Division of two 8-bit numbers

By,
Subathra S

DIVISION OF TWO 8-BIT NUMBERS

AIM

To write an assembly language program to divide the given two numbers

ASSEMBLY LANGUAGE PROGRAM

```
C000 LDA  C200   3A ; Load the accumulator with Divisor
C001             00 ;
C002             C2 ;
C003 MOV B A     47 ; Move the accumulator content to B register
C004 LDA  C201   3A ; Load the accumulator with Divident
C005             01 ;
C006             C2 ;
C007 MVI C 00    0E ; Initialize C register with 00H
C008             00 ;
C009 CMP B       B8 ; Compare the content of B register with
                      accumulator
C00A JC  C012    DA ; If carry occurs, jump to C012H
C00B             12 ;
C00C             C0 ;
C00D SUB B       90 ; Subtract B register content from accumulator
C00E INR C       0C ; Increment the C register
C00F JMP C009    C3 ; Jump to C009H
C010             09 ;
C011             C0 ;
C012 STA  C202   32 ; Store the accumulator content (Remainder)
C013             02 ; at memory location C202H
C014             C2 ;
C015 MOV A C     79 ; Move the content of C register to
                      accumulator
C016 STA  C203   32 ; Store the accumulator content (Quotient)
C017             03 ; at memory location C203H
C018             C2 ;
C019 HLT         76 ; Halt the execution
```

EXECUTION

```
C200 09 ; Divisor(Input data)
C201 36 ; Dividend(Input data)
C202 00 ; Remainder(Output data)
C203 06 ; Quotient(Output data)
```

PROGRAM TRACE

Addr	MC	Mnemonic	A	B	C	D	E	H	L	SP	Flag Word
			00	00	00	00	00	00	00	0000	0000 0000
C000	3A	LDA C200	09	00	00	00	00	00	00	0000	0000 0000
C003	47	MOV B A	09	09	00	00	00	00	00	0000	0000 0000
C004	3A	LDA C201	36	09	00	00	00	00	00	0000	0000 0000
C007	0E	MVI C 00	36	09	00	00	00	00	00	0000	0000 0000
C009	B8	CMP B	36	09	00	00	00	00	00	0000	0000 0100
C00A	DA	JC C012	36	09	00	00	00	00	00	0000	0000 0100
C00D	90	SUB B	2D	09	00	00	00	00	00	0000	0000 0100
C00E	0C	INR C	2D	09	01	00	00	00	00	0000	0000 0000
C00F	C3	JMP C009	2D	09	01	00	00	00	00	0000	0000 0000
C009	B8	CMP B	2D	09	01	00	00	00	00	0000	0001 0100
C00A	DA	JC C012	2D	09	01	00	00	00	00	0000	0001 0100
C00D	90	SUB B	24	09	01	00	00	00	00	0000	0001 0100
C00E	0C	INR C	24	09	02	00	00	00	00	0000	0000 0000
C00F	C3	JMP C009	24	09	02	00	00	00	00	0000	0000 0000
C009	B8	CMP B	24	09	02	00	00	00	00	0000	0000 0100
C00A	DA	JC C012	24	09	02	00	00	00	00	0000	0000 0100
C00D	90	SUB B	1B	09	02	00	00	00	00	0000	0000 0100
C00E	0C	INR C	1B	09	03	00	00	00	00	0000	0000 0100
C00F	C3	JMP C009	1B	09	03	00	00	00	00	0000	0000 0100
C009	B8	CMP B	1B	09	03	00	00	00	00	0000	0001 0100
C00A	DA	JC C012	1B	09	03	00	00	00	00	0000	0001 0100
C00D	90	SUB B	12	09	03	00	00	00	00	0000	0001 0100
C00E	0C	INR C	12	09	04	00	00	00	00	0000	0000 0000
C00F	C3	JMP C009	12	09	04	00	00	00	00	0000	0000 0000
C009	B8	CMP B	12	09	04	00	00	00	00	0000	0000 0100
C00A	DA	JC C012	12	09	04	00	00	00	00	0000	0000 0100
C00D	90	SUB B	09	09	04	00	00	00	00	0000	0000 0100
C00E	0C	INR C	09	09	05	00	00	00	00	0000	0000 0100
C00F	C3	JMP C009	09	09	05	00	00	00	00	0000	0000 0100
C009	B8	CMP B	09	09	05	00	00	00	00	0000	0101 0100
C00A	DA	JC C012	09	09	05	00	00	00	00	0000	0101 0100
C00D	90	SUB B	00	09	05	00	00	00	00	0000	0101 0100
C00E	0C	INR C	00	09	06	00	00	00	00	0000	0000 0100
C00F	C3	JMP C009	00	09	06	00	00	00	00	0000	0000 0100
C009	B8	CMP B	00	09	06	00	00	00	00	0000	1000 0001
C00A	DA	JC C012	00	09	06	00	00	00	00	0000	1000 0001
C012	32	STA C202	00	09	06	00	00	00	00	0000	1000 0001
C015	79	MOV A C	06	09	06	00	00	00	00	0000	1000 0001
C016	32	STA C203	06	09	06	00	00	00	00	0000	1000 0001
C019	76	HLT	06	09	06	00	00	00	00	0000	1000 0001

FLAG WORD

S	Z	x	Ac	x	P	x	Cy
1	0	0	0	0	0	0	1

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