EXP NO: 1

AIM:

To write an assembly language program to implement 8-bit addition using 8085 processor.

ALGORITHM:

1) Start the program by loading the first data into the accumulator.

2) Move the data to a register.

3) Get the second data and load it into the accumulator.

4) Add the two register contents.

5) Check for carry.

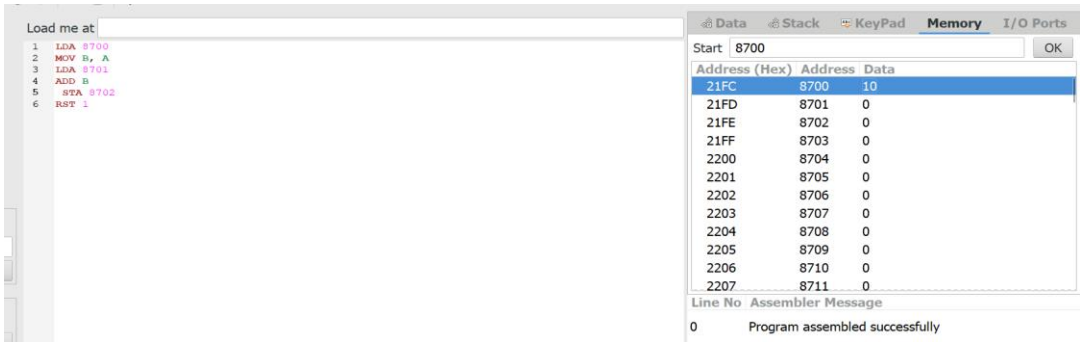
6) Store the value of sum and carry in the memory location.

7) Halt.

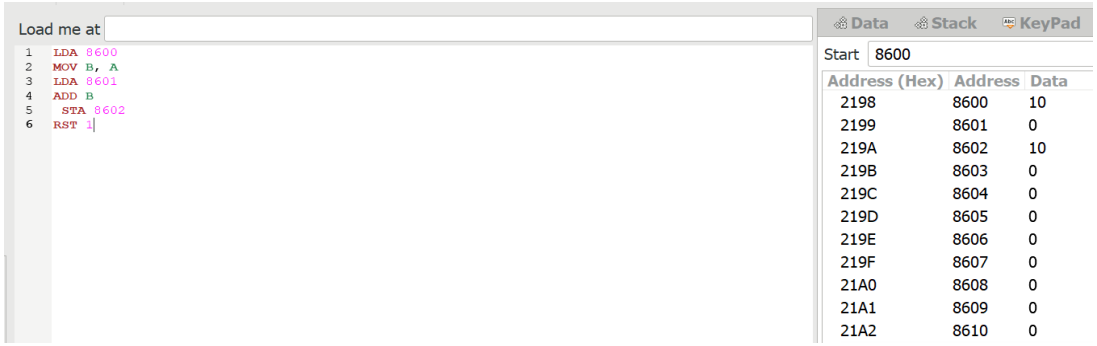
PROGRAM:

```
LDA 8500
MOV B, A
LDA 8501
ADD B
 STA 8502
RST 1
```

INPUT:



OUTPUT:



RESULT: Thus the program was executed successfully using 8085 processor simulator.

EXP NO: 2

AIM: To write an assembly language program to implement 8-bit subtraction using 8085 processor.

ALGORITHM:

1) Start the program by loading the first data into the accumulator.

2) Move the data to a register.

3) Get the second data and load it into the accumulator.

4) Subtract the two register contents.

5) Check for borrow.

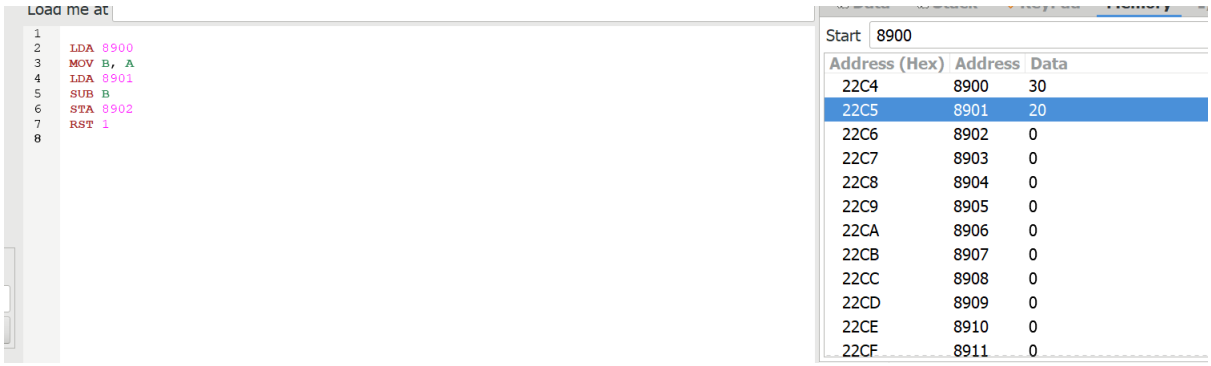
6) Store the difference and borrow in the memory location.

