# MLab 5&6 – An Exercise on Using Basic Instructions

## Objectives

In this lab, students will practice instructions MOV, ADD, SUB, INC, DEC, and NEG in an assembly language program and how basic instructions are translated into machine language. Also, students will learn how to define and use variables in an assembly language program.

## Tasks

**Task 1:** Write assembly language instructions to perform following tasks:

|  |  |  |
| --- | --- | --- |
| **No.** | **Tasks** | **Instructions** |
|  | Copy value 0000100b into lower byte of AX register and value -5 in higher byte of BX register. | MOV AL, 0000100b  MOV BH, -5 |
|  | Replace contents of DX register by its 2’s complement. | MOV DX, 2h  NEG DX; |
|  | Increment the contents of CX by 1. | INC CX |
|  | Replace contents of BL register by its 1’s complement. | NOT BL |
|  | Exchange lower byte of AX and higher byte of DX. | XCHG AL,DH |

**Task 2:** If it is legal, how can you give data definition for each of the following in assembly language?

1. A word variable A initialized to 52.
2. A word variable WORD1, uninitialized.
3. A byte variable B, initialized to 25h
4. A byte variable C1, uninitialized.
5. A word variable WORD2, initialized to 65536.
6. A word array ARRAY1 initialized to the first five positive integers (i.e. 1-5)
7. A constant BELL equal to 07h.
8. A constant MSG equal to “THIS IS A MESSAGE”