# PROGRAM 2: SUBTRACTION

**INTRO:** To write a program to perform subtraction of two 8-bit numbers.

**FLOW CHART:**

Subtract two 8-bit data

00H assigned to C (carry)

Input data (8 bit) assigned

start

NO

Increment the value of C

Increment value of accumulator

Store the value to accumulator

Move the contents of C to accumulator

Store the value of accumulator

END

Complement accumulator content

Check for borrow

|  |  |  |
| --- | --- | --- |
| ADDRESS | MNEMONICS | EXPLANATION |
| 4100 | MVIA,40H | Move immediately value ‘40’ in hexadecimal to register A, which is, accumulator |
| 4102 | MVIB,20H | Move immediately value ‘20’ in hexadecimal to register B |
| 4104 | MVIC,00H | Set carry register C to zero |
| 4106 | SUB B | subtract value of register B from the accumulator |
| 4107(loop 1) | JNC 410D | Jump to address 410D if there is no carry, else... |
| 410A | CMA | Take complement of values in A |
| 410B | INR A | Increment the value of accumulator |
| 410C | INR C | Increment the value of carry register C if carry is there |
| 410D(loop 1) | STA 4125 | Store value of accumulator at address 4125 |
| 4110 | MOV A,C | Move value of carry register C to the accumulator |
| 4111 | STA 4126 | Store value of accumulator at address 4126 |
| 4114 | HLT | Halt/Terminate the program |

**PROGRAMING CODE:**

**MODEL CALCULATIONS:**

40 0100 0000

- 20 0010 0000

11011 1111 (taking complement)

20 0010 0000

Here,

Answer=20 (at address 4125)

Borrow=00(at address 4126)  
  
 END