



Advanced computer technology: المادة



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المرحلة : الرابعة

السنة الدراسية : 2023 - 2024

عنوان المحاضرة: Variables In EMU8086

Variables In EMU8086

[Variable-Name] Define-Directive Initial-Value

Directive	Purpose	Storage Space
DB	Define byte	Allocate 1 byte
DW	Define word	Allocate 2 byte
DD	Define double word	Allocate 4 byte

EXAMPLE:

```
MOV AL,VAR1
```

```
MOV BX,VAR2
```

```
RET
```

```
VAR1 DB 30H
```

```
VAR2 DW 2233H
```



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Instruction	Description
JMP	Causes the program execution to jump unconditionally to the memory address or label given in the instruction.
CALL	Calls a procedure whose address is given in the instruction and saves their return address to the stack.
RET	Returns program execution from a procedure (subroutine) to the next instruction or main program.
IRET	Returns program execution from an interrupt service procedure (subroutine) to the main program.
INT	Used to generate software interrupt at the desired point in a program.
LOOP	Jump to defined label until CX = 0.
CMPS/CMPSB/CMPSW	Compares the content of memory location addressed by DI register with the content of memory location addressed by SI register.



Interrupts

INT 21h / AH=1 - read character from standard input, with echo, result is stored in AL. if there is no character in the keyboard buffer, the function waits until any key is pressed.

example: basic 8086 and dos interrupts that are currently supported by the emulator

```
mov ah, 1
```

```
int 21h
```

```
ret
```

INT 21h / AH=2 - write character to standard output.

entry: DL = character to write, after execution AL = DL

example:

```
mov ah, 2
```

```
mov dl, 'a'
```

```
int 21h
```

```
ret
```

INT 21h / AH=5 - output character to printer. entry: DL = character to print, after execution AL = DL.

example:

```
mov ah, 5
```

```
mov dl, 'a'
```

```
int 21h
```

```
ret
```



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INT 21h / AH=7 - character input without echo to AL. if there is no character in the keyboard buffer, the function waits until any key is pressed.

example:

```
mov ah, 7
```

```
int 21h
```

```
ret
```

INT 21h / AH=9 - output of a string at DS:DX. String must be terminated by '\$'.

example:

```
mov dx, offset msg
```

```
mov ah, 9
```

```
int 21h
```

```
ret
```

```
msg db "hello world $"
```



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Write a Program to enter data from keyboard to solve the equation

$$Z=x+y$$