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Course code: COE 206

Course title: Assembly Language Programming

Test

1a It is not a good idea to use numeric addresses when writing instructions that access variables because the addresses which are coded in the instructions would have to be updated whenever new variables are inserted before existing ones.

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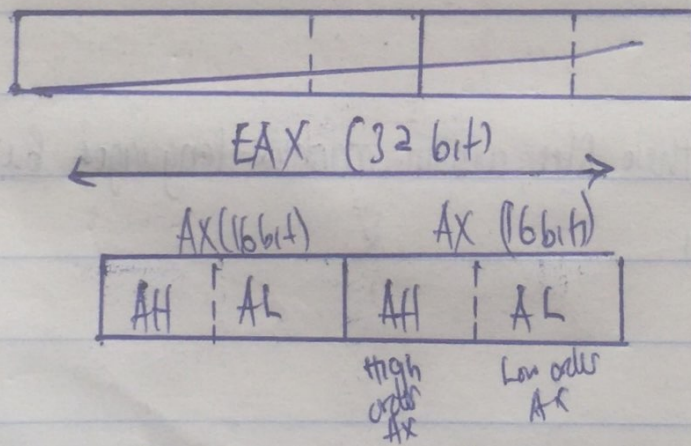
1b: Object files [these files, contain machine languages but are not executable]
ii Listing files

2a Portability as it applies to programming language is an attribute of a computer program if it can be used in an operating system (OS) other than the one it was created for without requiring a lot/major rework.

6. The assembly language for X36 processor is quite different from ARM or Motorola 68K00 this is because assembly language is specific

and varies to devices of a particular computer architecture, which entails that they cannot be accessible in a different processor, the two assembly languages therefore speak using different instructions, different machine codes which results to ~~these~~ their differences.

c. The EAX register can be used for arithmetic and logical operations. It is usually called extended accumulator register and contains 32-bits. The EAX register can therefore be subdivided into 16-bit registers called AX register which can also be subdivided into 8-bit registers which are the AH and AL.



Lower family include AX AH AL

2a. Segmentation is achieved by using directives which are embedded commands in the source code. This command includes

- data (this can be used to describe the area with variable declaration)
- stack (this can be used to describe the area with stack pointer)

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• code (this can be used to describe the area with executable instructions)
3b - main Proc

This shows that the procedure has been initialized, the variable "main" is used to name the procedure being executed

- MOV AX, 47104

This code implies that 47104 should be moved to register AX which is the destination

- ADD EAX, 1270

This code implies that 1270 should be added to the EAX register

- MOV DS, AX

This code implies that the values in the source AX register should be moved to the DS register

- main ENDP

This ends the procedure run time.

C - value 1 BYTE 6Dh

This code declares a variable "value 1", that has the same size of an unsigned byte assigns the value to the variable with the value "6Dh"

- value 2 DWORD ?

This code declares the variable "value 2" which has the same

~~of~~

size of a "double word" but doesn't have an initialized value which could be initialized at run-time.

- value 3 3BYTE

This code declares a variable called "value 3" which has the same size of a signed byte and value assigned to it.

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```
TITLE "A program to subtract two integers" (Sub.asm)
```

```
INCLUDE Irvine32.inc
```

```
code
```

```
main
```

```
MOV AX, 2000h ; AX = 2000h
```

```
SUB AX, 1000h ; AX = 1000h
```

```
call DumpRegs ; display the registers
```

```
exit
```

```
main ENDP
```

```
END main
```