!!! INSTALL SWI-PROLOG IF NOT INSTALLED, DO THIS BY RUNING FOLLOWING COMMAND IN TERMINAL:

snap install swi-prolog

Experiment 9a - Factorial code in PROLOG.

1. Open a text editor and paste following code within it:

factorial(0,1). factorial(N,X):-

factorial(N1,X1),

N is N1+1,

X is X1*N.

- 2. Save this code as fact.pl
- 3. Launch SWI-Prolog application.
- 4. Look for **File > Consult** on toolbar.



- 5. Select the **fact.pl** file you saved earlier.
- 6. Run **factorial**(7,**X**). within SWI-Prolog terminal like so.

```
SWI-Prolog (AMD64, Multi-threaded, version 9.2.3)

File Edit Settings Run Debug Help

Welcome to SWI-Prolog (threaded, 64 bits, version 9.2.3)

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/Andy/Desktop/fact.pl compiled 0.00 sec, 2 clauses
?- factorial(7,%).

X = 5040
```

7. From above step, replace 7 with any number you want, and you're done!

Experiment 9b – Fibonacci code in PROLOG.

1. Open a text editor and paste following code within it:

```
fibonacci(1,1).
```

fibonacci(2,1).

fibonacci(N,X):-

N>=3,

N1 is N-1,

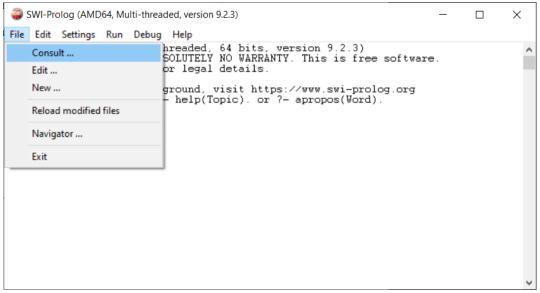
N2 is N-2,

fibonacci(N1,X1),

fibonacci(N2,X2),

X is X1+X2.

- 2. Save this code as **fibo.pl**
- 3. Launch SWI-Prolog application.
- 4. Look for **File > Consult** on toolbar.



- 5. Select the **fibo.pl** file you saved earlier.
- 6. Run **fibonacci**(7,**X**). within SWI-Prolog terminal like so.

```
SWI-Prolog (AMD64, Multi-threaded, version 9.2.3)

File Edit Settings Run Debug Help

Welcome to SWI-Prolog (threaded, 64 bits, version 9.2.3)

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/Andy/Desktop/fibo.pl compiled 0.00 sec, 3 clauses
?- fibonacci(7, %).

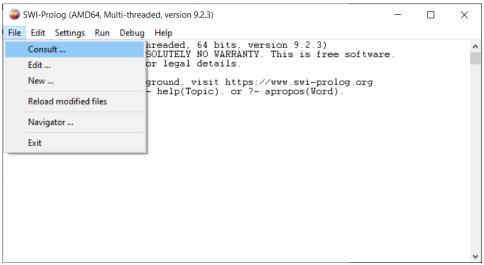
% = 13
```

7. From above step, replace 7 with any number you want, and you're done!

Experiment 10 – Tower of Hanoi in PROLOG.

Open a text editor and paste following code within it: move(1,X,Y,_): write('Move disk from '), write(X), write(' to '), write(Y), nl. move(N,X,Y,Z): N > 1,
 M is N-1,
 move(M,X,Z,Y),
 move(1,X,Y,_),
 move(M,Z,Y,X).
 tower_of_hanoi(N): move(N,'A','C','B').fibonacci(N1,X1),
 fibonacci(N2,X2),
 X is X1+X2.

- 2. Save this code as **tower.pl**
- 3. Launch SWI-Prolog application.
- 4. Look for **File > Consult** on toolbar.



- 5. Select the **tower.pl** file you saved earlier.
- 6. Run tower of hanoi(3). within SWI-Prolog terminal like so.

```
SWI-Prolog (AMD64, Multi-threaded, version 9.2.3)

File Edit Settings Run Debug Help

Welcome to SWI-Prolog (threaded, 64 bits, version 9.2.3)

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/Andy/Desktop/exp9.pl compiled 0.00 sec, 3 clauses
?- tower_of_hanoi(3).

Move disk from A to C

Move disk from A to B

Move disk from A to B

Move disk from B to A

Move disk from B to C

Move disk from B to C

Move disk from A to C
```

7. From above step, replace 3 with any number you want, and you're done!