

MOV Operation/Opcode

It copies data from a source operand to a destination operand.

```
MOV destination, source
```

```
;or
```

```
mov destination, source
```

The **destination operand** is the operand that will be modified by the instruction.

The **source operand** is the operand that will be copied to the destination operand.

Both the source operand and the destination operand must be the **same size**.



Similar size

The MOV instruction cannot be used to move data directly from one memory location to another.

Instead, you must move the source operand's value to a register before assigning its value to a memory operand.

The following example shows how to use the MOV instruction to move data from one memory location to another:

```
mov destination, source
```

```
.data
```

```
var1 WORD ?
```

```
var2 WORD ?
```

```
.code
```

```
mov ax,var1 ;move data into registers first
```

```
mov var2,ax
```

This code will copy the value of the var1 variable to the var2 variable.

The following example shows how to use the MOV instruction to move data from a register to a memory location:

```
;Register to memory location
```

```
.data
```

```
var3 DWORD ?
```

```
.code
```

```
mov eax,1024
```

```
mov var3,eax
```

This code will store the value 1024 in the var3 variable. Yes, var3 the memory location.

The MOV instruction copies the contents of the EAX register to the memory location at address var3.

In assembly language, variables are simply names for memory locations. When you declare a variable, such as var3, the assembler

sets aside a certain amount of memory for the variable and assigns it a name. You can then use the variable name in your code to access the memory location.

In the above example, the VAR3 variable is declared as a DWORD variable. This means that the variable occupies four bytes of memory. The MOV instruction copies the four bytes of data from the EAX register to the four bytes of memory at address var3.

Once the MOV instruction is executed, the var3 variable will contain the value 1024. You can then use the var3 variable in your code to access the value 1024.

The following example shows how to use the MOV instruction to move data from a memory location to a register:

```
;Memory location to register

.data
    var4 DWORD 1024

.code
    mov eax,var4
```

This code will load the value of the var4 variable into the EAX register.

The MOV instruction is a very versatile instruction that can be used to move data between registers, memory locations, and immediate values. It is one of the most important instructions to learn in assembly language.

;Summary of the mov

mov reg,reg

mov mem,reg

mov reg,mem

mov mem,imm

MOV reg,imm

;capitalizing MOV is optional