7) Halt.

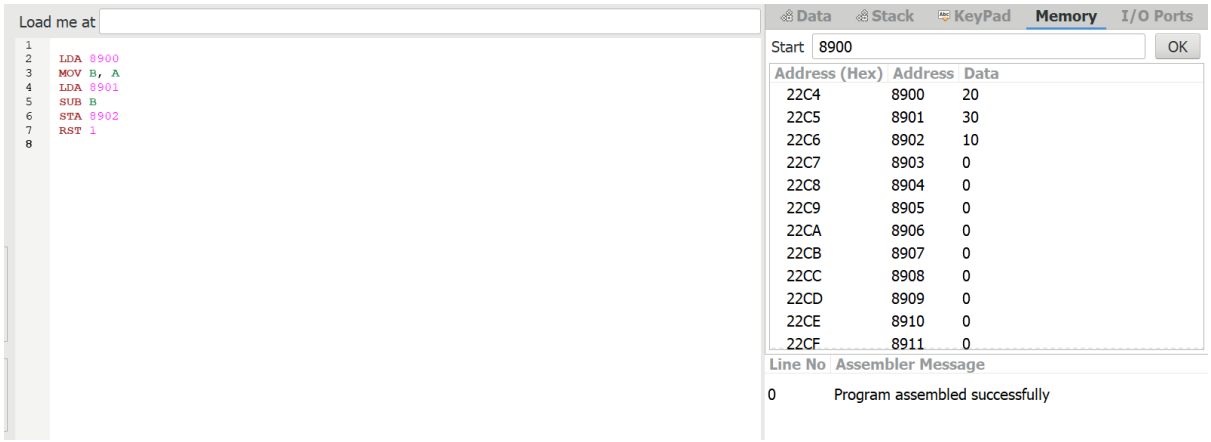
PROGRAM:

```
LDA 8000
MOV B, A
LDA 8001
SUB B
STA 8002
RST 1
```

INPUT:



OUTPUT:



RESULT: Thus the program was executed successfully using 8085 processor simulator

EXP NO: 3

AIM: To write an assembly language program to implement 8-bit multiplication using 8085 processor.

ALGORITHM:

1) Start the program by loading a register pair with the address of memory location.

2) Move the data to a register.

3) Get the second data and load it into the accumulator.

4) Add the two register contents.

5) Increment the value of the carry.

6) Check whether the repeated addition is over.

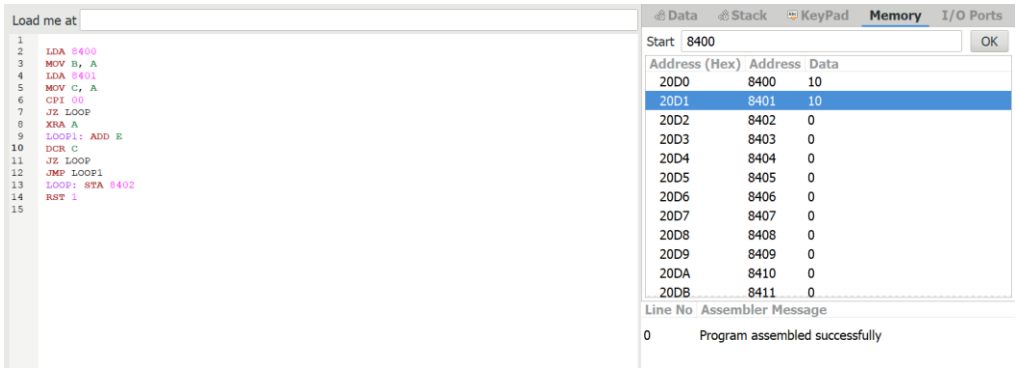
7) Store the value of product and the carry in the memory location.

8) Halt.

Program:

```
LXI H,100
MOV B,M
MVI A,00
MOV C,A
INX H
CONT: ADD M
JNC SKIP
INR C
SKIP: DCR B
JNZ CONT
STA 102
MOV A,C
STA 103
HLT
```

INPUT:



OUTPUT:

RESULT: Thus the program was executed successfully using 8085 processor simulator.

EXP NO: 4

AIM: To write an assembly language program to implement 8-bit division using 8085 processor.

