

THINGS TO KNOW:

1. Lab report must contain following sections: (order must be maintained)
 - a) Title /Question
 - b) Theory: The brief overview of the concept /techniques/syntax/technology used in the program
 - c) Code: The complete code
 - d) Output: Screenshot of the output
2. Output screen should be captured (use snipping tool), printed and attached in the report. Other contents can be handwritten or printed.
3. Every source code must include the printing statements to print following information after your main output:

Lab No.:

Name:

Roll No./Section :

4. Contents should be written/printed on single side of A4 sized paper.
5. The works must be submitted within specified deadline.
6. Cover page and index page should be attached in the report appropriately.

Index Page Format (can be printed)

List of Lab Works

Lab No.	Title /Question	Submission Date	Signature	Remarks
1(a)	This is sample	2079/11/12		
1(b)	This is also sample	2078/11/12		

Recommendation for self – study (required for doing Lab works in AI)

Students are recommended to study all the topics and concepts given in syllabus. They are **highly recommended to learn following concepts, language features and technologies:**

- Setting environments for coding in **Python** (install **Anaconda Navigator** or other alternatives)
- Basic language features of Python including *conditional statements, loops, function, recursion, string, list, dictionary, tuple, set, class, object, constructor*, etc.)
- Idea to handle *data structures like stack, queue, priority queue, etc. in Python*.
- Idea to generate random numbers
- Basics of **numpy** library for working with arrays, basics of **pandas** library for working with data frame and csv files.
- Basic idea about **NLTK** library in Python.
- Setting environments for coding in **Prolog** (install **GNU Prolog** or other alternatives and text editors like **NotePad++**, **Sublime Text**, etc.)
- Basic Idea About Prolog Language (What/ When/ Who/ Why)
- Ideas about *Atoms, Variables, Facts, Rules and recursion in Prolog*

Lab works (AI / BSc.CSIT 4th Semester)

1. Program to simulate Simple Reflex Agent for detecting source of water leakage in a house. (Recommended language: Python or C)

Note: Consider the followings while writing the code

- *We need to write code for an agent to detect water leakage in a house*
- *The necessary input will be provided by corresponding sensors but for our convenience we will take such values from user through console.*
- *The rules to be considered are listed below:*
 - *If hall is wet and kitchen is dry then there is leak in bathroom*
 - *If hall is wet and bathroom is dry then there is problem in kitchen*
 - *If window is closed or it is not raining then it is confirmed that water is not from outside.*
 - *If no water from outside and problem is in kitchen then leak is in kitchen.*

2. WAP to implement BFS for a graph. (Recommended Language : Python)
(Note: The graph should be drawn in lab report)
3. WAP to implement Uniform-cost search. (Recommended Language : Python)
(Note: The graph should be drawn in lab report)
4. WAP to implement DFS for a graph (Recommended Language: Python).
(Note: The graph should be drawn in lab report)
5. WAP to implement Depth limited search for a graph (Recommended Language: Python).
(Note: The graph should be drawn in lab report)
6. WAP to implement greedy best first search. (Recommended Language : Python)
(Note: Necessary information should be included in report.)
7. WAP to implement A* search. (Recommended Language : Python)
(Note: Necessary information should be included in report.))
8. WAP to implement Hill Climbing (Steepest Ascent) Search. (Recommended Language : Python)
(Note: Necessary information should be included in report.)

9. WAP to solve any one Cryptarithmic Problem (like TWO +TWO = FOUR or SEND +MORE = MONEY). (Recommended Language : Python)