Write a CPU emulator software that support a basic instruction set (15 instructions) given below. Assume that the computer has 256 bytes of available memory (**M**) initially set to zero. Your emulator should load a program code from a text file. For the simplicity you can store the program code in any data type you like. The use of your emulatior is like:

In Java: ./java Midterm_YourStudentId program.txt
In C : ./ Midterm_YourStudentId.exe program.txt

Following example code is an app that can compute the sum of the numbers between 0 and 20. Your emulator must execute this sample code at minimum. Note that I may test your emulator with any code that supported by the instruction set. You can implement your code in Java or C. Assuem that initially all flags are set to zero.

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%A Hello world app that computes the sum of the numbers between 0 to 20

0   START
1   LOAD 20
2   STORE 200
3   LOAD 0
4   STORE 201
5   STORE 202
6   CMPM 200
7   CJMP 15
8   LOADM  202
9   ADDM 201
10  STORE 202
11  LOADM 201
12  ADD 1
13  STORE 201
14  JMP 6
15  LOADM 202
16  DISP
17  HALT
```

Instruction	Short description	Description
START	Start execution	Starts the program execution
LOAD X	Load immediate value	Load immediate value X to AC Ex: LOAD 25 means AC=25
LOADM M[X]	Load a memory value	Load memory value stored at M[X] to AC
STORE X	Store a value	Store value in AC to memory location M[X] Ex: STORE 730 means M[730]=AC
CMPM M[X]	Compare	If the value in AC is greater than value in M[X] then set **F** flag to 1 If the value in AC is less than value in M[X] then set **F** flag to -1 If the value in AC is equal to value in M[X] then set **F** flag to 0
CJMP X	Conditional Jump	Update the PC with X if the F flag value is positive
JMP X	Unconditional Jump	Update the PC value with X Ex: JMP 114 PC=114
ADD X	Immediate Addition	Add immediate value of X to AC Ex: ADD 67 means AC=AC+67
ADDM M[X]	Addition with memory	Add Memory value of M[X] to AC Ex: ADDM 180 means AC=AC+M[180]
SUBM M[X]	Subtraction with memory	Subtract Memory value of M[X] from AC Ex: SUBM 150 means AC=AC-M[150]
SUB X	Immediate Subtraction	Subtract immediate value of X from AC Ex: SUB 75 means AC=AC-75
MUL N	Immediate Multiplication	Multiply AC with immediate value of N Ex: MUL 4 means AC=AC×N
MULM N	Multiplication with memory	Multiply AC with M[N] Ex: MULM 4 means AC=AC×M[4]
DISP	Display	Display the value in AC on screen
HALT	Stop execution	Stop Execution