ALGORITHM:

1) Start the program by loading a register pair with the address of memory location.

2) Move the data to a register.

3) Get the second data and load it into the accumulator.

4) Subtract the two register contents.

5) Increment the value of the carry.

6) Check whether the repeated subtraction is over.

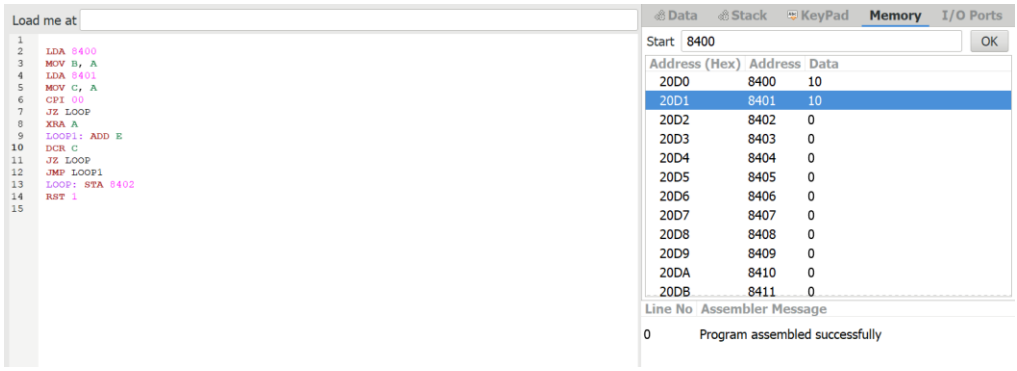
7) Store the value of quotient and the reminder in the memory location.

8) Halt.

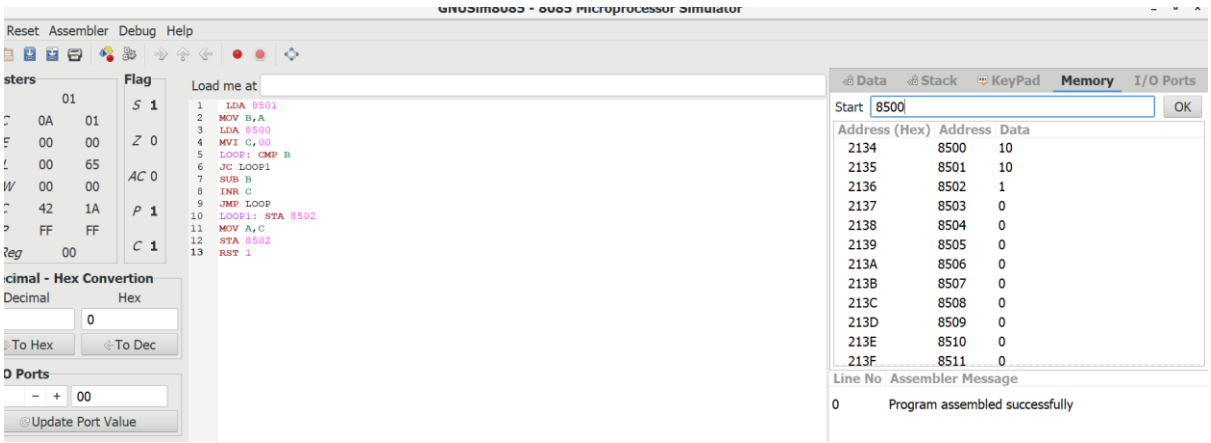
PROGRAM:

```
 LDA 8501
MOV B,A
LDA 8500
MVI C,00
LOOP: CMP B
JC LOOP1
SUB B
INR C
JMP LOOP
LOOP1: STA 8502
MOV A,C
STA 8502
RST 1
```

INPUT:



OUTPUT:



RESULT: Thus the program was executed successfully using 8085 processor simulator.

EXP NO: 5

AIM: To write an assembly language program to implement 16-bit addition using 8085 processor.

ALGORITHM:

1) Start the program by loading a register pair with address of 1st number.

2) Copy the data to another register pair.

3) Load the second number to the first register pair.

4) Add the two register pair contents.

5) Check for carry.

