There are two questions in this homework.

(1) (4.5 points). What is your favorite topic or algorithm among the topics which we discussed in this class? Again, suppose you have a sibling who is 15 years old. Write your explanation about the topic to your sibling as one page.

(2) (5 points). Prolog exercise.

The following graph shows some part of the parent relationship. For example, aba is a parent of bill and brown.
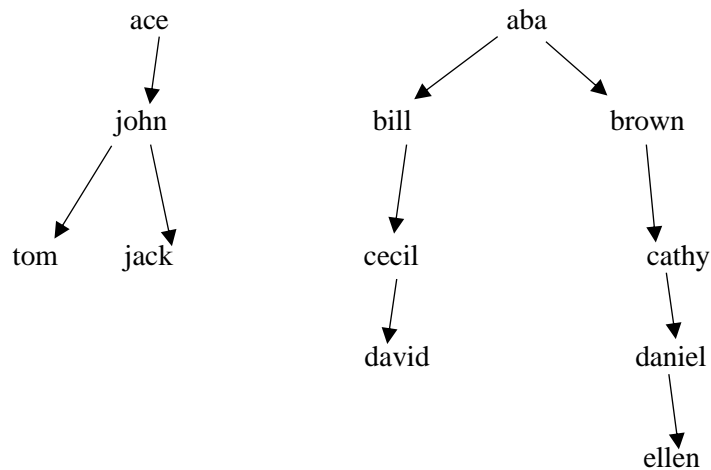
(2-1). Write a Prolog program to include the above information and save it as **relatives.pl.**
Add the followings into relatives.pl.

wife(cecil, jack).
male(jack).
female(cecil).
male(bill).
male(john).
male(ace).
male(david).
female(aba).
male(brown).
female(cathy).
male(daniel).
female(ellen).
male(tom).

(2-2) In **relatives.pl** file, write and add the following rule.

ancestor(X, Y) : X is an ancestor of Y

Run ancestor(brown, X). Submit <u>all </u>generated result for X by running your program.

(2-3) In **relatives.pl** file, write and add the following rule.

descendent(X,Y): X is a descendent of Y

Run descendent(david, X). Submit <u>all</u> generated result for X by running your program.

(2-4) In **relatives.pl** file, write and add the following rules.

fatherinlaw(X,Y): X is a fatherinlaw of Y

Run fatherinlaw(X, Y). Submit <u>all</u> generated result for X and Y by running your program.

(2-5) In **relatives.pl** file, write and add the following rules.

niece(X,Y): X is a niece of Y

Run niece(X, Y). Submit <u>all</u> generated result for X and Y by running your program.

If you need an operation **not**, use the operator "**not**" (\==), like X\==Y.

You need to submit <u>a printed source program and printed output </u>as well as <u>your source code</u> on WesternOnline dropbox.