Northern Michigan University (Marquette Co, MI)
CS 470-01-26W: Artificial Intelligence

Program 5
Due: Wednesday 22 April 2026 9:00 A.M. EDT

Automated Theorem Proving

Create a folder called "PG5" in the top level of your CS470-01-26W folder. Place all files pertaining to this assignment into the top level of your PG5 folder. Place a (possibly empty) file called "DONE" into this folder when you are ready to have your programs graded. The only files you need to turn in are the .py files. Please don't turn in any files other than these!!

Using the algorithm designed in class, given a set of logical premises and a conclusion determine whether the conclusion follows from the premises.

Logical variables will be a single uppercase letter A through Z. There can never be more than 26 variables. (I doubt I will use anywhere near that many when I test it.)

Ands: (P^Q)

Ors: (PvQ)

Nots: ~P

Ands and ors will ALWAYS be enclosed in parentheses. You do not need order of operations or anything like that.

Ask the user to enter premises one at a time on different lines, entering a blank when done. Then ask the user for a conclusion. You will then print whether the conclusion is provable from the premises.

You may assume the input is formatted correctly and that there are no spaces or extraneous characters anywhere.

Example:

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Enter a premise:  (~PvQ)
Enter a premise:  ((~QvR)^P)
Enter a premise:
Enter conclusion:  R

The conclusion can be derived from the premises.
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