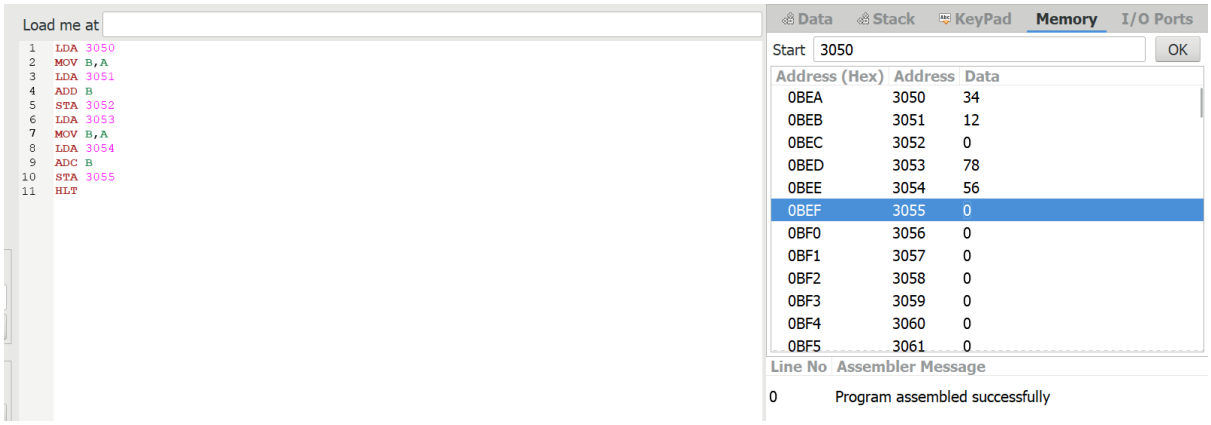
6) Store the value of sum and carry in memory locations.

7) Terminate the program.

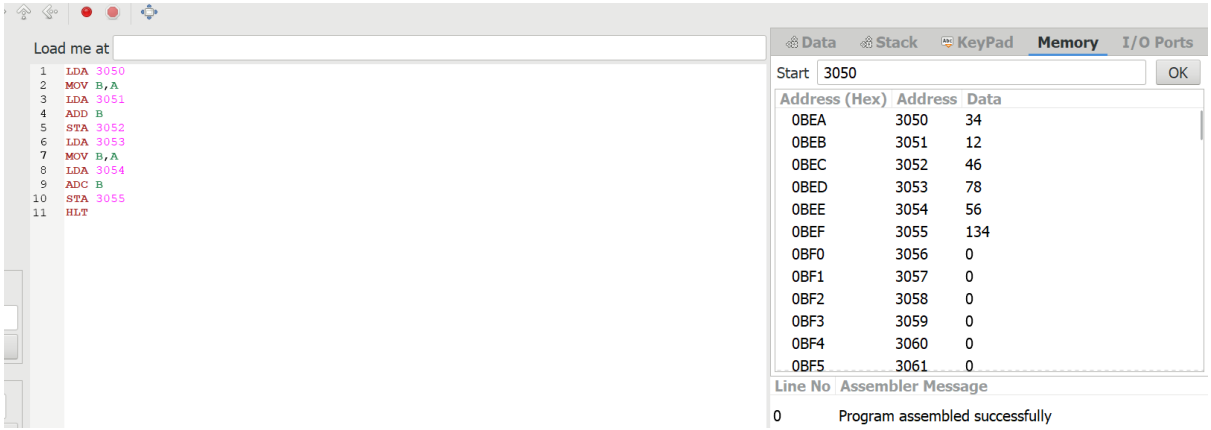
PROGRAM:

```
LDA 3050
MOV B,A
LDA 3051
ADD B
STA 3052
LDA 3053
MOV B,A
LDA 3054
ADC B
STA 3055
HLT
```

INPUT:



OUTPUT:



RESULT: Thus the program was executed successfully using 8085 processor simulator.

EXP NO: 6

AIM: To write an assembly language program to implement 16-bit subtraction using 8085 processor.

ALGORITHM:

1) Start the program by loading a register pair with address of 1st number.

2) Copy the data to another register pair.

3) Load the second number to first registre pair.

4) Subtract the two register pair contents.

5) Check for borrow.

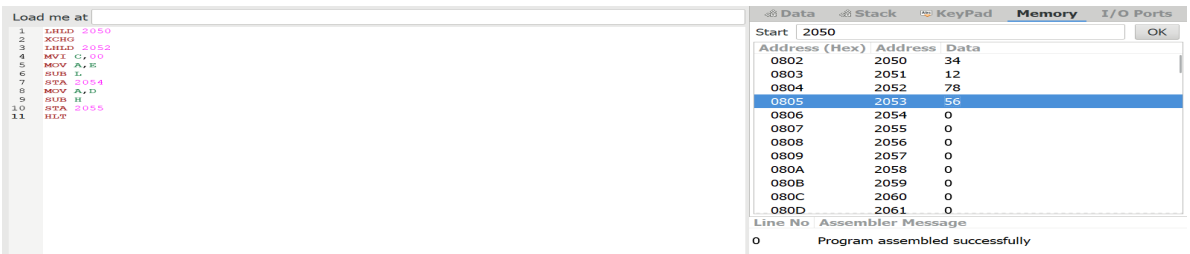
6) Store the value of difference and borrow in memory locations.

