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Course :- BCA

Semester :- 6

Section :- A

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Subject :- Computer Graphics

Subject code :- PBC - 602

```c
#include <stdio.h>
#include <graphics.h>
int main()
{
    int roud (float num)
    {
        return num < 0 ? num - 0.5 num + 0.5;
    }

    int x1 = 100, x2 = 250, y1 = 100, y2 = 250, step;
    int gd = DETECT, gm;
    float x, y, m;
    int dx = x2 - x1;
    int dy = y2 - y1;
    m = dy / dx;
    if (dx > dy)
        step = dx;

    else
        step = dy;
    initgraph (&gd, &gm, " ");
    outtextxy (x1, y1, "A");
    outtextxy (x2, y2, "B");
    putpixel (x1, y1, RED);

    x = x1, y = y1;
```

```
while (step > 0)
{
    if (m < 1)
    {
        x = x+1;
        y = y+m;
    }
    if (m >= 1)
    {
        x = x+ 1/m
        y = y + 1;
    }
    putpixel (rous(x), rous(y), RED);
    step--;

}.

getch()
    return 0;

}
```

ALGORITM OF DDA

Step 1   Start

Step 2   Read the values of $x1, y1, y2, x2$

Step 3   Calculate $\Delta x, \Delta y$ and M from the given
input. We know that the slope of a straight
line m is given as

These parameters are calculated as

- $\Delta x = x_n - x_0$

  $\Delta y = y_n - y_0$

- $m = \Delta y / \Delta x \Rightarrow m = \dfrac{y_n - y_0}{x_n - x_0}$

Step 4   Calculate the no. of steps or points in between the
starting and ending coodinates

```
if ( (dx) > (dy))
    steps = (dx); dx
    else
        steps = dy
```

Step 5.   ~~Suppose~~ Calculate the next coordinates by
checking following cases

Case 1
if $m < 1$ $\rightarrow$

$$x_{p+1} = \text{round}(1 + x_p)$$
$$y_{p+1} = \text{round}(m + x_p)$$

Case 2
if $m = 1$ $\rightarrow$

$$x_{p+1} = \text{round}(1 + x_p)$$
$$y_{p+1} = \text{round}(1 + x_p)$$

Case 3
if $m > 1$ $\rightarrow$

$$x_{p+1} = \text{round}(y_m + x_p)$$
$$y_{p+1} = \text{round}(1 + x_p)$$

step 6 Keep repeating step 5 untill the end points
(including the starting and ending points)
equals to the step count

step 7 Stop

```
(base) admin@labs-pc:~$ touch dda.c
(base) admin@labs-pc:~$ gedit dda.c
(base) admin@labs-pc:~$ gcc dda.c -lgraph -o dda
dda.c: In function 'main':
dda.c:34:16: error: request for member 'row' in something not a structure
on
 putpixel(row(x).row(y),RED);
                ^
dda.c:34:1: error: too few arguments to function 'putpixel'
 putpixel(row(x).row(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) admin@labs-pc:~$ gcc dda.c -lgraph -o dda
(base) admin@labs-pc:~$ ./dda
[xcb] Unknown sequence number while processing queue
[xcb] Most likely this is a multi-threaded client and XInitThreads has no
called
[xcb] Aborting, sorry about that.
dda: ../../src/xcb_io.c:274: poll_for_event: Assertion '!xcb_xlib_threads
ce_lost' failed.
```