Schedule
Homework
Machine Problems
Final Project
Gradebook
Syllabus
Lectures
Home

Lab schedule
NASM docs
Resources
Photos
Feedback
Archives
Download NASM
Restricted access

Computer Engineering II
Homework 5 for tjanas (Due Fri Nov 9 11:59:59 pm)

Homework Questions

Bresenham's Line Algorithm

Using Bresenham's line algorithm, calculate the (x,y) coordinates and relative error for a line from (x1,y1)=(53,20) to (x5,y5)=(56,24). "e1" should be the initial value of the decision variable.

Enter all numbers in decimal (base 10)

- *(x1,y1)=(* 53 *[dec] (2 points)* ✓ *Correct!,* 20 *[dec] (2 points)* ✓ *Correct!); e1=* 2 *[dec] (2 points)* ✓ *Correct!*
- *(x2,y2)=(* 54 *[dec] (2 points)* ✓ *Correct!,* 21 *[dec] (2 points)* ✓ *Correct!); e2=* 0 *[dec] (2 points)* ✓ *Correct!*
- *(x3,y3)=(* 55 *[dec] (2 points)* ✓ *Correct!,* 22 *[dec] (2 points)* ✓ *Correct!); e3=* -2 *[dec] (2 points)* ✓ *Correct!*
- *(x4,y4)=(* 55 *[dec] (2 points)* ✓ *Correct!,* 23 *[dec] (2 points)* ✓ *Correct!); e4=* 4 *[dec] (2 points)* ✓ *Correct!*
- *(x5,y5)=(* 56 *[dec] (2 points)* ✓ *Correct!,* 24 *[dec] (2 points)* ✓ *Correct!); e5=* 2 *[dec] (2 points)* ✓ *Correct!*

Plotting points in graphics mode

Suppose you wish to plot points in 640x480 (32-bit) graphics mode. Determine the offsets of the various pixels specified. Coordinates are specified in (x,y) format.

Specify all numbers in hex

Top row, right-most column of screen

1. *EDI =* 000009FC *[hex] (3 points)* ✓ *Correct!*

Bottom-right corner of screen

2. *EDI =* 0012BFFC *[hex] (3 points)* ✓ *Correct!*

Bottom row, column 320

3. *EDI =* 0012BB00 *[hex] (3 points)* ✓ *Correct!*

Row 291, column 312

4. *EDI =* 000B62E0 *[hex] (4 points)* Correct!

   Row 312, column 291

5. *EDI =* 000C348C *[hex] (4 points)* Correct!

   Middle of screen - (320, 240)

6. *EDI =* 00096500 *[hex] (4 points)* Correct!

Repeating String Commands

Consider the following code with repeating string commands. Determine the values of OutArray upon completion of this program. Specify the answers in units of four bytes (i.e., The answer to the first question is the value of the first four bytes of OutArray). Every answer should have exactly four ASCII characters.

```
OutArray db '000000000000000000000000'
InArray  db 'ECE291 IS THE GREATEST CLASS ON THE FACE OF THE EARTH'
             ; You know it is! Admit it! =P

    ...


mov ax, cs  ; Initialize DS register
mov ds, ax
mov es, ax    ; Note ES=DS for these examples


    ...

mov ah, 'C'             ; In the real world, you'll
mov dh, 'X'             ; be forced to deal with programmers
mov al, 'E'             ; that don't comment their code...
                        ; Instead, they just add silly
                        ; comments or leave comments blank.

mov di, OutArray
mov si, 18 + InArray
mov cx, 9
cld

stosw
stosb
inc di

movsw
movsw

rep stosb

mov si,23 + InArray
mov cx,5
rep movsb
```

```
mov cx,36
mov al,'C'
mov di, InArray
repne scasb
add [OutArray+16],CL

mov si, 9 + InArray
mov di, 31 + InArray
mov cx,14
repe cmpsb
add [OutArray+20],CL

  ...
```

34. OutArray[0..3] = ECE0 (4 points) Correct!
35. OutArray[4..7] = TEST (4 points) Correct!
36. OutArray[8..11] = EEEE (4 points) Correct!
37. OutArray[12..15] = EEEE (4 points) Correct!
38. OutArray[16..19] = gCLA (4 points) Correct!
39. OutArray[20..23] = [S00 (4 points) Correct!

Submit for Grading

Score: 75 of 75
Highest Saved Score: 75 of 75

Return to ECE291 Home Page

Fall 2001