7) End.

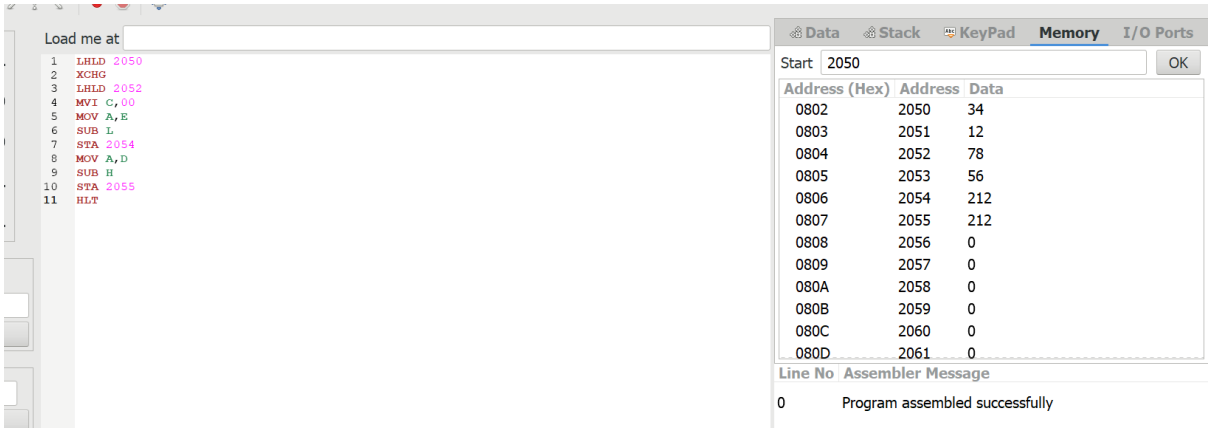
PROGRAM:

```
LHLD 2050
XCHG
LHLD 2052
MVI C,00
MOV A,E
SUB L
STA 2054
MOV A,D
SUB H
STA 2055
HLT
```

INPUT:



OUTPUT:



RESULT: Thus the program was executed successfully using 8085 processor simulator.

EXP NO: 7

AIM: To write an assembly language program to implement 16-bit multiplication using 8085 processor.

ALGORITHM:

1) Load the first data in HL pair.

2) Move content of HL pair to stack pointer.

3) Load the second data in HL pair and move it to DE.

4) Make H register as 00H and L register as 00H.

5) ADD HL pair and stack pointer.

6) Check for carry if carry increment it by 1 else move to next step.

7) Then move E to A and perform OR operation with accumulator and register D.

8) The value of operation is zero, then store the value else go to step 3.

