CSc600 – Homework: Prolog 1 **Dr. Jozo Dujmović**

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1. For your family (or any other real or hypothetical family) write a PROLOG "family.pl" program that includes the following facts:

- is_male(NAME).
- is_female(NAME).
- is_parent_of(PARENT,CHILD).

Add to these facts the following inference rules:

- mother(MOTHER, CHILD)
- father(FATHER, CHILD)

- sibling1(NAME1, NAME2) (1 parent in common)
- brother1(NAME1, NAME2) (1 parent in common)
- sister1(NAME1, NAME2) (1 parent in common)

- sibling2(NAME1, NAME2) (2 parents in common)
- brother2(NAME1, NAME2) (2 parents in common)
- sister2(NAME1, NAME2) (2 parents in common)

- cousin(NAME1, NAME2)
- uncle(UNCLE, CHILDNAME)
- aunt(AUNT, CHILDNAME)
- grandparent(GRANDPARENT, GRANDCHILD)
- grandmother(GRANDMOTHER, GRANDCHILD)
- grandfather(GRANDFATHER, GRANDCHILD)
- grandchild(GRANDCHILD, GRANDPARENT)

- greatgrandparent(GREATGRANDPARENT, GREATGRANDCHILD)

- ancestor(ANCESTOR, CHILDNAME)

Show the results of your program for each of inference rules.

Note: In various cultures there are different interpretations of family relationships. All such interpretations are equally acceptable, and you may select any one of them.

2. The web site http://www.sfsu.edu/online/clssch.htm has the class schedule of CS classes for the current semester. Write a PROLOG program "schedule.pro" that includes the following facts:

- teaches(INSTRUCTOR, CLASS).
- freshman(CLASS).
- sophomore(CLASS).
- junior(CLASS).
- senior(CLASS).
- morning(CLASS).
- afternoon(CLASS).
- tth(CLASS).
- mwf(CLASS).

Add to these facts the following inference rules:

- teaches_freshman(INSTRUCTOR)
- teaches_sophomore(INSTRUCTOR)
- teaches_junior(INSTRUCTOR)
- teaches_senior(INSTRUCTOR)
- teaches_morning(INSTRUCTOR)
- teaches_afternoon(INSTRUCTOR)
- teaches_whole_day(INSTRUCTOR)
- works_mwf(INSTRUCTOR)
- works_tth(INSTRUCTOR)
- teaches_three_classes(INSTRUCTOR)

Show the results of your program for each of inference rules.

Note: The list of facts must contain enough data to illustrate the above rules. Such a list may contain a subset of courses that are actually offered by the CS Department.