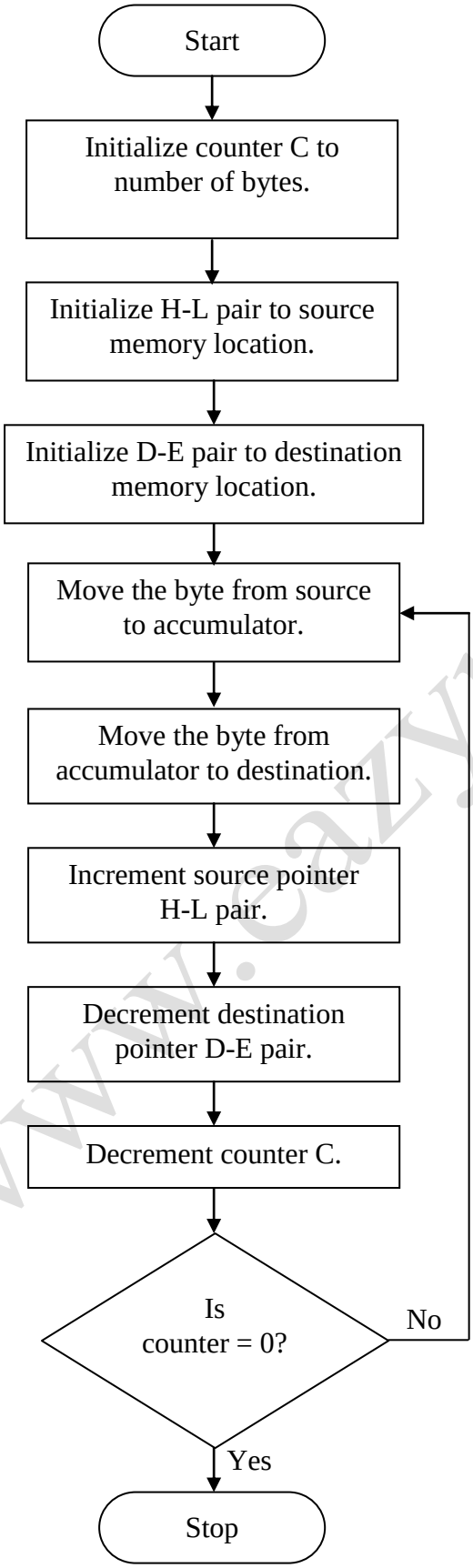
Program 24: Transfer block of N-bytes in reverse order from source to destination.

Flowchart:



Program:

Address	Mnemonics	Operand	Opcode	Remarks
2000	MVI	C, 05H	0E	Initialize reg. C to 05H, i.e. number of bytes.
2001			05	Immediate value 05H.
2002	LXI	H, 3000H	21	Initialize H-L pair to source memory location.
2003			00	Lower-order of 3000H.
2004			30	Higher-order of 3000H.
2005	LXI	D, 3504H	11	Initialize D-E pair to destination memory location.
2006			04	Lower-order of 3504H.
2007			35	Higher-order of 3504H.
2008	MOV	A, M	7E	Move the byte from source to accumulator.
2009	STAX	D	12	Store the byte from accumulator to destination.
200A	INX	H	23	Increment the source pointer H-L pair.
200B	DCX	D	1B	Decrement the destination pointer D-E pair.
200C	DCR	C	0D	Decrement counter C.
200D	JNZ	2008H	C2	Jump to address 2008H if counter is not zero.
200E			08	Lower-order of 2008H.
200F			20	Higher-order of 2008H.
2010	HLT		76	Halt.

Explanation:

- This program transfers block of N-bytes in reverse order from source to destination. The source bytes start from memory location 3000H and needs to be transferred to memory locations 3504H in reverse order.
- In order to transfer these bytes, first the counter must be initialized to the number of bytes to transfer.
- Then, H-L pair is initialized to point to the source memory location and D-E pair is initialized to point to destination memory location.
- The first byte is moved from source to accumulator and then from there to destination.
- The H-L pair is incremented and D-E pair is decremented to point to the next respective memory locations.
- The counter is decremented and checked whether it has become zero.
- If it hasn't become zero, it means that there are bytes remaining to be transferred. In this case, the control jumps back to move the next byte from source to destination.
- This process continues until counter becomes zero, i.e. all the bytes have been transferred.

Output:

Before Execution:		**After Execution:**	
3000H:	05H	3500H:	02H
3001H:	02H	3501H:	03H
3002H:	04H	3502H:	04H
3003H:	03H	3503H:	02H
3004H:	02H	3504H:	05H