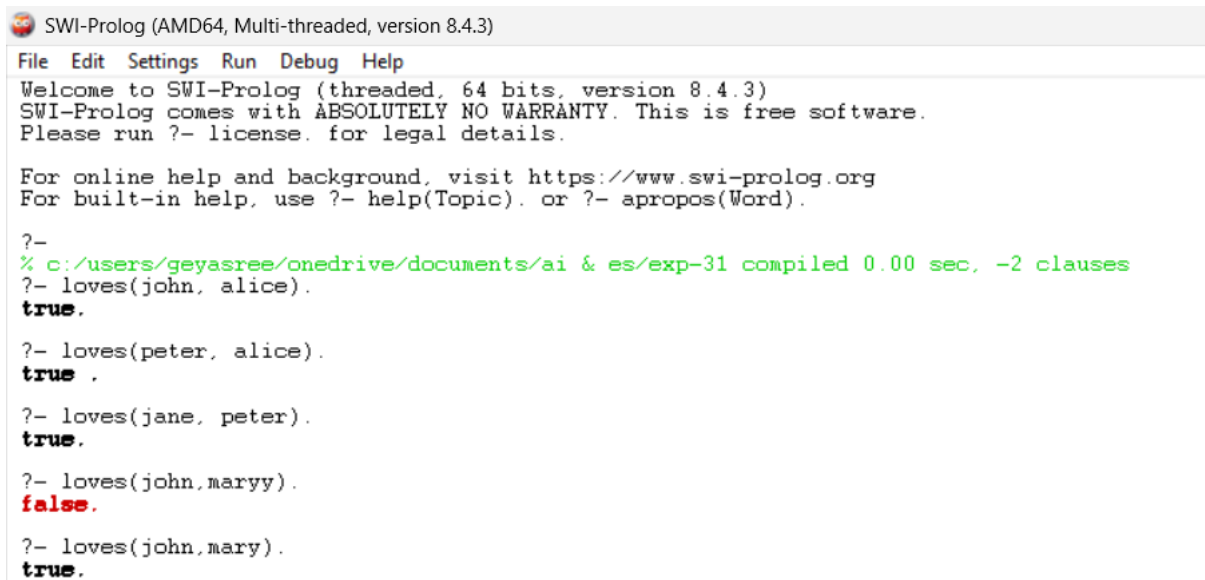


## Prolog programs – Day 4

1. Consider a simple knowledge base describing who loves whom. Define the following relationships in Prolog and write a query to find out who loves someone named "Alice."

- a) loves(john, mary)
- b) loves(jane, peter)
- c) loves(peter, alice)
- d) loves(john, alice).



```
SWI-Prolog (AMD64, Multi-threaded, version 8.4.3)
File Edit Settings Run Debug Help
Welcome to SWI-Prolog (threaded, 64 bits, version 8.4.3)
SWI-Prolog comes with ABSOLUTELY NO WARRANTY. This is free software.
Please run ?- license. for legal details.

For online help and background, visit https://www.swi-prolog.org
For built-in help, use ?- help(Topic). or ?- apropos(Word).

?-
% c:/users/geyasree/onedrive/documents/ai & es/exp-31 compiled 0.00 sec, -2 clauses
?- loves(john, alice).
true.

?- loves(peter, alice).
true.

?- loves(jane, peter).
true.

?- loves(john,maryy).
false.

?- loves(john,mary).
true.
```

2. Write a Prolog program containing facts related to following predicates
  - a) Location (city, state)
  - b) Stays (person, city)
  - c) Display: list of persons, state and city
  - d) Given person, find the state in which he is staying.

```
SWI-Prolog (AMD64, Multi-threaded, version 8.4.3)
File Edit Settings Run Debug Help
Welcome to SWI-Prolog (threaded, 64 bits, version 8.4.3)
SWI-Prolog comes with ABSOLUTELY NO WARRANTY. This is free software.
Please run ?- license. for legal details.

For online help and background, visit https://www.swi-prolog.org
For built-in help, use ?- help(Topic). or ?- apropos(Word).

?-
% c:/users/geyasree/onedrive/documents/ai & es/exp-32 compiled 0.00 sec, -2 clauses
?- location(hyderabad,telangana).
true.

?- stays(sita,pune).
true.

?- display(Person, City, State).
Person = ravi,
City = chennai,
State = tamilnadu .
```

3. Write a Prolog program that answers about family members and relationships. Include predicates & clauses which defines sister, brother, father, mother, Grandchild, Grandfather and uncle. The program should be able to answer question such as following :
- a) Father(X, bob)
  - b) Grandson(X,Y)
  - c) Uncle (bill, Sue)
  - d) Mother (marry, X).

```
SWI-Prolog (AMD64, Multi-threaded, version 8.4.3)
File Edit Settings Run Debug Help
Welcome to SWI-Prolog (threaded, 64 bits, version 8.4.3)
SWI-Prolog comes with ABSOLUTELY NO WARRANTY. This is free software.
Please run ?- license. for legal details.

For online help and background, visit https://www.swi-prolog.org
For built-in help, use ?- help(Topic). or ?- apropos(Word).

?-
% c:/users/geyasree/onedrive/documents/ai & es/exp-33 compiled 0.00 sec, -2 clauses
?- parent(bob,sam).
true.

?- parent(linda,alice).
true.

?- parent(john,alice).
true.

?- male(sam).
true.

?- male(john).
true.

?- female(susan).
true.

?- female(alice).
true.

?- male(sam).
true.

?- father(X,Y).
X = john,
Y = bill
```

4. Write simple fact for the statements using PROLOG

- a) Every boy or girl is a child
- b) Every child gets a doll or a train or a lump of coal
- c) No boy gets any doll
- d) no child who is good gets any lump of coal
- e) Jack is a boy.

```
SWI-Prolog (AMD64, Multi-threaded, version 8.4.3)
File Edit Settings Run Debug Help
Welcome to SWI-Prolog (threaded, 64 bits, version 8.4.3)
SWI-Prolog comes with ABSOLUTELY NO WARRANTY. This is free software.
Please run ?- license. for legal details.

For online help and background, visit https://www.swi-prolog.org
For built-in help, use ?- help(Topic). or ?- apropos(Word).

?-
% c:/users/geyasree/onedrive/documents/ai & es/exp-34 compiled 0.00 sec, -2 clauses
?- gets(arshad,doll).
true .

?- gets(arshad,train).
true .

?- gets(arshad,coal).
true ■
```