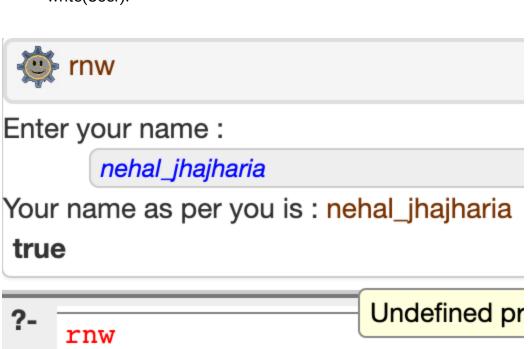
Artificial Intelligence

Nehal Jhajharia (U20CS093) Lab Assignment 3

1. Which functions are used to take input and show output in PROLOG? Write a program to input your name from the keyboard and display it on screen. Solution:

```
rnw :-
    write('Enter your name: '),
    read(User), process(User).

process(User) :-
    write('Your name as per you is : '),
    write(User).
```



- 2. Write a PROLOG program for solving the following:
- i) Implement a Menu Driven Calculator having functionalities like: Addition, Subtraction, Multiply, Divide. Take two variables, input it from the keyboard then display the result in third variable on screen.

Solution:

```
readUser:-
       write('Choose from the following: '),nl,
       write('1. Addition'),nl,
       write('2. Subtraction'),nl,
       write('3. Multiplication'),nl,
       write('4. Division'),nl,
       read(UserOP),
       write('Enter first operand:'),
       read(User1),
       write('Enter second operand:'),
       read(User2),
       calculator(UserOP, User1, User2).
calculator(Op,X,Y):-
       Op =:= 1,
       Ans is X + Y,
       write(Ans).
calculator(Op,X,Y):-
       Op =:= 2,
       Ans is X - Y,
       write(Ans).
calculator(Op,X,Y):-
       Op =:= 3,
       Ans is X * Y,
       write(Ans).
```

```
calculator(Op,X,Y):-
       Op =:= 4,
       Ans is X / Y,
       write(Ans).
```



readUser

Choose from the following:

- 1. Addition
- 2. Subtraction
- 3. Multiplication
- 4. Division

Enter first operand:

5

Enter second operand:

3

8

true

100 1,000 Stop Next 10

?readUser ii) Find maximum and minimum of 3 numbers, read numbers from keyboard. Solution:

```
readUser:-
      write('Enter first number:'),nl,
       read(User1),
       write('Enter second number:'),nl,
       read(User2),
       write('Enter third number:'),nl,
       read(User3),
       calMax(User1, User2, User3),
       calMin(User1, User2, User3).
calMax(X,Y,Z):-
      X > Y, X > Z
       Ans is X,
      write('The maximum of three is:'),
      write(Ans),nl.
calMax(X,Y,Z):-
      Y > X, Y > Z
       Ans is Y,
      write('The maximum of three is:'),
      write(Ans),nl.
calMax(X,Y,Z):-
      Z > X, Z > Y
      Ans is Z,
      write('The maximum of three is:'),
      write(Ans),nl.
calMin(X,Y,Z):-
      X < Y, X < Z,
       Ans is X,
       write('The minimum of three is:'),
       write(Ans),nl.
```

```
calMin(X,Y,Z):-
    Y < X, Y < Z,
    Ans is Y,
    write('The minimum of three is:'),
    write(Ans),nl.
calMin(X,Y,Z):-
    Z < Y, Z < X,
    Ans is Z,
    write('The minimum of three is:'),
    write(Ans),nl.
     readUser
Enter first number:
Enter second number:
Enter third number:
The maximum of three is: 7
The minimum of three is: 2
 true
                          1,000
                  100
                                     Stop
  Next
           10
 ?-
      readUser
```

- iii) A traffic signal system has rules as follows:
- a. ODD date number plate vehicles are eligible for Monday, Wednesday and Friday.
- b. EVEN number plate vehicles are eligible for Tuesday, Thursday and Saturday.
- c. On Sunday all vehicles are eligible for running in traffic. Read a vehicle number from the keyboard & display its eligible days.

Solution:

```
readUser :-
    write('Number plate :'),nl,
    read(UserInput),
    days(UserInput).

days(X) :-
    X mod 2 =:= 1,
    write('Monday, Wednesday, Friday, Sunday.'),nl.

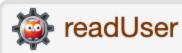
days(X) :-
    X mod 2 =:= 0,
    write('Tuesday, Thursday, Saturday, Sunday.'),nl.
```



Number plate:

1234

Tuesday, Thursday, Saturday, Sunday. **true**



Number plate:

1243

Monday, Wednesday, Friday, Sunday.

true

Next | 10 | 100 | 1,000 | Stop

?- readUser