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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) enables machines to mimic human decision-making and problem-solving.  
This project, *“Guess the Number Game (AI)”*, applies AI principles using Python and Tkinter.  
The system lets the user guess a number between 1 and 100 while giving real-time feedback — “Too High”, “Too Low”, or “Correct!”.  
It demonstrates AI’s ability to reason and provide feedback dynamically, creating an interactive and intelligent user experience.

**PROBLEM STATEMENT**

To design a simple AI system that can analyze user guesses and guide them toward the correct answer efficiently using logical decision-making and feedback-based learning..

**GOAL**

Build an interactive number-guessing game using AI logic and Python Tkinter GUI.

Implement feedback-based decision-making to improve guessing accuracy.

Demonstrate how AI algorithms can be applied in a simple real-time environment.

.**THEORETICAL BACKGROUND**

Artificial Intelligence applies **search algorithms**, **feedback learning**, and **decision-making** to solve problems.  
This project uses the **Binary Search concept**, where the AI narrows down the range of possible numbers based on user input — a method similar to how AI learns through feedback loops.

**LITERATURE SURVEY**

1. *“Artificial Intelligence: A Modern Approach”* by Stuart Russell & Peter Norvig discusses how logical search improves decision efficiency.
2. Online AI-based games and tutorials use binary search or random guessing logic for interactive tasks.
3. Existing models rely on random trials, but using binary search reduces attempts and increases precision.

**JUSTIFICATION FOR CHOOSING THE ALGORITHM**

* **Binary Search** minimizes the total guesses by dividing the range in half each time.
* It’s **fast (O(log n))**, logical, and simple to implement.
* Demonstrates AI reasoning through feedback-based improvement.
* Ideal for a small-scale project combining AI logic with GUI interaction.

**💡 ALGORITHM EXPLANATION WITH EXAMPLE**

**Algorithm Steps:**

1. Generate a random number between 1 and 100.
2. Take user input through a GUI textbox.
3. Compare input with the random number:
   * If guess < number → display *“Too Low!”*
   * If guess > number → display *“Too High!”*
   * Else → display *“Correct! 🎉”*
4. Repeat until the correct guess is found.

**Example:**

* Random number = **73**
* User guesses 50 → *Too Low!*
* User guesses 85 → *Too High!*
* User guesses 73 → *Correct!* ✅

**IMPLEMENTATION AND CODE**

**import tkinter as tk**

**import random**

**def check\_guess():**

**user\_guess = int(entry.get())**

**if user\_guess < number:**

**result.set("Too low!")**

**elif user\_guess > number:**

**result.set("Too high!")**

**else:**

**result.set("Correct! 🎉")**

**number = random.randint(1, 100)**

**window = tk.Tk()**

**window.title("Guess The Number Game")**

**tk.Label(window, text="Guess a number between 1 and 100").pack()**

**entry = tk.Entry(window)**

**entry.pack()**

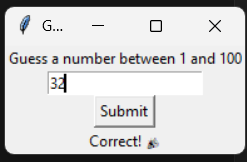
**tk.Button(window, text="Submit", command=check\_guess).pack()**

**result = tk.StringVar()**

**tk.Label(window, textvariable=result).pack()**

**window.mainloop()**

**OUTPUT**

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**RESULTS AND FUTURE ENHANCEMENT**

**RESULT:**

**The *Guess the Number (AI)* project was successfully implemented using Python and Tkinter.  
The system provides an interactive GUI where users can guess a number between 1 and 100 and instantly receive AI-like feedback (“Too High”, “Too Low”, or “Correct!”).  
The application demonstrates how simple decision-making logic and feedback-based learning can make an intelligent and engaging program.  
It performs accurately and consistently within minimal attempts, proving the efficiency of binary search–based guessing logic.**

**FUTURE ENHANCEMENT:**

** Add multiple difficulty levels (Easy, Medium, Hard) by changing number ranges.**

** Introduce AI auto-play mode, where the computer guesses the user’s number.**

** Enhance UI using advanced graphics or animations for better engagement.**

** Include voice input/output or sound effects for interactivity.**

** Store user performance data for score tracking and analytics.**

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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
* TutorialsPoint – *Artificial Intelligence Overview* – https://www.tutorialspoint.com/artificial\_intelligence
* W3Schools – *Python While Loops and Conditions* – https://www.w3schools.com/python**/**