NATIONAL UNIVERSITY OF COMPUTER & EMERGING SCIENCES
FAST - PESHAWAR CAMPUS

Subject: AL 2002 - Artificial Intelligence Lab
Instructor: Muhammad Saood Sarwar

Lab Task: Implementing a Simple Reflex Agent in Prolog

1   Objective

The objective of this lab task is to understand how a Simple Reflex Agent works and implement one using Prolog.

2   Task Description

A Simple Reflex Agent makes decisions based only on current percepts without maintaining any internal state. You are required to implement a **Traffic Light Controller** in Prolog following these rules:

- If the light is **red**, the agent should **stop**.

- If the light is **yellow**, the agent should **slow down**.

- If the light is **green**, the agent should **go**.

3   Implementation Details

- Define a predicate `percept/2` that represents the traffic light color.

- Implement a predicate `action/2` that determines the correct response based on the current light color.

- Test the agent with different traffic light colors.

4   Expected Output

```
?- action(red, Action).
Action = stop.

?- action(green, Action).
Action = go.

?- action(yellow, Action).
Action = slow_down.
```

5 Submission Requirements

- Submit a `.pl` file with your Prolog implementation along with the pdf.

- Include comments explaining the logic of your code.

- Provide at least three test cases demonstrating how the agent responds to different traffic lights.