Lecture 4:

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Addressing Modes, Mov Instruction, Service Routine, ASCII Code and Interrupt

Addressing Modes

↳ Ways/Models to access data

Data Transfer Instruction

Opcode
(Operational Code)

2 + 2
Operands

Opcode Reg1, Reg2
Add DL, Al

Registers Addressing: Both operands are registers

Immediate Addressing: One Operand is constant term

Opcode Reg, Value or **Opcode** Value, Reg
Add Dl, 2 ADD 2, DL

Memory Addressing: Access static data directly

Opcode Reg, [Address]
Add Dl, [address]

Mov DL, 2 DL, 'A'

Mov Ah, 2 ← **Service Routine**

1 = Input a character with echo
2 = Output/Print a single character 'a'
8 = Input a character without echo
9 = Print collection of characters 'abcd'
4ch = Exit

String

Interrupt

Stop the current program and allow microprocessor to access hardware to take input or give output

INT 21H = Interrupt for Text Handling
INT 20H = Interrupt for Video/Graphics Handling

Example 1: Output

```
Mov ah, 2
INT 21H
```

Example 2: Input

```
Mov ah, 1
INT 21H
```

ASCII Code

(American Standard Code for Information Interchange)

↳ Character Encoding Scheme

↳ By: American Standards Association (ASA)
Published in; 1963

A = 65 B = 66 → Z=90
a = 91 b = 92 → z=122
0 = 48 1 = 49 → 9=57

Next Line Feed = 10
Carriage Return = 13