ACTIVITY 4

x86 Basic Program Execution Registers
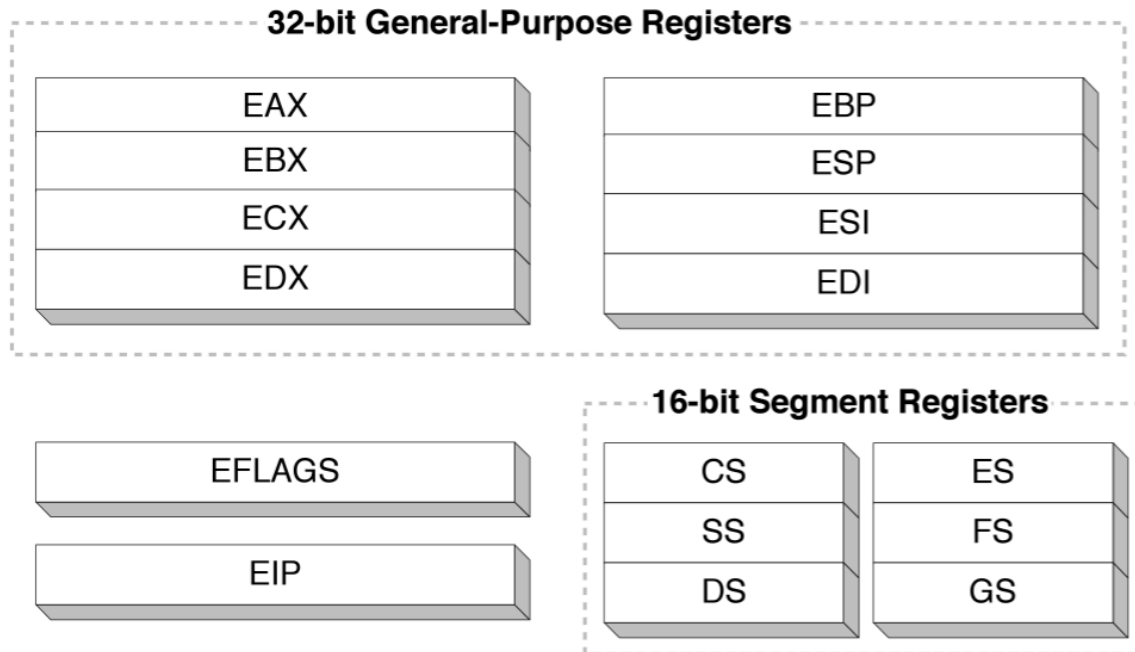
32-bit General-Purpose Registers

EAX	EBP
EBX	ESP
ECX	ESI
EDX	EDI

EFLAGS

EIP

16-bit Segment Registers

CS	ES
SS	FS
DS	GS

Image Source: Irvine 6/e

1. Which of the following are valid x86 register names?

CX	SL	DX	BX
DH	BPL	SI	DI
AL	ECS	SP	DH
BP	BH	EX	FH

2. Can a program that does arithmetic store intermediate results in
   EAX?   ESI?   EIP?   EBP?

3. What values will the EAX and ESI registers contain after these instructions execute?

```
mov eax, 10000000h
mov esi, 20000000h
add eax, esi
mov ax, 4000h
mov si, 0050h
add si, ax
```

4. What values will the EAX and EBX registers contain after these instructions execute?

```
mov eax, 10101010h
mov ah, 0EFh
add al, 4
mov ebx, eax
mov al, bh
add bx, 1001h
```

Basic Elements of Assembly Language

```
TITLE Activity 4
INCLUDE Irvine32.inc

.data
message BYTE "Look at this quote "" and this integer:", 0dh, 0ah, 0

.code
main PROC
      mov edx, offset message  ; Display the message
      call WriteString

      mov eax, 3+4/5           ; Display a number (what is it?)
      call WriteDec

      COMMENT !
      mov edx, offset message  ; This code will never execute because
      call WriteString         ; it is inside a block comment
      !

start: mov eax, 0
      jmp start                ; Go to the instruction labeled "start"

main ENDP

END main
```

In the above program, identify:

‣ Integer constants (that are not part of an integer expression)

‣ Integer expressions (that consist of more than just a constant)

‣ String constants

‣ Directives

‣ Instructions

‣ Labels

‣ Mnemonics

‣ Operands

‣ Comments