**ST. XAVIER’S COLLEGE**

**(Affiliated to Tribhuvan University)**

Maitighar, Kathmandu



COMPUTER GRAPHICS

LAB ASSIGNMENT #4

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## STATEMENT: BRESENHAM LINE DRAWING ALGORITHM

## ALGORITHM:

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| 1) Input two points (x1, y1) & (x2, y2). 2) Determine the differences dx = x2 - x1 and dy = y2 - y1. 3) Calculate the initial decision parameter P0 = 2dy - dx. 4) For each xk along the line starting at k = 0,    if Pk < 0,       a) put a pixel at (xk + 1, yk)       b) Pk+1 = Pk + 2dy    else       a) put a pixel at (xk + 1, yk + 1)       b) Pk+1 = Pk + 2dy - 2dx. 5) Repeat step 4 for dx time. 6) End |

## SOURCE CODE:

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| //---------------------------------------------------------------------------  #include <vcl\vcl.h>  #pragma hdrstop  #include "Unit1.h"  //---------------------------------------------------------------------------  #pragma resource "\*.dfm"  TForm1 \*Form1;  int x,y,x1,y1,x2,y2,dx,dy, p,pk,ix,iy,i;  //---------------------------------------------------------------------------  \_\_fastcall TForm1::TForm1(TComponent\* Owner)  : TForm(Owner)  {  }  //---------------------------------------------------------------------------  void \_\_fastcall TForm1::DrawlineClick(TObject \*Sender)  {  x1=StrToInt(Edit1->Text);  y1=StrToInt(Edit2->Text);  x2=StrToInt(Edit3->Text);  y2=StrToInt(Edit4->Text);  dx=abs(x2-x1);  dy=abs(y2-y1);  x=x1;  y=y1;  Image1->Canvas->Pixels[x][y]=RGB(115,145,100);  p=2\*dy-dx;  for (i=1;i<=dx;i++)  {  if(p<0)  {  x=x1+1;  y=y1;  x1=x;  y1=y;  pk=p+2\*dy;  Image1->Canvas->Pixels[x][y]=RGB(0,255,10);  }  else  {  x=x1+1;  y=y1+1;  x1=x;  y1=y;  pk=p+2\*dy-2\*dx;  Image1->Canvas->Pixels[x][y]=RGB(0,255,10);  }  }  } |

## OUTPUT:



