

## Homework 6 . Logic Programming

**Submit your solution to Blackboard by 11:59pm of Thur Apr 30 .**

1. List a) the name(s) of people who have contributed to your solution of this homework, and b) their contribution (briefly). If you worked by yourself, the answer of this question would be "N.A." Note the answer of this question is worth of 5% of this homework.
2. What methodology is used to model (solve) a problem using logic programming?
3. How to represent a binary tree using *terms* in logic programming?
4. Solve the *term constraint*  $f(X, Y, g(a)) = f(g(Y), Z, X)$ . Show steps.
5. Write rule(s) to define the predicate `length(L, X)` denotes that the length of a list `L` is `X`.
6. Write a SPARC program (based on the example given in the class) to define the following two relations
  - (a) `sister(X, Y)` which holds if `X` is sister of `Y`.
  - (b) `grandfather(X, Y)` which holds if `X` is the grand father of `Y`.

The online SPARC environment is at <http://wave.ttu.edu>, and the SPARC manual is at <https://bit.ly/34nbkgl>.

Your program should be able to answer queries about sister and grand father. Submit your program as text file to Blackboard with name "Q6.sparc".