International Islamic University Chittagong

আন্তর্জাতিক ইসলামী বিশ্ববিদ্যালয় চট্টগ্রাম

Department of Computer Science &Engineering(CSE)

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Semester   :   7th

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Course Code :   CSE-4742

Course Title :   Computer Graphics Lab

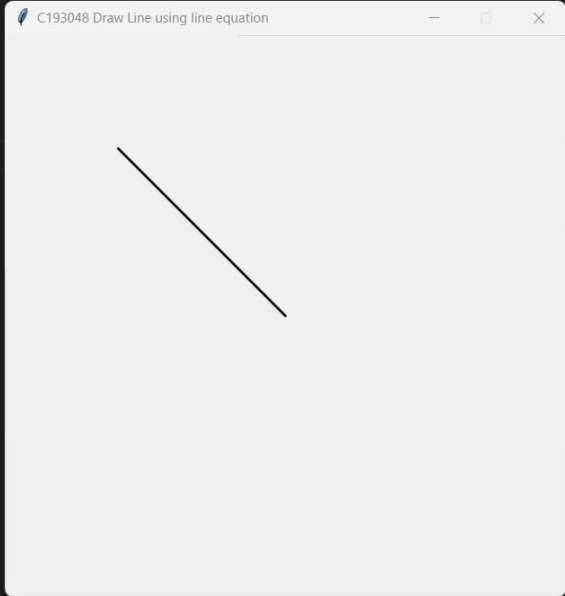Name of the course Teacher :

Mahadi Hassan
Associate Professor
Dept of Computer Science and Engineering,IIUC

1. Draw Line using line equation :

```python
from graphics import *
def main():
    win = GraphWin("C193048 Draw Line using line equation", 500, 500)
    x1=100
    y1=100
    x2=250
    y2=250
    m = (y2-y1)/(x2-x1)
    c=y1-(m*x1)
    x = x1
    while x < x2 :
        y=(m*x)+c;
        aPoint = Point(x, y)
        aPoint.draw(win)
        x += 1

    win.getMouse()
    win.close()
main()
```

2. Draw line using DDA algorithm :

```python
from graphics import *
def main():
    win = GraphWin("C193048 Draw line using DDA algorithm", 500, 500)
    x1=100
    y1=100
    x2=200
    y2=200
    dx=abs(x2-x1)
    dy=abs(y2-y1)

    if dx > dy :
        step = dx
    else:
        step = dy
    x_inc = dx / step
    y_inc = dy / step
    x=x1
    y=y1
    i = 0
    while i <= step :
        aPoint = Point(x, y)
        aPoint.draw(win)
        x += x_inc
        y += y_inc
        i += 1

    win.getMouse()
    win.close()
main()
```

3. Draw Line using Bresenham's line algorithm :

```python
from graphics import *
def main():
    win = GraphWin("C193048 Draw Line using Bresenham's line algorithm", 500, 500)
    x1=100
    y1=100
    x2=300
    y2=300
    dx = x2-x1
    dy = y2-y1
    i1 = 2*dy
    i2 = 2*(dy-dx)
    d = i1 - dx
    x = x1
    y = y1
    aPoint = Point(x, y)
    aPoint.draw(win)
    while x < x2 :
        x += 1
        if d < 0 :
            d += i1
        else:
            y += 1
            d += i2
        bPoint = Point(x, y)
        bPoint.draw(win)

    win.getMouse()
    win.close()
main()
```

C193048 Draw Line using Bresenham's line algorithm