**AI PROJECT SUMMARY**

**MEMORY GAME**

Team Members: Manasi Murarka (J038), Khyaati Nayak (J044), Bharati Panigrahi (J045)

* **OBJECTIVE:**

This game is a remake of the classic Memory game, also known as matching cards game. We tried to make a 2-player game, so that the User and AI can compete against each other. Among the User and AI, the one who gets maximum number of matched cards is declared as the winner.

* **ALGORITHM:**

The main concept of AI behind this game is the use of Knowledge Base. AI uses Knowledge Base to choose cards which increases the chances of winning for AI.

The algorithm for the Memory game is as follows:

1. Choose your grid size
2. A grid of cards of (nxm) dimension is created
3. The base conditions about the game are:
   * + - 1. One card should have only one symbol.
         2. One symbol can be assigned to not more than two cards

These base conditions are then added to Knowledge Base.

1. The user gets the first chance to choose cards.
2. The cards chosen by the User are then added to the Knowledge Base along with its respective symbols.
3. If the cards are matched, the user gets another chance to choose cards and the symbols of the matched cards are displayed on the grid. Also, all the knowledge regarding the matched cards is removed from the Knowledge Base.
4. Else the symbols of the chosen cards and a warning stating ‘UNMATCH’ is displayed, and chance is passed to the other player i.e., AI.
5. Now, AI checks if there is sufficient knowledge in the Knowledge Base, to see if any two cards with the same symbol have already been revealed, if yes it picks those cards, else it picks random cards.
6. Once all the matched pairs of cards are revealed the game is terminated and the winner is declared based on which player found the maximum number of matched cards.