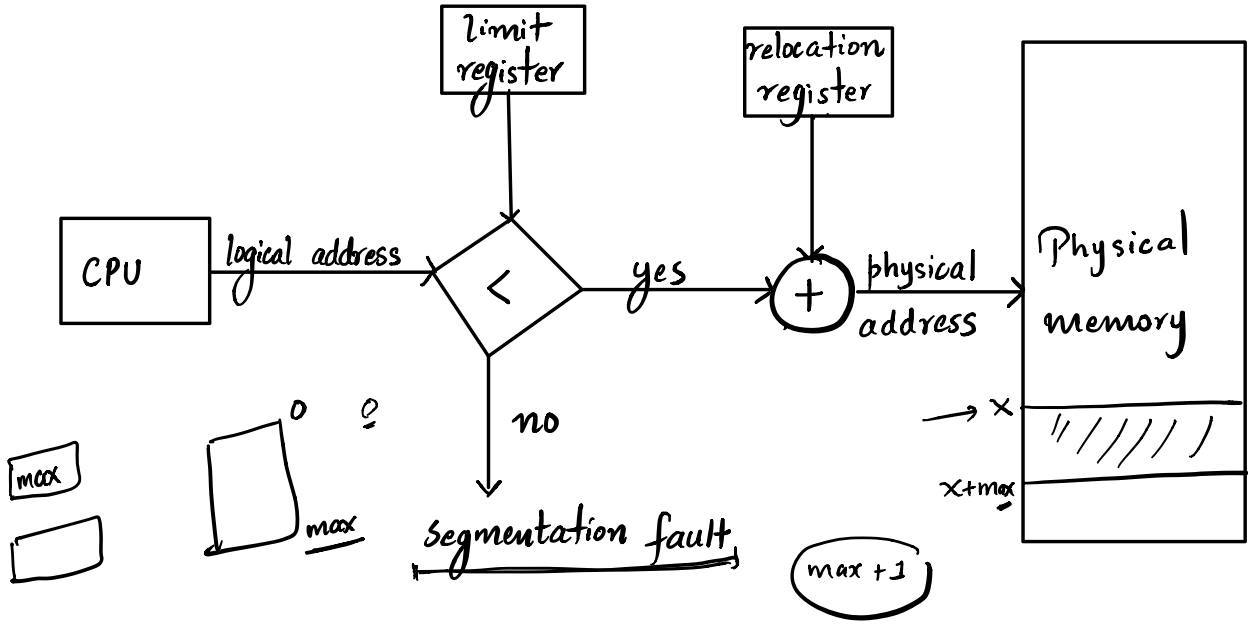
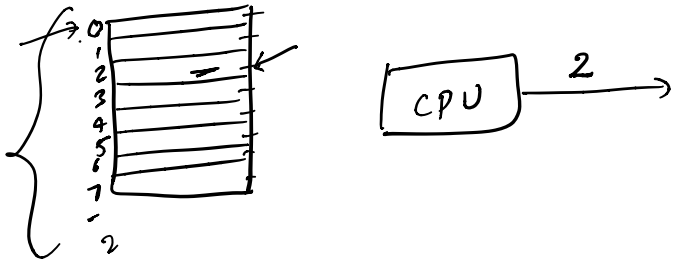
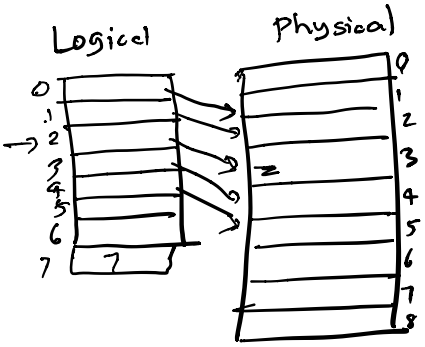
MEMORY MAPPING AND PROTECTION IN CONTIGUOUS MEMORY ALLOCATION

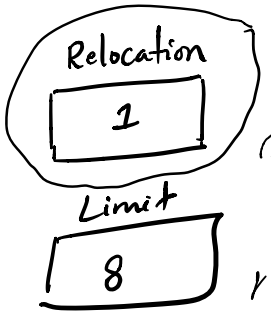
- The user program generates only logical addresses and thinks that the program runs in location from 0 to MAX
- The CPU only sees the logical address of the program while executing the program
- Since the CPU can only access the main memory, these logical addresses must be mapped to addressees in main memory or physical memory
- Also how do we protect the process from accessing the memory of other processes?
- Using two registers - relocation and limit register, memory mapping and protection can be provided



- limit register - size of the process
- relocation register - starting physical address of the process
- When the cpu scheduler selects the process for execution, the dispatcher loads these register values.
- Hardware support needed


0
1
2
3
4
5
6
7
CPU
2


Logical
Physical
0
1
2
3
4
5
6
7
0
1
2
3
4
5
6
7
8


Relocation
1
Limit
8

$2 + 1 = 3$

$3 + 1 = 4$