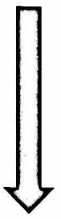
1. "For" loop conversion with *cmp, jnz*

```
public class Processor {

    //eax, ebx, ecx, edx, and flags have 32 bits, just like an int in java
    public static int eax;
    public static int ebx;
    public static int ecx;
    public static int edx;

    public static void main(String[] args) {
        ebx = 5;

        for(eax = 0; eax < ebx; eax++) {
            ecx++;
        }
        //value of ecx should be 5 after the loop terminates.
    }
}
```



```
.code
main proc
    move eax, 0     ;Initialization
    move ebx, 5     ;Initialization
    move ecx, 0     ;Initialization
    ForLoop:
        inc ecx
        inc eax
        cmp eax, ebx
    jnz ForLoop
    invoke ExitProcess, 0
  main endp
end main
```

2. if...else if.....else.....conversion with *jmp, jl, je*

```
if( eax > 0) {
    ecx = 1;
}
else if (eax < 0) {
    ecx = 2;
}
else {
    ecx = 3;
}
```

```
.code;
    main proc
        mov eax, 1          ;Initialization
        cmp eax, 0          ;compare eax to 0

        jl eaxElseIf        ; if eax < 0
        je eaxElse          ; _____
        mov ecx, 1          ;if eax > 0 don't jump
        jmp ifEnd           ; _____
        eaxElseIf:
            mov ecx, 2      ;set ecx to 2
            jmp ifEnd       ; _____
        eaxElse:
            mov ecx, 3      ;set ecx to 3
        ifEnd:
            .....

        invoke ExitProcess, 0
    main endp
end main
```

3. Short-circuit conversion with *cmp, jbe*

if (eax > 0 && ebx > 0)

ecx = 4;

```
.code;
        main proc
                mov eax, 1      ;Initialization
                mov ebx, 1      ;Initialization

                cmp eax, 0      ; eax > 0
                jbe False       ; eax <= 0
                cmp ebx, 0      ; ebx > 0
                jbe False       ; ebx <= 0
                mov ecx, 4      ;

                False:
                    ..............
                invoke ExitProcess, 0
        main endp
end main
```

4. 2D array conversion with *cmp, jmp, jz*

```
char[][] alpha = new char[26][26];

for(int i = 0; i < 26; i++) {
    for(int j = 0; j < 26; j++) {
        alpha[i][j] = (char)(j + 65);
    }
}
```

```
.data
        alpha byte 26 * 26 dup(0)
.code
        main proc
                mov bl, 65              ;"A" in ASCII
                mov ecx, 26             ;Number of columns
                mov edi, 0              ;row counter
                mov esi, 0              ;position
                OuterLoop:
                        InnerLoop:

                                mov alpha [esi], 65

                                inc bl

                                inc esi
                        loop InnerLoop

                cmp edi, 26

                jz Done

                inc edi
                mov bl, 65
                mov ecx, 26

                jmp outerloop

                Done:
                invoke ExitProcess, 0
        main endp
end main
```