PROGRAM:

```
 LHLD 2050
SPHL
LHLD 2052
XCHG
LXI H,0000H
LXI B,0000H
AGAIN: DAD SP
```

JNC START

INX B

START: DCX D

MOV A,E

ORA D

JNZ AGAIN

SHLD 2054

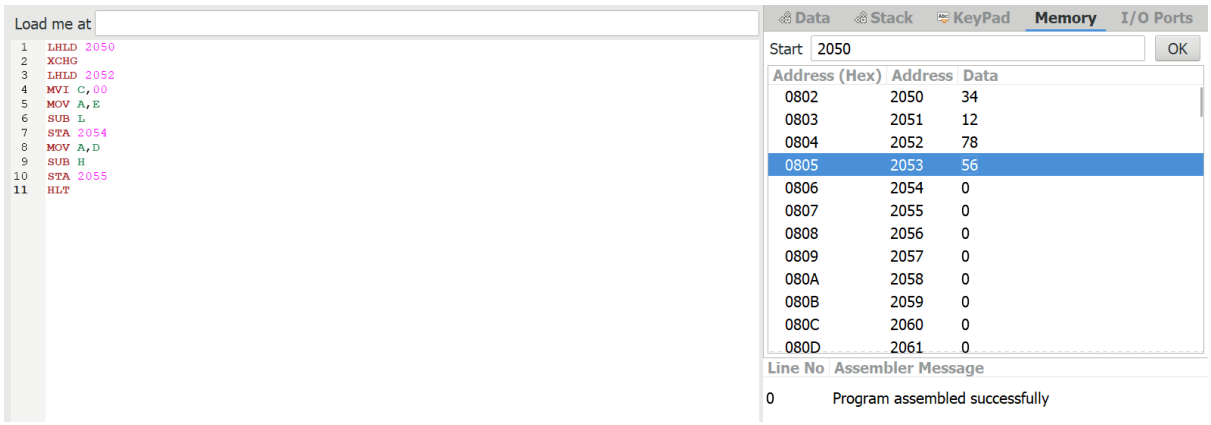
MOV L,C

MOV H,B

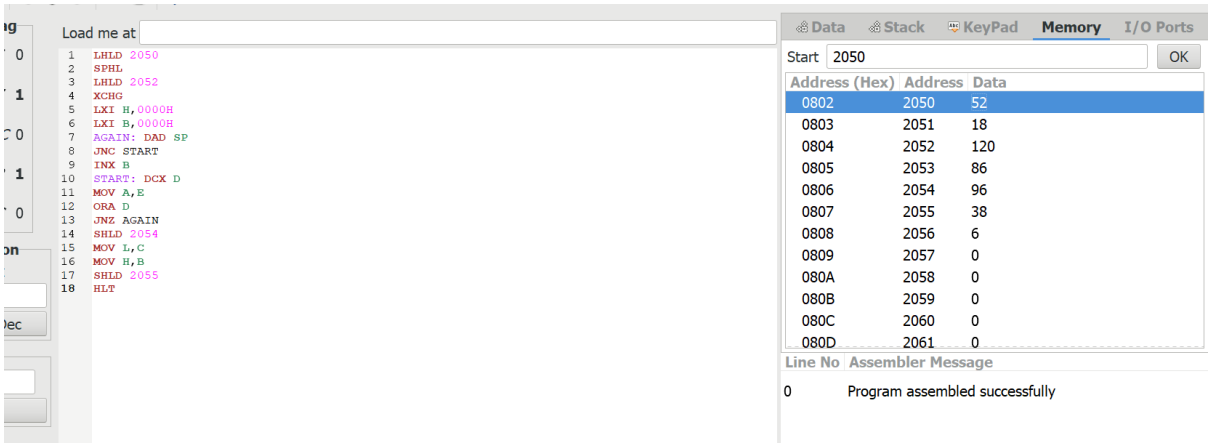
SHLD 2055

HLT

INPUT:



OUTPUT:



RESULT: Thus the program was executed successfully using 8085 processor simulator.

EXP NO: 8

AIM: To write an assembly language program to implement 16-bit divided by 8-bit using 8085 processor.

ALGORITHM:

1) Read dividend (16 bit)

2) Read divisor

3) count <- 8

4) Left shift dividend

5) Subtract divisor from upper 8-bits of dividend

6) If CS = 1 go to 9

7) Restore dividend

8) Increment lower 8-bits of dividend

9) count <- count - 1

10) If count = 0 go to 5

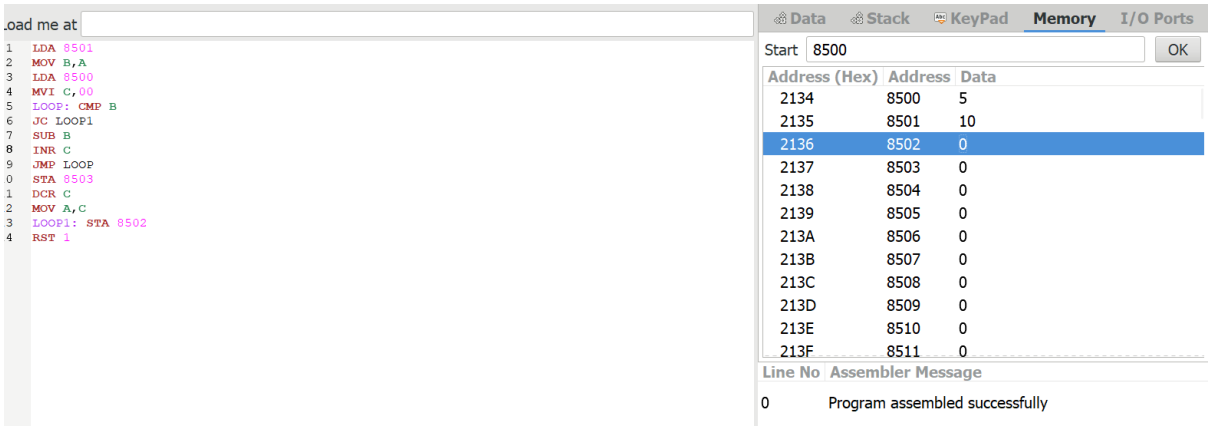
11) Store upper 8-bit dividend as remainder and lower 8-bit as quotient

12) Stop

PROGRAM:

```
LDA 8501
MOV B,A
LDA 8500
MVI C,00
LOOP:CMP B
JC LOOP1
SUB B
INR C
JMP LOOP
STA 8503
DCR C
MOV A,C
LOOP1: STA 8502
RST 1
```

INPUT:



OUTPUT:

RESULT: Thus the program was executed successfully using 8085 processor simulator.

