Assignment 6
Virtual Machine

Note: All code must be compilable and executable on Windows systems.
Code that does not compile will receive 0 marks. There will be no evaluations. C/C++ and JAVA will be accepted.

Your compiler for the language JAVA-- is now complete. Your next task is to develop a virtual machine to run the compiled machine code that your compiler generates for a program in JAVA--.

Since the output of your Translator was three-address code, you must first convert it to machine code instead. This is a trivial conversion, as machine code is directly translatable, line by line, to TAC (and vice versa).For this, you will write a simple TAC to MC converter. Its job would be to convert the TAC line by line, by simply reordering the statements and using opcodes.

Your VM will then take this machine code as input, and execute it, similar to the way you would run regular C code on a terminal.

The following functionalities must be implemented:

- input (of integers only)
- output (of integers only)
- conditions
- loops
- arithmetic expressions

Requirements:

- A test file that successfully runs on your compiler. The file should contain a loop, a condition, input, output, and a mathematical expression. Name this *test.cmm*
- Complete code of your project up till this point, which will generate, in addition to the previous phases' requirements, the following text files:
- *machine-code.txt*: The machine code generated for any JAVA-- code provided as input

This will be a continuation of Phase 5. The input will still be a .cmm file containing JAVA-- code. Your compiler must run the lex first, and use the freshly generated output to subsequently run the parser/translator, and the generated machine code will then be executed by the virtual machine. Do not submit an isolated VM with static *words.txt* and *machine-code.txt* files. Such submissions will not be checked.

BONUS: Nested conditionals & loops, and functions, string and character printing.

Interface:

A main program that takes ask for file name on console. (If the file name is hardcoded in the code it will result in deduction of half marks of assignment.) Display a proper massage on console that asks for file name, passing file name in argument of main function will also be considered wrong.
Make sure you follow all given instructions, and name the files as instructed. **Read the instruction carefully while implementing your assignment. Unnecessary questions which have already been instructed here would not be answered. Also, don't send me queries to check if output is correct. Only the submission on slate will be considered.**

Submission Instructions:

Submit files unzipped
Do not submit executables.

This deliverable will be marked without an evaluation, so make sure the code is compilable ***ON Windows****.*

There will be zero tolerance for plagiarism. Your assignments will be checked far more thoroughly than you are anticipating. Once detected, no appeals for removal of plagiarism will be entertained.