Won Yong Ha and Nicklaus Palmer

Professor Amr Sabry

14 December 2015

SAT Solver

1. Read the file of the CNF form

   The file should be erased the lines before _ cnf _ _

2. Separate the variable, line number and data

   Save the number of variable as one variable

   Save the data as other variable

3. Separate the data by line first

   Using “Clause class”, a function separates line from data. Each line is one dataset.

   Clause:

   a. List of Variable

4. Separate each line’s variable

5. Using “Variable class”, a function separates variables from each line.

   Variable:

   a. String value for name

   b. Boolean value for calculating and changeable variable

   c. Boolean value for whether is negative or positive

      i. Negative: False; Positive; True

6. Making key lists for solution.

   keyList: List of Variable(LoV)

7. Using Algorithm
8. The function uses recursion.
    a. First task is declaring the integer variable to recognize which position the function is changing now.
    b. Second task is whether the keyList is right solution of the data. If it is true, then return false. If it is not true, then go to next step.
    c. Third task is checking the position variable is not exceeding the length of keyList. If it is exceed, the function returns False. If it is not, then to next step.
    d. Fourth task is declaring a List of Variable that copy of the original keyList.
    e. Fifth task is changing the copy first LoV's variable.
        i. True -> False
        ii. False -> True
    f. Final task is put the changes keyList to the function and write operator "or". And put the original keyList to the function.
9. Printing whether the solution is exist or not.

My partner Nicklaus Palmer did most of initializing part. He suggested about the separating data, Clause class, and Variable class. Then I suggested the major algorithm that used the recursion. Then I made the presentation. He did pretty well on the project.