Statement of the problem **:** Implementing 16 puzzle problem using branch and bound.

branch and bound(puzzle)

input : Initial configuration of the puzzle with one misplaced position.

output : goal configuration of the puzzle with all numbers in their respective places.

Step 0 : Possible movements (left ,right ,up ,down) of the empty box in the initial configuration are checked.

Step 1: Apply heuristics, c(x) = f(x) + g(x),to check the estimate cost towards the solution .where f(x) = distance from initial path, g(x) = no of misplaced positions.

Step 2 : Choose the heuristic with minimum cost and branch the configuration and bound all other remaining configurations.

Step 3 : Repeat the heuristics on the branched state if the goal configuration is not achieved.

Step 4 : While applying the heuristics don’t consider the counter movements.

Step 5 : If g(x)=0,the no of misplaced solutions are zero , then we arrived at the final configuration of the puzzle.

