

8085 PROGRAMMING

ADD A SERIES OF NUMBERS

**Q1) Add a series of ten 8-bit numbers stored from 2000H.
Store Result at 200AH and 200BH.**

Solution:

	LXI H, 2000H	; HL = 2000H; M = 1 st number
	MVI C, 0AH	; Count
	MVI A, 00H	; Sum
	MVI B, 00H	; Carry
BACK:	ADD M	; Add current number
	JNC SKIP	; Check for carry
	INR B	; Increment B register if Carry Flag = 1
SKIP:	INX H	; Point to next number
	DCR C	; Decrement count
	JNZ BACK	; Loop
	MOV M, A	; Store Sum
	INX H	; Point to next location
	MOV M, B	; Store Carry
	HLT	; End of program

Special Note:

Please refer our videos for full explanation of the programs and the diagram of the logic.



FIND HIGHEST NUMBER

**Q2) Find the highest in a series of ten 8-bit numbers stored from 2000H.
Store Result at 200AH.**

Solution:

	LXI H, 2000H	; HL = 2000H; M = 1 st number
	MVI C, 0AH	; Count
	MVI A, 00H	; Highest number
BACK:	CMP M	; Compare current number
	JNC SKIP	; Check for carry
	MOV A, M	; If carry is 1 then A ← M
SKIP:	INX H	; Point to next number
	DCR C	; Decrement count
	JNZ BACK	; Loop
	MOV M, A	; Store Result
	HLT	; End of program

FIND EVEN AND ODD NUMBERS

**Q3) Find the number of even and odd numbers in a series of ten 8-bit numbers stored from 2000H.
Store Result at 200AH and 200BH.**

Solution:

	LXI H, 2000H	; HL = 2000H; M = 1 st number
	MVI C, 0AH	; Count
	MVI D, 00H	; Even count
	MVI B, 00H	; Odd count
BACK:	MOV A, M	; Get number into A
	RRC	; Check LSB
	JC ODD	; If carry, its Odd
	INR D	; Increment Even count
	JMP SKIP	; Move ahead
ODD:	INR B	; Increment Odd count
SKIP:	INX H	; Point to next number
	DCR C	; Decrement count
	JNZ BACK	; Loop
	MOV M, D	; Store Even count
	INX H	; Move to next location
	MOV M, B	; Store Odd count
	HLT	; End of program

FIND NUMBER OF ONES

**Q4) Find the number of Ones in an 8-bit number stored at 2000H.
Store Result at 2001H.**

Solution:

	LDA 2000H	; A = given number
	MVI B, 00H	; Number of 1s
	MVI C, 08H	; Loop count
BACK:	RRC	; Rotate right
	JNC SKIP	; If no carry, move ahead
	INR B	; Increment 1s count
SKIP:	DCR C	; Decrement loop count
	JNZ BACK	; Loop
	MOV A, B	; A ← 1s count from B
	STA 2001H	; Store result
	HLT	; End of program

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