152, 182, WHITE);
floodfill (252, 182, WHITE);
Setcolor (LIGHTRED);
```

floodfill (200,105, WHITE);
floodfill (210,105, WHITE);
getch();
closegraph();
return 0;
}