TUTORIAL 4

- In the given Figure 1, the two-word instruction at address 200 and 201 is a “load to AC” instruction with an address field equal to 500.
- First word of the instruction specifies the operation code and mode, the second word specifies the address part.
- PC has the value of 200 for fetching this instruction.
- The content of processor register R1 is 400.
- The content of an index register XR is 100.
- AC receives the operand after the instruction is executed.

Now, based on the given information in Figure 1 and Table 1, please fill the content of Table 2.

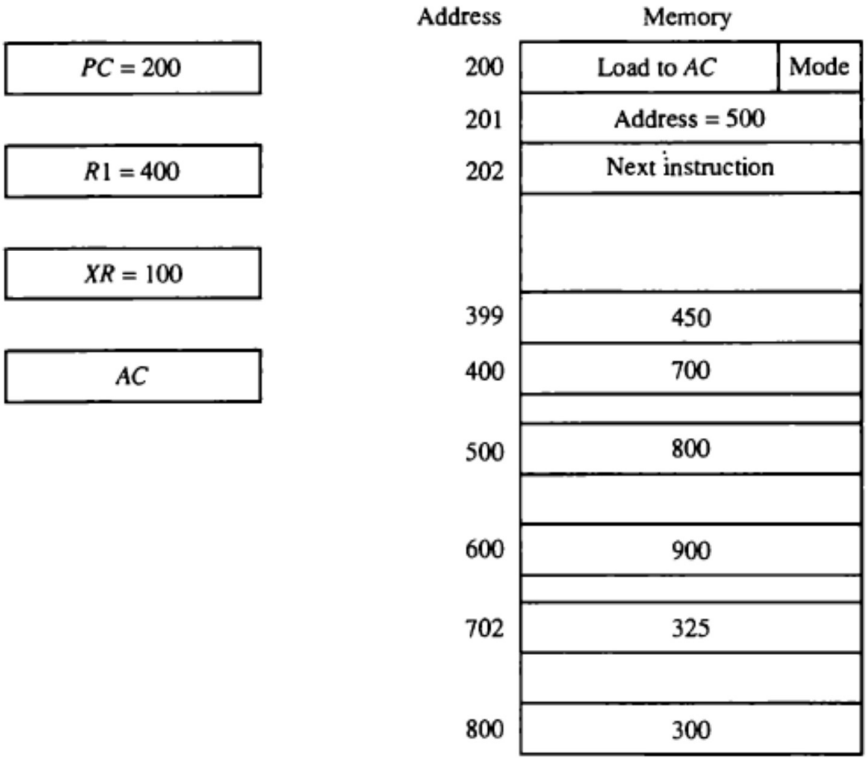

Figure 1

Table 1

Mode	Algorithm	Principal Advantage	Principal Disadvantage
Immediate	Operand = A	No memory reference	Limited operand magnitude
Direct	EA = A	Simple	Limited address space
Indirect	EA = (A)	Large address space	Multiple memory references
Register	EA = R	No memory reference	Limited address space
Register indirect	EA = (R)	Large address space	Extra memory reference
Displacement	EA = A + (R)	Flexibility	Complexity
Stack	EA = top of stack	No memory reference	Limited applicability

Relative Addressing A + (PC)

Table 2

Addressing Mode	Effective Address	Content of AC
Immediate Operand		
Direct Addressing		
Indirect Addressing		
Relative Addressing		
Indexed Addressing		
Register		
Register Indirect		