

**23VLS1401: Microcontroller and Computer architecture**  
**Lecture 2 (U2)**

**Data Transfer instructions and  
programming for Microprocessor 8085**

A presentation by

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# Session objectives

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- To overview various software instructions related to the process of data transfer
- To develop the programming technique in assembly language for given problem statement, store the source data, execute the program and observe the result in destination register or memory location.

# Data Transfer instructions

- **MOV**
- **MVI**

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- **LDA**
- **STA**
- **LDAX**
- **STAX**
- **LXI**
- **LHLD**
- **SHLD**
- **XCHG**

# Flag register and instructions related to various flags required in decision making



JP  
JM

JZ  
JNZ

JPE

JPO

JC  
JNC

# Jump Instructions

Opcod e	Operand	Meaning	Explanation	Addressing mode
JMP		Unconditional jump	Jump to the address specified in the instruction	Implicit addressing mode
JC		Jump on carry	Jump to the specified address if carry flag is set	
JNC	16 bits address /Label	Jump on no carry	Jump to the specified address if carry flag is reset	
JZ			Jump to the specified address if Zero flag is set	
JNZ			Jump to the specified address if Zero flag is reset	

# Programming Examples

**Problem Statement 1:** A block of 5 data bytes is stored in memory locations starting at 2501H. Write an Assembly language Program to copy the block from memory locations starting at 2601H.

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```
LXI H,2501H
LXI D,2601H
MVI C,05H
L1: MOV A,M
     STAX D
     INX H
     INX D
     DCR C
JNZ L1
HLT
```

# Programming Examples

**Problem Statement 2:** A block of 5 data bytes is stored in memory locations starting at 2501H. Write an Assembly language Program to copy the block from memory locations starting at 2601H in reverse order.

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LXI H,2501H

LXI D,2605H

MVI C,05H

L1: MOV A,M

STAX D

INX H

DCX D

DCR C

JNZ L1

HLT

# Programming Examples

**Problem Statement 3:** In a sugar industry, 10 viscosity readings are recorded in 16 bits in microprocessor based system in memory locations starting at 2501H. Higher order 8 bits are stored first, followed by lower order readings. Higher bytes are common for all the readings. Write a program to transfer lower order bytes only in memory locations starting at 2601H.

LXI H,2501H

LXI D,2601 H

MVI C,05H

L1: INX H

MOV A,M

STAX D

INX H

DCX D

DCR C

JNZ L1

HLT

# Programming Examples

**Problem Statement 4:** 10 data bytes are stored from 2501H. WAP to shift the entire string ahead by 5 positions in order to insert new data from 2501H.

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LXI H,250AH

LXI D,260F H

MVI C,05H

L1: MOV A,M

STAX D

DCX H

DCX D

DCR C

JNZ L1

HLT

# Programming Examples

## Problem Statement 5: Copy a 16-bit number stored in 2501H at 2601H

Solution 1:

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LHLD 2501H

SHLD 2601H

HLT

Solution 2:

LDA 2501H

STA 2601H

LDA 2502H

STA 2602H

HLT

Thank  
you