There was an equal contribution from all the teammates(25%).

Ahmed Shabbir 1222- Read the research paper to get an understanding of what needs to be implemented and how the bidirectional search implementations MM0 and MM work. I tested the implementation of the bidirectional search algorithms done by team members. Discussed all findings from the testing with the team members and gave feedback on any issues found. I verified statistical t values calculated for the results and interpretation to make sure it is correct. I proofread the project report to verify it followed the correct format and all information was presented correctly.

Mohammad Saad Mujeeb - Read the paper “Bidirectional Search That Is Guaranteed to Meet in the Middle” to understand how bidirectional search works and what the original authors' results were. Using the code template for the pacman domain, I implemented the algorithm for MM0. Tested the algorithm to find good results. Discussed the MM implementation with other team members to see why we were not getting good results for MM. Updated the MM algorithm and added the bidirectional heuristic to get good results. Discussed and looked into the expanded nodes and how we can use those to calculate the T values. Went over the report to add some important information that might have been missing.

Advaith Alenkrith Pagidipally - Read the research paper thoroughly to get the complete understanding of how bi-directional search works. Implemented the MM algorithm given in the research paper and later discussed with teammates on enhancements that can be made. Made the necessary changes in MM implementation and compared the results on various maze searches against different types of searches such as DFS, BFS, A*. Verified the t-values and other statistical results such as p values, mean and standard deviation. Written all parts of the report(Abstract and introduction, Technical approach, Results, analyses and discussions, Conclusions and discussions) and worked on pseudo code, images, and writing the report in latex format. Apart from these, I had regular calls with the teammates and made sure work was done on time.

Jaswanth - Read the given research paper, especially about the puesode code part for MM and implemented in the pacman game. Results in the beginning were not optimal so discussed with team mates to find where improvements would be made. Using the 6 given mazes tiny, small, medium, big, open, contours, I derived 12 more mazes with various start positions across the 6 mazes and created 2 custom mazes. In Total, 20 mazes created 14 mazes for testing. Calculate the number of nodes expanded for all search algorithms (DFS, BFS, UCS, Astar, MM0, MM) on all 20 different mazes by executing each search algorithm on all 20 different mazes. Stored them in results.xlsx and calculated their mean, standard deviation and finally calculated t test value and p values for all search algorithms with respect to MM search algorithm. Written the ReadMe.txt file for the project. Created all the graphs for the report.

Team Signatures:
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