Stack is a storage structure that stores information in such a way that the last item stored is the first item retrieved. It is based on the principle of LIFO (Last-in-first-out). The stack in digital computers is a group of memory locations with a register that holds the address of top of element. The computers which use Stack-based CPU Organization are based on a data structure called stack. The stack is a list of data words. It uses Last In First Out (LIFO) access method which is the most popular access method in most of the CPU. A register is used to store the address of the topmost element of the stack which is known as Stack pointer (SP). In this organisation, ALU operations are performed on stack data. It means both the operands are always required on the stack. After manipulation, the result is placed in the stack.

The main two operations that are performed on the operators of the stack are Push and Pop. These two operations are performed from one end only.

Registers:

Computers with three-address instruction formats can use each address field to specify either a processor register or a memory operand. ..ADD R1, A, B R1 ← M [A] + M [B] ADD R2, C, D R2 ← M [C] + M [D] MUL X, R1, R2 M [X] ← R1 * R2 It is assumed that the computer has two processor registers, R1 and R2.

Example 2 :ADD X Y --->AC<---M[X]+M[Y]

Here X Y - explicit