EXP NO: 9

AIM: To find the factorial of a given number using 8085 microprocessor.

ALGORITHM:

1) Load the data into register B

2) To start multiplication set D to 01H

3) Jump to step 7

4) Decrements B to multiply previous number

5) Jump to step 3 till value of B>0

6) Take memory pointer to next location and store result

7) Load E with contents of B and clear accumulator

8) Repeatedly add contents of D to accumulator E times

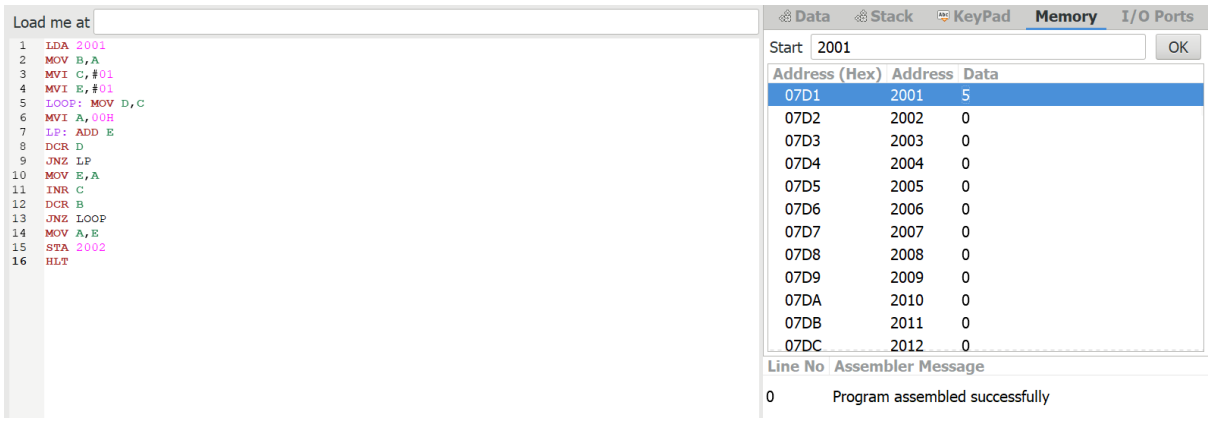
9) Store accumulator content to D

10) Go to step 4

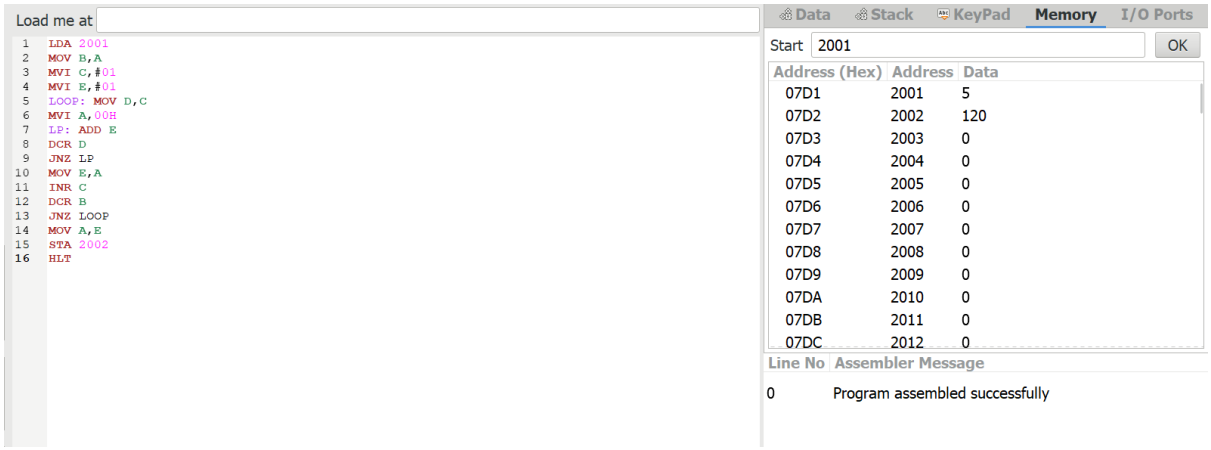
PROGRAM:

```
LDA 2001
MOV B,A
MVI C,#01
MVI E,#01
LOOP: MOV D,C
MVI A,00H
LP: ADD E
DCR D
JNZ LP
MOV E,A
INR C
DCR B
JNZ LOOP
MOV A,E
STA 2010
HLT
```

INPUT:



OUTPUT:



RESULT: Thus the program was executed successfully using 8085 processor simulator.

