AIML PROJECT

**Title: Simulation of 8-Puzzle Game**

**Questions and Possible Client Answers**

1. **What is your understanding of the 8-puzzle game?**
   * Answer: The 8-puzzle game involves arranging eight numbered tiles on a 3x3 grid in sequential order by sliding tiles into an empty space.
2. **How do you feel about the user interface of the game?**
   * Answer: The interface is intuitive, but it could benefit from visual hints or animations to show the movement of tiles more clearly.
3. **Were the instructions clear on how to play the game?**
   * Answer: Yes, the instructions were clear, but providing examples or a tutorial would make it easier for new users.
4. *Which search algorithm (BFS, DFS, A, Greedy Best-First Search) did you find most efficient during gameplay?* \*
   * Answer: A\* seemed to perform the best, as it quickly found the solution with fewer moves, thanks to its heuristic use.
5. **Did you experience any delays or performance issues during the search process?**
   * Answer: No significant delays were noted, but the DFS algorithm seemed slower compared to A\* and Greedy Best-First Search.
6. **How effective were the heuristic functions like Manhattan distance and Misplaced Tiles in guiding the solution?**
   * Answer: The heuristics were effective, particularly the Manhattan distance, as it provided accurate guidance towards the solution.
7. **Were you satisfied with the explanation of how each algorithm works?**
   * Answer: The explanations were good, but including visualizations of the algorithm’s steps would enhance understanding.
8. **Was the display of the game tree and node exploration clear and informative?**
   * Answer: Yes, but a more detailed visualization of the game tree with highlighted explored nodes could provide more clarity.
9. **Do you feel that the game simulation is an effective educational tool for learning AI algorithms?**
   * Answer: Yes, it helps understand the strengths and limitations of different algorithms in a simple, practical way.
10. **Did the performance metrics (time taken, nodes expanded, memory used) provide valuable insights?**
    * Answer: Yes, the performance metrics were useful, especially in comparing the efficiency of different algorithms.
11. **What additional metrics would you like to see in the performance analysis?**
    * Answer: It would be useful to include average depth of search and number of backtracking steps as additional metrics.
12. **Do you find the visual representation of the game states (tiles and grid) easy to follow?**
    * Answer: Yes, but a more colourful and interactive design could make the game visually appealing.
13. **How would you rate the overall ease of use of the simulation?**
    * Answer: It’s fairly easy to use but could benefit from a simpler control system for making moves.
14. **How helpful was the comparison between different search algorithms?**
    * Answer: The comparison was helpful, especially the differences in time complexity and memory usage.
15. **Did you find the solvability check for initial configurations useful?**
    * Answer: Yes, the solvability checks saved time by preventing unsolvable puzzles from running.
16. **Were the solution path and number of moves clearly displayed?**
    * Answer: Yes, the solution path and number of moves were clear, though showing it step-by-step with animation would improve the experience.
17. **What improvements would you suggest for the output display (solution path, time, space complexity)?**
    * Answer: It would be nice to have more interactive feedback, like a graph of memory vs. time as the algorithm progresses.
18. **Did the search algorithms always lead to an optimal solution in your experience?**
    * Answer: Most of the time, yes, but DFS occasionally took longer paths compared to A\*.
19. **Would you like additional puzzles or challenges added to the game for further learning?**
    * Answer: Yes, adding more complex puzzles like the 15-puzzle would provide more learning opportunities.
20. **How likely are you to recommend this simulation for educational purposes in AI courses?**
    * Answer: Very likely, as it simplifies complex algorithms and makes learning interactive.

Geo-tag Photo: -

A group of people standing in front of a window

Description automatically generated

**Batch - 17**

**2320030182 - Sadhana**

**2320030185 - Avinash**

**2320030191 - Jayakrishna**