# PROGRAM 3: MULTIPLICATION

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

**FLOW CHART:**

END

Store the value of accumulator

Start

Check IF register C=0

Add value of register B in A & decrement C

Initialize D register at zero

Get the second number(in register C, the number to be multiplied by)

Get the first number (in register B, the number to be multiplied)

Initialize accumulator at zero

|  |  |  |
| --- | --- | --- |
| ADDRESS | MNEMONICS | EXPLANATION |
| 4100 | MVIA,00H | Move immediately value ‘00’ in hexadecimal to register A, which is, accumulator |
| 4102 | MVIB,02H | Move immediately value ‘02’ in hexadecimal to register B |
| 4104 | MVIC,03H | Initialize register C at ‘03’ |
| 4106 | MVI D,00H | Initialize register D at ‘00’ |
| 4108(loop 1) | ADD B | Add value of register B to the accumulator |
| 4109(loop 2) | JNC 410D | Jump to address 410D if there is no carry |
| 410C | INR D | Increments the value of carry register D if carry is there |
| 410D(loop 2) | DCR C | Decrement value of register C |
| 410E(loop 1) | JNZ 4108 | Jump to address 4108 if C is not zero |
| 4112 | STA 4125 | Store value of accumulator at address 4125 |
| 4115 | MOV A,D | Move value of carry register D to the accumulator |
| 4116 | STA 4126 | Store value of accumulator at address 4126 |
| 4119 | HLT | Halt/Terminate the program |

**PROGRAMING CODE:**

**MODEL CALCULATIONS:**

Ex:

2\*3 = 6

Add thrice

End