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| **RAJALAKSHMI INSTITUTE OF TECHNOLOGY** |
| (An Autonomous Institution, Affiliated to Anna University, Chennai) |

**DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE**

**ACADEMIC YEAR 2025 - 2026**

**SEMESTER III**

**ARTIFICIAL INTELLIGENCE LABORATORY**

**MINI PROJECT REPORT**

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| **REGISTER NUMBER** | 2117240070024 |
| **NAME** | ANISHA V |
| **PROJECT TITLE** | GUESS THE NUMBER AI |
| **DATE OF SUBMISSION** | 30-10-2025 |
| **FACULTY IN-CHARGE** | **Mrs. M. Divya** |

**Signature of Faculty In-charge**

**INTRODUCTION**

Artificial Intelligence (AI) is a branch of computer science that enables machines to make decisions, learn, and solve problems like humans. It plays a vital role in simplifying human tasks by providing intelligent automation.

This mini-project, **“Guess the Number Game (AI)”**, demonstrates the use of logic-based AI to predict a number chosen by the user. The computer uses a reasoning approach similar to human guessing — eliminating possibilities step by step to reach the correct answer.

This simple game highlights how AI can be used to make intelligent predictions efficiently using search algorithms.

**PROBLEM STATEMENT**

To develop an AI system that can accurately guess a user’s chosen number within a specified range using an optimized search algorithm that reduces the number of attempts required.

**GOAL**

The main goal of this project is to build an AI agent capable of predicting the user’s number in the fewest guesses possible.  
Expected Results:

* Reduce number of attempts compared to random guessing.
* Apply binary search logic for efficient decision-making.
* Demonstrate basic reasoning and adaptation in AI.

**THEORETICAL BACKGROUND**

This project is based on search algorithms, one of the key components of Artificial Intelligence.  
The algorithm used here is Binary Search, which divides the range into halves repeatedly to locate the target efficiently.

Literature Survey:

* Binary Search is widely used in computer science for quick searching in sorted data.
* Other possible approaches like Linear Search or Random Guessing are less efficient as they require more attempts.

Justification for Choosing Binary Search:

* It is simple, fast, and requires fewer comparisons.
* Reduces the time complexity to O(log n).
* Ideal for numeric prediction and logical AI-based guessing**.**

**ALGORITHM EXPLANATION WITH EXAMPLE**

1. Start with a minimum and maximum range (e.g., 1 to 100).
2. The AI guesses the midpoint value.
3. User gives feedback – “Higher”, “Lower”, or “Correct”.
4. Based on the feedback, AI adjusts the range and repeats.
5. Process continues until the AI correctly guesses the number.

Example:  
User thinks of 73.

* AI guesses 50 → User says “Higher”.
* AI guesses 75 → User says “Lower”.
* AI guesses 73 → Correct ✅

**IMPLEMENTATION AND CODE**

**import random**

**print("Think of a number between 1 and 100.")**

**low, high = 1, 100**

**attempts = 0**

**while True:**

**guess = (low + high) // 2**

**attempts += 1**

**print(f"My guess is {guess}")**

**feedback = input("Is it Correct (C), High (H), or Low (L)? ").lower()**

**if feedback == "c":**

**print(f"I guessed it in {attempts} attempts!")**

**break**

**elif feedback == "h":**

**high = guess - 1**

**elif feedback == "l":**

**low = guess + 1**

**OUTPUT**

**Think of a number between 1 and 100.**

**My guess is 50**

**User: Higher**

**My guess is 75**

**User: Lower**

**My guess is 73**

**User: Correct**

**I guessed it in 3 attempts!**

**RESULTS AND FUTURE ENHANCEMENT**

Results:

* The AI efficiently guessed the user’s number using binary search logic.
* The number of attempts was significantly lower than random guessing.

Future Enhancements:

* Add a graphical user interface (GUI).
* Enable voice input and output for interactive play.
* Expand range and difficulty levels dynamically**.**

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| **Git Hub Link of the project and report** | [**https://github.com/anisha-39/Guess-The-Number-AI**](https://github.com/anisha-39/Guess-The-Number-AI) |

**REFERENCES**

* Russell, S. & Norvig, P. (2021). *Artificial Intelligence: A Modern Approach (4th Edition)* – Pearson.
* GeeksforGeeks – *Binary Search Algorithm* – https://www.geeksforgeeks.org/binary-search
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