**WRITE AN ASSEMBLY LEVEL PROGRAM TO PERFORM SUBTRACTION OF TWO 16-BIT NUMBERS USING 8085.**

**ALGORITHM:**

1. Start the microprocessor.
2. Get the 1st 16 bit in ‘HL’ register pair.
3. Save the 1st 16 bit in ‘DE’ register pair.
4. Get the 2nd 16 bit number in ‘HL’ register pair.
5. Get the lower byte of 1st number.
6. Get the subtracted value of 2nd number of lower byte by subtracting it with lower byte of 1st number.
7. Store the result in ‘L’ register.
8. Get the higher byte of 2nd number.
9. Subtract the higher byte of 1st number from 2nd number with borrow.
10. Store the result in ‘HL’ register.
11. Stop the program execution.

**PROGRAM**:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ADDRESS** | **LABEL** | **OPCODE/OPERAND** | **COMMENTS** |  |  |  |
|  |  | MVI C,00 | C=00H |  |  |  |
|  |  | LHLD 4800 |  |  |  |  |
|  |  | XCHG | HL-DE |  |  |  |
|  |  | LHLD 4802 | HL-2ND Number |  |  |  |
|  |  | MOV A,E |  |  |  |  |
|  |  | SUB L |  |  |  |  |
|  |  | STA 4804 |  |  |  |  |
|  |  | MOV A,D |  |  |  |  |
|  |  | SBB 4805 |  |  |  |  |
|  |  | HLT |  |  |  |  |
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**OBSERVATION:**

**INPUT WITHOUT BORROW:**

|  |  |
| --- | --- |
| 4800 | 07 |
| 4801 | 08 |
| 4802 | 05 |
| 4803 | 06 |
|  |  |
|  |  |

**OUTPUT:**

|  |  |
| --- | --- |
| 4804 | 02 |
| 4805 | 02 |
| 4806 | 00 |
|  |  |
|  |  |
|  |  |

**INPUT WITH BORROW:**

|  |  |
| --- | --- |
| 4800 | 05 |
| 4801 | 06 |
| 4802 | 07 |
| 4803 | 08 |
|  |  |
|  |  |

**OUTPUT:**

|  |  |
| --- | --- |
| 4804 | 02 |
| 4805 | 02 |
| 4806 | 01 |
|  |  |
|  |  |
|  |  |