Name:	Date Performed:	Rating:
Course/Section:	Date Submitted:	

ACTIVITY NO.3

BUILIDNG ASSEMBLY PROGRAM

INTENDED LEARNING OUTCOMES

1. Creating program using TASM
2. To determine what the different of TASM to DEBUG

BACKGROUND

To build assembly program using TASM program is different program structure than from using DEBUG program. Use editor program to create the source file in a TASM program.

Requirements for Coding in Assembly

DIRECTIVES

The most common directives are explained below:

- TITLE – it create a title of a source listing.
  Program1.asm
- MODEL – it specifies and initializes the memory model before defining any segment.

  Types of Memory model

  .model tiny

  .model small

  .model medium

  .model compact

  .model large
- STACK – it defines the size of the stack. The default size is 1, 024 bytes which you can overrule
  .stack 0100H
- DATA – it defines and marks the beginning of data segment.
  .data
- CODE – it defines and marks the code segment which consists of a set of instructions.
  .code

- END –it is placed at the last line of the source code
- end (label)
- For defining data length

DIRECTIVE	LENGTH (in bytes)	DESCRIPTION
DB	1	Define byte
DW	2	Define word
DD	4	Define doubleword
DF	6	Define farword
DQ	8	Define quadword
DT	10	Define TEnbytes

COMMENT
Comment is a part of a program that is ignored by the assembler.

RESERVED WORDS
These are words in which the assembler assigns a special meaning and it cannot be used as identifiers. They are reserved for their own purpose to be used only under special condition.

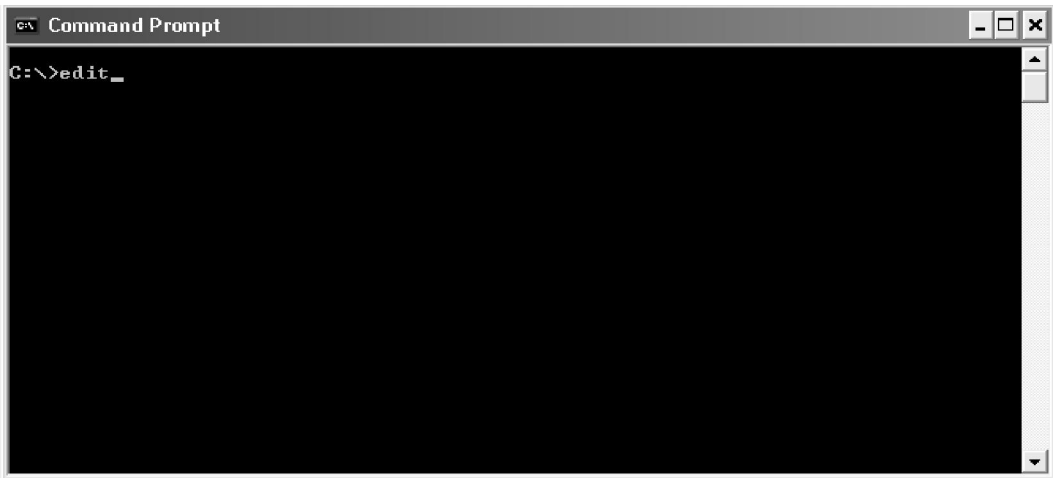
IDENTIFIER
An *identifier* is a user-defines name (variable/ label) that you apply to an item in your program that you expect to reference.

STATEMENT
An assembly language statement program consists of a set of statements. The two types of statements are *instructions* and *directives*.

