HW 10

1. Hardware interrupts are generated by the Intel 8259 PIC which signals the CPU to suspend execution of the current program and execute an interrupt service routine.
ex. INTR, NMI, RESET

Software interrupts are calls to operating system procedures, called interrupt handlers, which provide input-output capability to application programs
ex. INT <xx>, TRAP

Maskable interrupts are possible to disable
ex. INT, INTR

Non-maskable interrupts are impossible to disable
ex. NMI, RESET

Registers

EAX = 00000004 EBX = 00380000 ECX = 00401005 EDX = 00401005 ESI = 00401005 EDI = 00401005 EIP = 00401026 ESP = 0019FF74 EBP = 0019FF80 EFL = 0000

OV = 0 UP = 0 EI = 1 PL = 0 ZR = 1 AC = 0 PE = 1 CY = 0

100 %

HW10_Problem4.asm ⊞ ✕

```
 8      .data
 9          string1 BYTE "test", 0
10
11      .code
12      main PROC
13              INVOKE Str_length,
14                  ADDR string1
15
16
17              exit
18          main endp
19
20          Str_length PROC USES edi,
21              pString:PTR BYTE
22
23              mov edi, pString
24              mov eax, 0
25
26          L1:
27              cmp byte ptr [edi], 0
28              je L2
29              inc edi
30              inc eax
31              jmp L1
32          L2:
33              ret
34          Str_length ENDP
35      end main
```

100 % ▾   ✔ No issues found

Process: [9680] Project.exe   Lifecycle Events   Thread: [23136] Main Thread   Stack Frame: main

Registers

EAX = 0000000B EBX = 00245000 ECX = 00401005 EDX = 00401005 ESI = 00401005 EDI = 00401005 EIP = 00401026 ESP = 0019FF74 EBP = 0019FF80 EFL = 0000024

OV = 0 UP = 0 EI = 1 PL = 0 ZR = 1 AC = 0 PE = 1 CY = 0

100 %

HW10_Problem4.asm

```
 8    .data
 9        string1 BYTE "testnumber2", 0
10
11    .code
12    main PROC
13            INVOKE Str_length,
14                ADDR string1
15
16
17            exit
18            main endp
19
20        Str_length PROC USES edi,
21            pString:PTR BYTE
22
23            mov edi, pString
24            mov eax, 0
25
26        L1:
27            cmp byte ptr [edi], 0
28            je L2
29            inc edi
30            inc eax
31            jmp L1
32        L2:
33            ret
34        Str_length ENDP
35    end main
```

100 %   ✓ No issues found

Autos

Output

HW8_Problem5.asm ⊐ ✕

```
 8      .data
 9          string1 BYTE "Stephen Sallas",0
10          string2 BYTE "Homework Ten",0
11          string3 BYTE "Call of Duty: Modern Warfare",0
12          string4 BYTE "War Eagle",0
13
14          array BYTE 50 DUP(?)
15
16          test1 BYTE "ll",0
17          test2 BYTE "om",0
18          test3 BYTE "ut",0
19          test4 BYTE "gl",0
20
21          stringDisplay BYTE "String: ",0
22          charIndex BYTE "the index of ",0
23          is BYTE " starts at ",0
24          dash BYTE " - ",0
25          notFound BYTE " was not found in the string...",0
26
27      .code
28      main PROC
29
30              mov esi, offset string1
31          .   mov eax, offset test1
32              mov ecx, lengthof string1
33              call find
34
35              mov esi, offset string2
36              mov eax, offset test2
37              mov ecx, lengthof string2
38              call find
39
40              mov esi, offset string3
41              mov eax, offset test3
42              mov ecx, lengthof string3
43              call find
44
45              mov esi, offset string4
```

```asm
44
45          mov esi, offset string4
46          mov eax, offset test4
47          mov ecx, lengthof string4
48          call find
49
50          exit
51      main endp
52
53      find proc
54          mov edx, esi
55          call writeString
56          mov edx, offset dash
57          call writeString
58
59          mov edi, offset array
60          mov dl, BYTE PTR([eax])
61          mov ebx, ecx
62          L1:
63              movsb
64              cmp dl, BYTE PTR([edi - 1])
65              jne next
66
67              mov edi, ebx
68              sub edi, ecx
69              jmp exitLoop
70
71              next:
72          loop L1
73          mov edi, -1
74
75          exitLoop:
76          cmp edi, -1
77          je indexNotFound
78
79          mov edx, offset charIndex
80          call writeString
81          mov edx, eax
```

100 %   ✓ No issues found

Debug   ▾   Win32   ▾   ▶ Local Windows Debugger ▾

W8_Problem5.asm   ⊣   ✕

```
78
79          mov edx, offset charIndex
80          call writeString
81          mov edx, eax
82          call writeString
83          mov edx, offset is
84          call writeString
85          mov eax, edi
86          call writeInt
87          jmp return
88
89          indexNotFound:
90              mov edx, eax
91              call writeString
92              mov edx, offset notFound
93              call writeString
94
95          return:
96              call crlf
97              ret
98      find endp
99  end main
100
101
102
103
104
105
106
```

Microsoft Visual Studio Debug Console

```
Stephen Sallas - the index of ll starts at +10
Homework Ten - the index of om starts at +1
Call of Duty: Modern Warfare - the index of ut starts at +9
War Eagle - the index of gl starts at +6

C:\Irvine\Project32_VS2017\Project32_VS2017\Debug\Project.exe (process 5936) exited with code
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Au
le when debugging stops.
Press any key to close this window . . .
```