Mini Project
5th Semester
8085 Emulator

Design and develop a desktop application to make an emulator of 8085.

1. Design and develop a desktop application to emulate the functionality of 8085.

2. You have to implement the following commands:-
   see this for reference:- http://scanftree.com/microprocessor/Instruction-Set-In-8085
   Load and Store - MOV , MVI , LXI , LDA , STA , LHLD , SHLD , STAX , XCHG
   Arithmetic - ADD , ADI , SUB , INR , DCR , INX , DCX , DAD , SUI
   Logical - CMA , CMP
   Branching - JMP , JC , JNC , JZ , JNZ
   One Additional command SET should be made to set data into valid memory locations (Eg - SET 2500,0A).

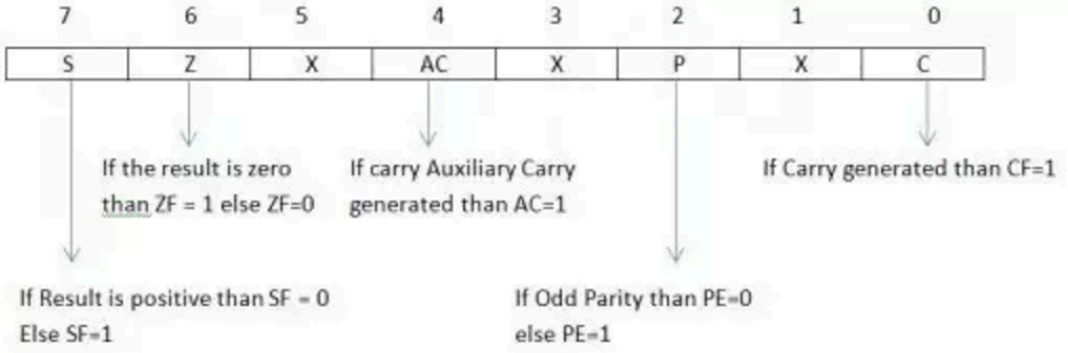
3. You have to also implement a debugger with the following commands:-
   1. **break** or **b** `line no`:- It will set break point on given line number.
   2. **run** or **r** :- Run the program until it ends or breakpoint is encountered.
   3. **step** or **s** :- It will run the program one instruction at a time.
   4. **print** or **p**:- It prints the value of register or memory location. for ex p A will print the value of register A. p x2500 will print the value at memory location x2500 if any.
   5. **quit** or **q**:- quits the debugger.
   6. **help**:- will show all the commands of debugger.

4. User should be able to do the following:-
   1. User should be able to take input from a file having the 8085 program.
   2. User should also be able to write program on terminal (command prompt) and it will run after giving EOF as input.
   3. The software should output the value of the followings, if 8085 program is correct:-
      The program will display contents of Registers A,B,C,D,E,H,L , flag Registers and used memory locations only after the execution of the program.
   4. If debugger is on, it will run the program upto the break point.

5. User should be able to take input from a file having the 8085 program.
   The user should be able to pass the program file name/location to your software as command line argument. The software should read the file throw errors if the file has some (syntax or semantic error) otherwise run the file and output the result.

6. User should also be able to write program on terminal (command prompt) and it will run after giving EOF as input.
   If there are no command line arguments than user can input on the CLI (Command Line Interface). User can input the program and your software will give the output if the whole program is correct otherwise throw an error.

7. The software should output the value of the followings, if 8085 program is correct:-
   The program will display contents of Registers A,B,C,D,E,H,L , flag Registers and used memory locations only after the execution of the program.
   8085 have 7 registers A,B,C,D,E,H,L and 5 flag registers which are following:-



It should print all registers value after execution, also all flag register and all used memory values.

8. If debugger is on, it will run the program upto the break point.
   You can pass the --debugger argument with your program to run it in debugging mode and should have the commands mentioned above, this exercise will also help you to understand how debugger works. [see:- https://www.tutorialspoint.com/gnu_debugger/gdb_commands.htm].

9. General Instructions

1. Use any object oriented language for the implementation.
2. The system should compile on windows and linux both.
3. Modular code will be given extra marks.
4. For creating design use Umbrello UML or Argouml.