Artificial Intelligence Assignment – 1

**Name: Saboor Saleem**

**Reg: 221395**

# Alice Chatbot:

ALICE (Artificial Linguistic Internet Computer Entity) is an early chatbot developed by **Dr. Richard Wallace in 1995.** It is based on AIML (Artificial Intelligence Markup Language) and follows a pattern-matching approach to simulate human-like conversations. ALICE influenced many modern chatbots but lacks deep learning capabilities like today's AI models.

**What is pattern matching?**

Pattern matching is a rule-based approach where the chatbot searches for predefined patterns in user input and responds based on those patterns. ALICE uses **AIML (Artificial Intelligence Markup Language)**, which consists of pattern-response pairs.

**How Pattern Matching Works**

1. The chatbot compares the user input with a set of predefined patterns.
2. If a match is found, the corresponding response is given.
3. If no match is found, a default response (like "I don’t understand") is used.

For example, in AIML:

---------------------------------------------------------------------------------------------------------

<category>

<pattern>HELLO</pattern>

<template>Hi there! How can I help you?</template>

</category>

--------------------------------------------------------------------------------------------------------

If the user says **"Hello"**, the bot responds with **"Hi there! How can I help you?"**

**Default Responses (SRAI for Redirection)**

If multiple patterns have the same response, they can redirect to a common answer.

---------------------------------------------------------------------------------------------------------

<category>

<pattern>WHAT IS YOUR NAME</pattern>

<template><srai>WHO ARE YOU</srai></template>

</category>

<category>

<pattern>WHO ARE YOU</pattern>

<template>I am ALICE, your chatbot assistant.</template>

</category>

---------------------------------------------------------------------------------------------------------

* Both **"What is your name?"** and **"Who are you?"** redirect to **"I am ALICE, your chatbot assistant."**
* This avoids duplicate responses.

# Difference from Modern AI Approaches:

1. **Rule-Based vs. Machine Learning**
   * ALICE relies on fixed **rules** (AIML patterns), while modern chatbots (like ChatGPT) use **deep learning models** trained on large datasets.
2. **Limited Understanding vs. Context Awareness**
   * Pattern matching **does not understand meaning**—it just looks for exact or similar word matches.
   * AI models like GPT analyze **context, grammar, and intent**, making responses more natural.
3. **Scalability**
   * ALICE requires **manual updates** for new responses.
   * AI models **learn automatically** from data and improve without manual rule-writing.

**What made ALICE so famous?**

Quite simply, ALICE is one of the **first** of its kind.

In 1995, its inceptor Richard Wallace released ALICE into the wild. Over the years, it has received many updates, primarily due to changes in the coding language that powers the bot.

ALICE has won many awards and is **three times Loebner Prize winner (2000, 2001, 2004)** - an award for accomplished humanoid and talking robots.

**Limitations:**

1. **No Real Understanding** → ALICE only matches text, it doesn't "understand" meaning.
2. **Rigid Responses** → The bot can't generate new responses dynamically.
3. **Scalability Issues** → Manually writing patterns for every possible input is inefficient.

**Testing:**

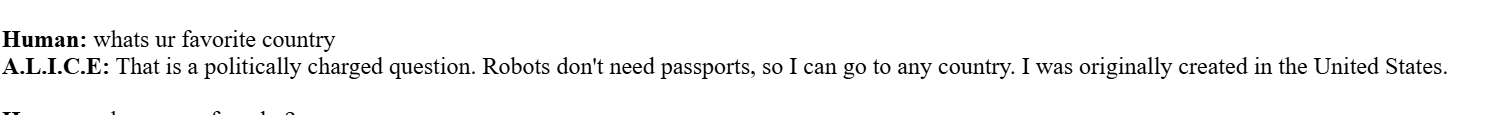
It can give replies to simple questions based on its pattern

A long line of power

AI-generated content may be incorrect.

**A close-up of a white background

AI-generated content may be incorrect.**

****

**A white background with black text

AI-generated content may be incorrect.**

# ALICE has no real-time data access.

So it wont give replies if asked about current state

A close-up of a sign

AI-generated content may be incorrect.

Not giving proper reply of whats asked…

It also doesn’t have memory so it wont remember.A close up of a text

AI-generated content may be incorrect.

A close-up of black text

AI-generated content may be incorrect.

Cannot think like modern day chatbots doesn’t have ability to create response on its own

# Conclusion:

ALICE was a major step in chatbot development, but modern AI chatbots (like ChatGPT) **learn from data, use machine learning, and understand context better**. However, AIML-based bots like ALICE are still useful for **rule-based chat systems**.