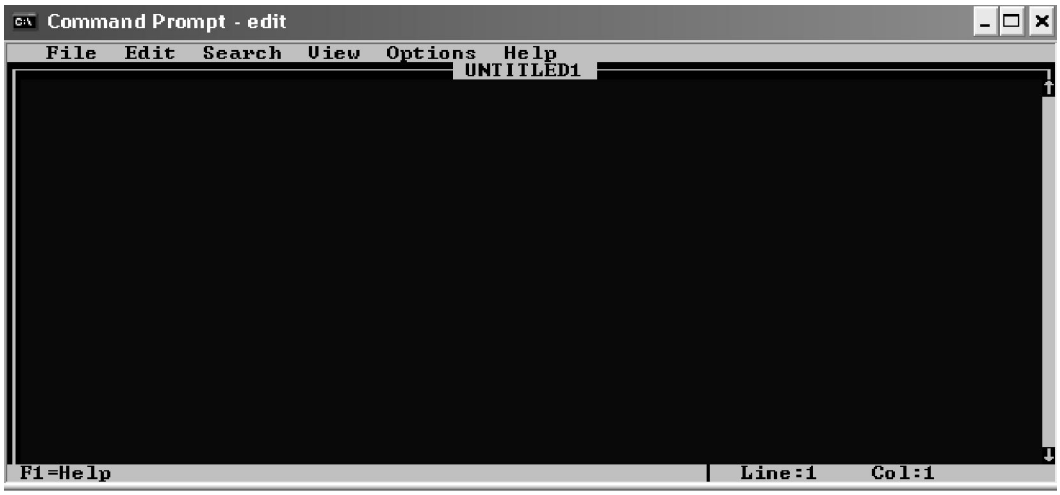
STRING
String is used for descriptive data such as simple message. It must end with dollar ($) symbols and defined in double quotation mark (" "). DB is the conventional format for defining string of any length.

Structure of an Assembly Language Program

- Open the text editor (edit.com) by typing edit on a DOS prompt and press enter key.
  C:\> edit [ENTER]



- Editor program to create the source file.



- Environment of an Assembly Language to type the command in an editor.
- Type the following lines in an editor.

```
.model small
.stack
.data
.code
        start:                  ; begin the program
        mov ah, 2
        mov dl, 41h             ; load the value of 41h to DL
        int 21h                 ; execute and ASCII character of 'A;
        mov ah, 4ch             ; terminate the program
```

```
int 21h

end start                    ; exit to program
```

- Save the file with extension of .ASM.
  Example:

  program1.asm

- Exit to editor and use the TASM program to build the object program.
  Example:

  C:\> TASM program1.asm

The TASM can only create programs in .OBJ format which are not executable by themselves but rather it is necessary to have a linker generates the executable code.

- Use the TLINK program to build the executable program.
  Example:

  C:\> TLINK program1.obj

  This generates a file directly with the name of the intermediate program and the .EXE extension.

- Execute the executable program.
  Example:

  C:\> program1 [enter]

  Generate an output display: A

QUESTIONS

1. What is the different of DEBUG to TASM when it comes to encoding the code, and to the environment?

_____
_____
_____

2. Why we should save are file as .ASM?

_____
_____
_____

3. What is the purpose of .ASM and .OBJ

_____
_____
_____

EXERCISES 2

Displaying the same character thirty times using LOOP on screen.

- Type the following lines in an editor.

```
.model small

.stack

.data

.code

        start:                  ; begin the program

        mov cx, 30              ; count 30 times (decimal number)

        mov ah, 2

        mov dl, 83

back:   int 21h

        loop back               ; go to label back

        mov ah, 4ch             ; terminate the program

        int 21h

        end start       ; exit to program
```

QUESTIONS

1.What is the different of looping in DEBUG to TASM?

_____
_____
_____

2.What is the purpose of declaring the memory model?

_____
_____
_____

3.Why we need to put a .stack, .data and .code on or program and give their purpose?

_____
_____
_____

PROBLEM NO.1

Construct an assembly language program that displays your information.

```
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```

PROBLEM NO.2

Formulate an assembly language program that will display the given sample output below.

2.1

```
AaBbCcDd….. Zz
```

2.2

```
0a1b2c3d4e5f6g7h8i9j
```

2.3

```
9_8_7_6_5_4_3_2_1_0
```

CONCLUSION