

Assignment 2

For each add instruction in this problem, assume that EAX contains the given contents before the instruction is executed, and give the contents of EAX as well as the values of the CF, OF, SF, and ZF flags after the instruction is executed:

EAX before

Instruction

(a) 00 00 00 45

add eax, 45

Step 1: Convert 45 to hexadecimal. 45 = 2D

Step 2: Add 2D to the registers value.

Result:

EAX = 00 00 00 72

SF = 0 CF = 0 OF = 0 ZF = 0

(b) FF FF FF 45

add eax, 45

Step 1: Convert 45 to hexadecimal. 45 = 2D

Step 2: Add 2D to the registers value.

Result:

EAX = FF FF FF 72

SF = 1 CF = 0 OF = 0 ZF = 0

(c) 00 00 00 45

add eax, -45

Step 1: Convert -45 to hexadecimal. -45 = FF FF FF D3

Step 2: Add FF FF FF D3 to the registers value.

Result:

EAX = 1 00 00 00 18

SF = 0 CF = 1 OF = 0 ZF = 0

(d) FF FF FF 45

add eax, -45

Step 1: Convert -45 to hexadecimal. -45 = FF FF FF D3

Step 2: Add FF FF FF D3 to the registers value.

Result:

EAX = **1 FF FF FF 18**

SF = **1** CF = **1** OF = **0** ZF = **0**

(e) FF FF FF FF **add eax, 1**

Step 1: Convert 1 to hexadecimal. 1 = **1**

Step 2: Add 1 to the register.

Result:

EAX = **1 00 00 00 00**

SF = **0** CF = **1** OF = **0** ZF = **1**

(f) 7F FF FF FF **add eax, 100**

Step 1: Convert 100 to hexadecimal. 100 = **64**

Step 2: Add 100 to the register.

Result:

EAX = **80 00 00 63**

SF = **1** CF = **0** OF = **1** ZF = **0**

(g) 00 00 00 99 **add eax, 1**

Step 1: Convert 1 to hexadecimal. 1 = **1**

Step 2: Add 1 to the register.

Result:

EAX = **00 00 00 9A**

SF = **0** CF = **0** OF = **0** ZF = **0**

(h) 00 00 03 AF **add eax, 10**

Step 1: Convert 10 to hexadecimal. 10 = **A**

Step 2: Add A to the register.

Result:

EAX = **00 00 03 B9**

SF = **0** CF = **0** OF = **0** ZF = **0**