

2.7 STACK OPERATIONS

- The stack is a group of memory location in the R/W memory (RAM) that is used for temporary storage of data during the execution of a program.
- Address of the stack is stored into the stack pointer register. The 8085 provide two instructions PUSH & POP for storing information on the stack and reading it back.
- Data in the register pairs stored on the stack by using the instruction PUSH.
- Data is read from the stack by using the instruction POP.
- PUSH & POP both instruction works with register pairs only.
- The storage and retrieval of the content of registers on the stack follows the LIFO(Last- In-First-Out) sequence.

Operation of the stack by PUSH and POP Instruction

2000 LXI SP, 2099H ; this instruction define stack
 2003 LXI H, 42F2H ; this instruction store 42F2 in to the HL pair
 2006 PUSH H ; store HL pair on to the stack
 2010 POP H ; store data from top of the stack to HL pair

For PUSH H

The stack pointer is decremented by one to 2098H, and the contents of the H register are copied to memory location 2098H. The stack pointer register is again decremented by one to 2097H, and the contents of the L register are copied to memory location 2097H. The contents of the register pair HL are not destroyed.

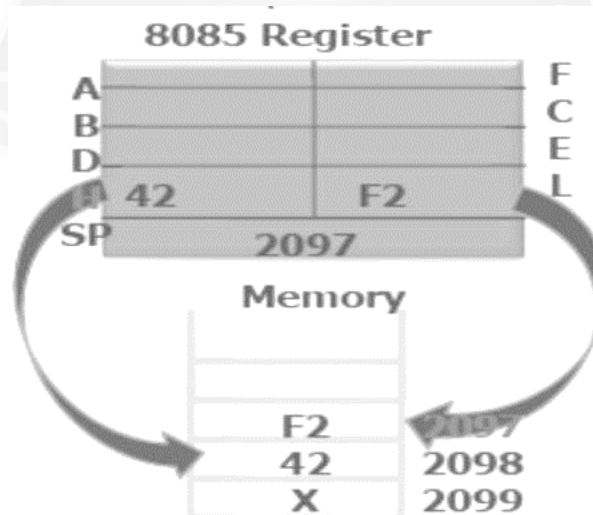


Figure 2.7.1 PUSH H operation

[Source: "Microprocessor Architecture Programming and Application" by R.S. Gaonkar, page-238]

For POP H

The contents of the top of the stack location shown by the stack pointer are copied in the L register and the stack pointer register is incremented by one to 2098 H. The contents of the top of the stack (now it is 2098H) are copied in the H register, and the stack pointer is incremented by one. The contents of memory location 2097H and 2098 are not destroyed until some other data bytes are stored in these location.

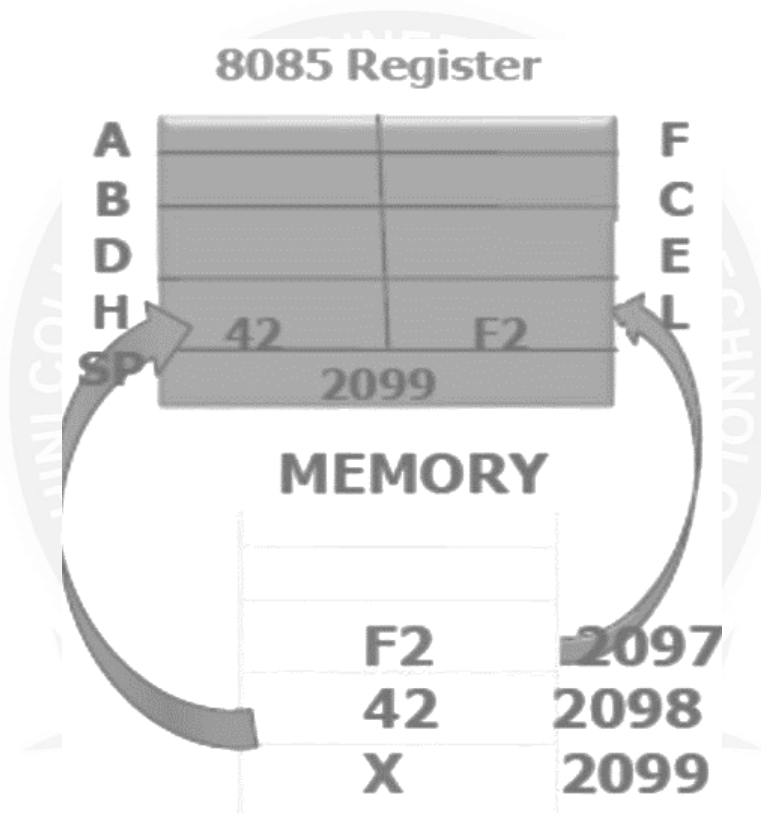


Figure 2.7.1 POP H operation

[Source: "Microprocessor Architecture Programming and Application" by R.S. Gaonkar, page-238]