Data Transfer Instructions

- The MOV (move data) instruction copies data from one operand to another.
- The XCHG (exchange data) instruction exchanges the contents of two registers, or the contents of one register and a variable. The XLAT is used in look up tables.

Instruction	General Use	Segment Registers
MOV	MOV reg, reg	MOV segreg, reg16
	MOV mem, reg	MOV segreg, mem16
	MOV reg, mem	MOV reg16, segreg
	MOV mem, immed.	MOV mem16, segreg
	MOV reg, immed.	**Note**: CS can never be a destination register.
	Note: **IP** can never be a destination register.	
XCHG	XCHG reg, reg	**Exchanging two variables**

	XCHG reg, mem	MOV reg, var1
		XCHG var2, reg
		MOV var1, reg

	XCHG mem, reg	
XLAT	XLAT	AL ← [BX +AL]

Table 4.2: Data Transfer Instructions

Type checking:

When a variable is declared, the assembler gives it an attribute (byte, word or double word). The type is checked when the variable is referred to. An error results if the types do not match.

The LABEL directive helps to create a new name with a different attribute at the same offset.

```
.Data
        countB      LABEL      byte     ; Byte attribute
        countW      DW     3E20h  ; Word attribute
.Code
        MOV AL, countB      ; Retrieve low byte of Count → AL = 20H
        MOV BX, countW      ; Retrieve all of Count      → BX = 3E20H
```

Operands with displacements:

Using direct offset addressing, memory values that do not have their own labels can be accessed.

```
        .Data
                arrayB DB 10H, 20H
                arrayW DW 100H, 200H
        .Code
                MOV AL, arrayB          ; AL = 10H
                MOV AL, arrayB+1        ; AL = 20H
                MOV AX, arrayW          ; AX = 100H
        MOV AX, arrayW+2  ; AX = 200H
```