

# Logic Programming

## Assignment 1

**Due: Next section** (one night before if you submit by email).

- Download the x86-32bit SWI-Prolog from the following link, then install it.
  - <http://www.swi-prolog.org/>
- Download SWI editor from the following link, then install it .
  - [Download](#)
- Program the following problem then show a running version to the lab instructor.

**(10 Points) Suppose someone has already written Prolog clauses that define the following relationships:**

```

father(X, Y)      /* X is the father of Y */
mother(X, Y)     /* X is the mother of Y */
male(X)          /* X is male */
female(X)        /* X is female */
parent(X, Y)     /* X is a parent of Y */
diff(X, Y)       /* X and Y are different */

```

**Write Prolog clauses to define the following relationships:**

```

is_mother(X)     /* X is a mother */
is_father(X)     /* X is a father */
is_son(X)        /* X is a son */
sister_of(X, Y)  /* X is a sister of Y */
grandpa_of(X, Y) /* X is a grandfather of Y */
sibling(X, Y)    /* X is a sibling of Y */

```

**For example, we could write a rule for aunt, provided we were supplied with (or wrote) rules for female, sibling, and parent.**

```
aunt(X, Y) :- female(X), sibling(X, Z), parent(Z, Y).
```

**This could also be written:**

```
aunt(X, Y) :- sister_of(X, Z), parent(Z, Y).
```

***hint: you can use the sister\_of rule within chapter 1 context.***