

Assembly Language

Assignment 4.B

- Individual task.
 - **Due:** Next Section (one night before if you submit by email)
-

Q1) (5 points) Use the following data for the next questions:

```
.data
```

```
val1 BYTE 10h
```

```
val2 WORD 8000h
```

```
val3 DWORD 0FFFFh
```

```
val4 WORD 7FFFh
```

- Write an instruction that increments val2.
- Write an instruction that subtracts val3 from EAX.
- Write instructions that subtract val4 from val2.
- If val2 is incremented by 1 using the ADD instruction, what will be the values of the Carry and Sign flags?
- If val4 is incremented by 1 using the ADD instruction, what will be the values of the Overflow and Sign flags?
- Write down the values of the Carry, Sign, Zero, and Overflow flags after each instruction has executed:

```
mov ax,7FF0h
```

```
add al,10h          ; a. CF =      SF =    ZF =    OF =
```

```
add ah,1           ; b. CF =      SF =    ZF =    OF =
```

```
add ax,2           ; c. CF =      SF =    ZF =    OF =
```

Q1) (5 points) Implement the following expression in assembly language: $AX = (-val2 + BX) - val4$.