EXP NO: 10

AIM: To find the largest number from an array using 8085 processor.

ALGORITHM:

1) Load the address of the first element of the array in HL pair.

2) Move the count to B register.

3) Increment the pointer.

4) Get the first data in A register.

5) Decrement the count.

6) Increment the pointer.

7) Compare the content of memory addressed by HL pair with that of A register.

8) If carry=0, go to step 10 or if carry=1 go to step 9

9) Move the content of memory addressed by HL to A register.

10) Decrement the count.

PROGRAM:

LXI H,2050

MOV C,M

DCR C

INX H

MOV A,M

LOOP1: INX H

CMP M

JNC LOOP

MOV A,M

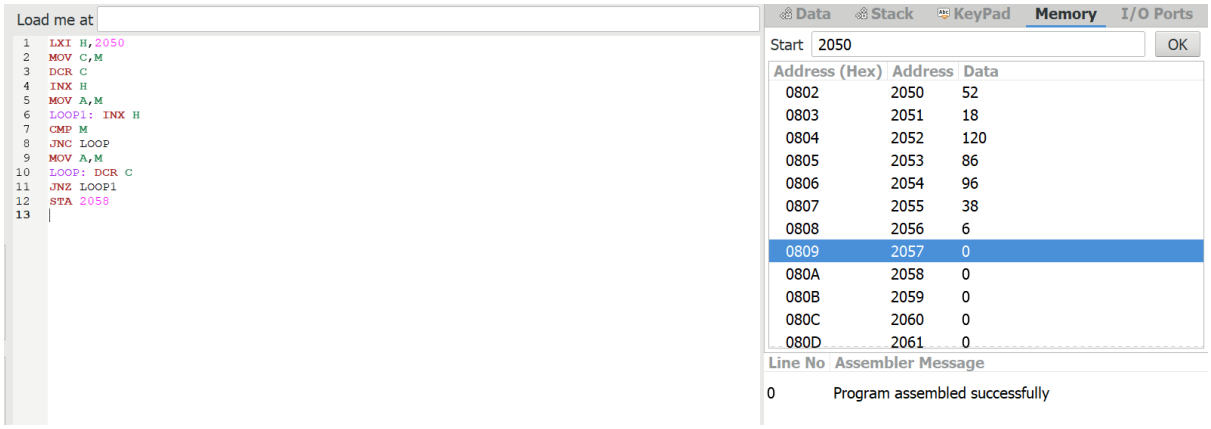
LOOP: DCR C

JNZ LOOP1

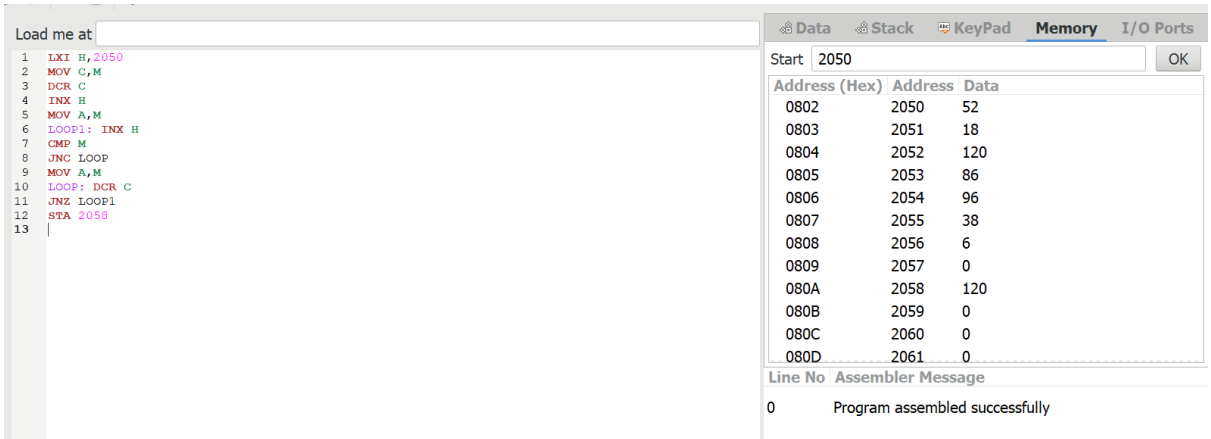
STA 2058

HLT

INPUT:



OUTPUT:



RESULT: Thus the program was executed successfully using 8086 processor simulator.