

**UCT31021 – PRACTICAL FOR ARTIFICIAL INTELLIGENCE**  
**DEPARTMENT OF ICT**  
**FACULTY OF TECHNOLOGY**  
**SOUTH EASTERN UNIVERSITY OF SRILANKA**

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**Labsheet: 01**

**Date:** 10.07.2024

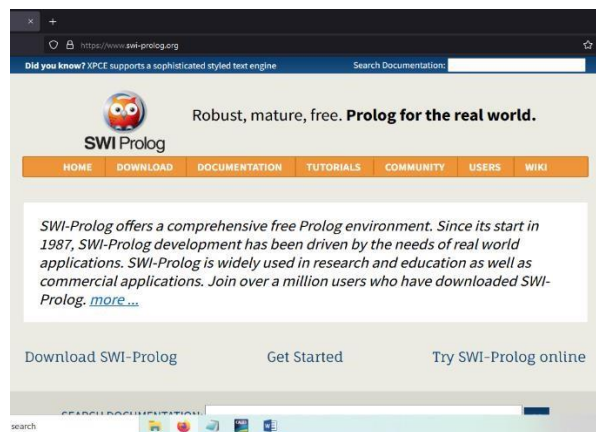
**Title :** Introduction to PROLOG

**Aims :**

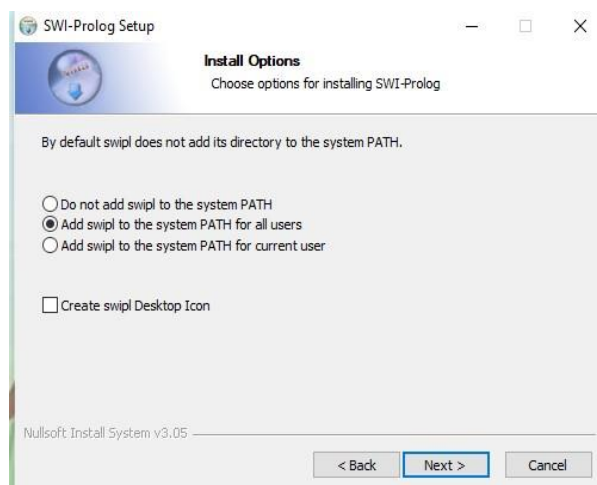
- To introduce main components in logic Programming
- To get familiar with Data objects.
- Read user input.

**Task 01: Download setup file and installation.**

1. Visit the official website - <https://www.swi-prolog.org/>



2. Modify the system path by adding swipl location.



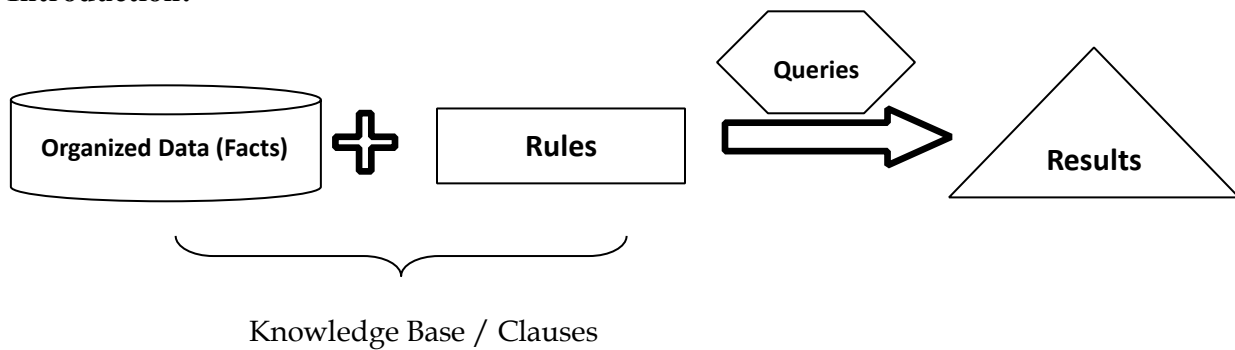
### 3. Prolog console

```
SWI-Prolog (AMD64, Multi-threaded, version 8.4.2)
File Edit Settings Run Debug Help
Welcome to SWI-Prolog (threaded, 64 bits, version 8.4.2)
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).

?-
```

#### Introduction:



#### Example:

Fact	Rules	Query
Apple is a fruit	X is eatable if it is a fruit.	Is apple a fruit?
Tom is a cat	Tom is hungry if he is searching for food.	Is tom a cat?
Lilli is happy	Lilli is happy if she is dance.	Is lilli happy?

#### Task 02: Writing on the Console

1. Write a statement to Hello World.
2. Display your name and address in multiline.
3. Identify the currently working directory by "pwd." Predicate
4. Use "halt." predicate or Ctrl+d to stop working of the PROLOG console.

#### Task 03: Creating Knowledgebase

1. Create a knowledgebase and name it as test.pl in the working directory.
2. Insert the following code and save it.  

```
Welcome :- write('Hello world.').
```
3. Type "welcome." and observe the outcomes on the consoler.

## Task 04: Facts, rules and queries

Some syntax:

if	:-
and	,
or	;
not	not

1. Write down the relationship of given facts and rules.

- I. John is fat.
- II. Dog is brown.
- III. Julian is friend with bob.
- IV. Elephant is bigger than horse
- V. Donkey is bigger than dog.
- VI. Malki likes roja.
- VII. Everyone likes roja.
- VIII. John likes everyone.
- IX. John likes roja or john likes mary.
- X. John does not like pizza.

2. Create new knowledgebase file. Add following facts. Load the file into the PROLOG console.

fruit(apple).

fruit(mango).

fruit(banana).

fruit(orange).

- I. Save the file and load into the PROLOG consoler.
- II. Check whether apple is a fruit. Use "fruit('apple')".
- III. Check whether pencil is a fruit.
- IV. Display available fruits which stored in the knowledgebase.

### Task 05: Data Objects

Data Objects	description	Example
Numbers	Integers and floats value	6, 4.32, -7.91
Atoms	Atoms do not have any numerical value. They can be any names/objects.	jackson, x64_yz, 'Jackson'
Variable	Start with capital letter and used it to hold a value.	X, Colour, Hi, and _123

1. Create three examples for each data object with different combinations.

### Task06: Read user input.

1. Use *read(VariableName)*. To read an user input.  
Ex: myName :-  
    write('Enter your name: '),  
    read(Name),  
    write(Name).
2. Write a rule to request your name and it will welcome you to the Prolog Programming.  
Output : Enter your name : XXX  
        Welcome XXX to Prolog Programming.

### Practice Question:

1. Create new knowledgebase to display and identify 6 colors.
2. Create a knowledge base to store the following details.

Course code	Subject
CIS 11051	Database Design
CIS 21031	Platform Technology
UTC 31021	AI
CIS 41032	Advanced Database

Ex : CIS 11051 is Database Design.

3. Read user input command to display Student data Object and the student can have name, age, specialization and current\_GPA.

```
?- student.  
Enter name : 'XXX'.  
Enter Age : |: 20.  
Enter Specialization : |: software.  
Enter GPA: |: 3.82.  
student: Name : XXX, Age: 20, Specialization: software, GPA : 3.82  
true.
```