

SORTING PUZZLE GAME USING A* ALGORITHM

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Objective:

The main objective of our project is to develop a sorting puzzle game, where the alike objects will be sorted in the same column in an optimal way using the **A* search algorithm**.



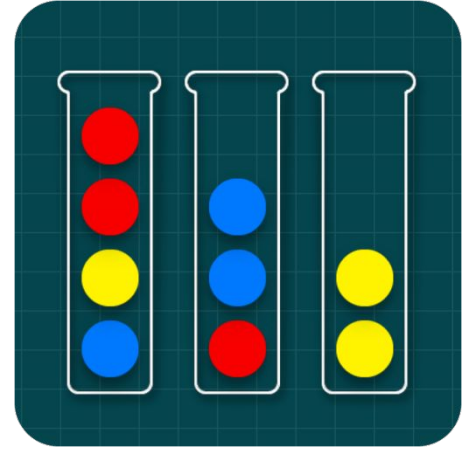
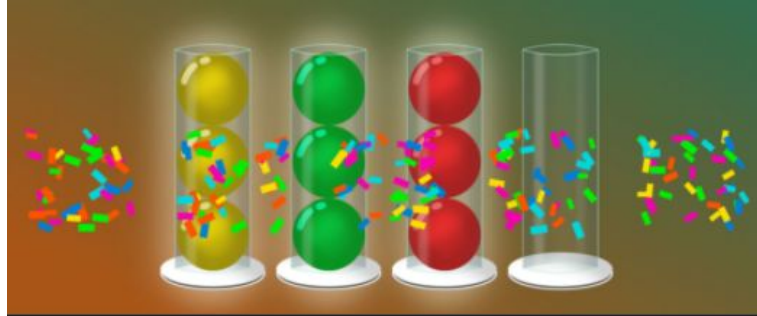
Sorting puzzle game using A^* Algorithm:

- In **sorting puzzle game**, the player wins if all alike objects are in the same column.
- Only Objects at the top of the column can be shifted to other columns.
- The shift can be done only if the same kind of object is on the top of the destination column and also there is space to accommodate the same object in the destination column.

The A^* method helps in choosing the optimal object to be shifted from the list of objects at the top of each column so that the final state can be reached earlier.

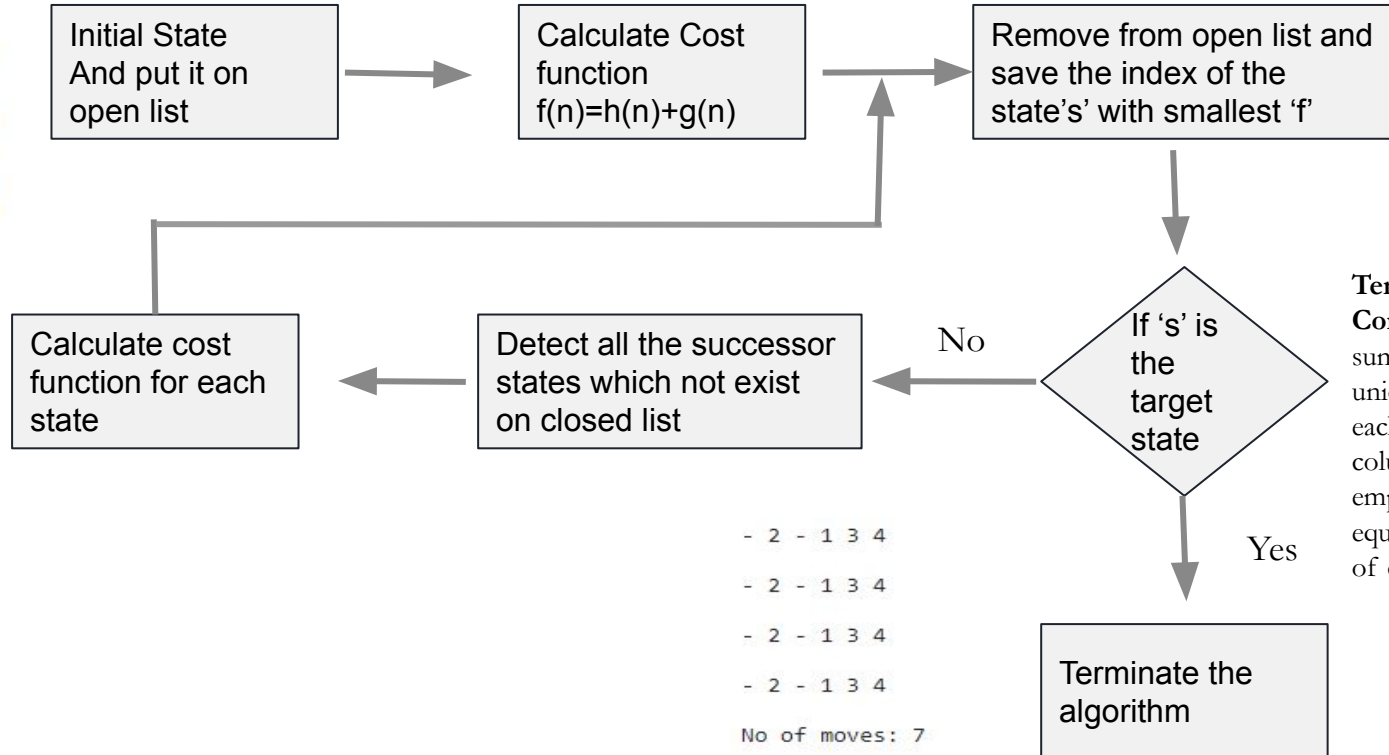
Idea:

- Player decides each move.
- For each move, the objects will be transferred to the corresponding column of player's choice.
- Once the player wins, the score and the optimal way of moving objects will be displayed.



Algorithm

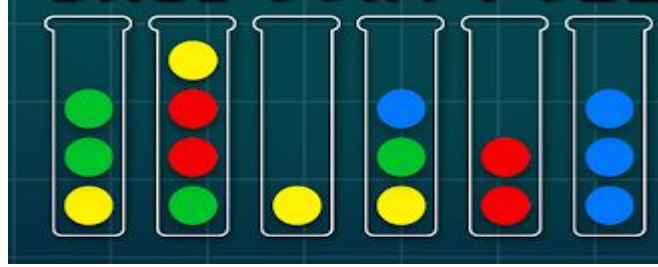
- 1 - - - -
2 3 - 4 - 4
2 3 - 2 3 4
1 2 1 1 3 4



Termination Condition:
sum of number of unique values of each column (without empty spaces) is equal to the number of colors

- 2 - 1 3 4
- 2 - 1 3 4
- 2 - 1 3 4
- 2 - 1 3 4
No of moves: 7

Snapshots



- 1 - - - -
 2 3 - 4 - 4
 2 3 - 2 3 4
 1 2 1 1 3 4

Start State



- - - 2 - 4
 - 3 1 2 - 4
 - 3 1 2 3 4
 - 2 1 1 3 4

Intermediate
 state



- 2 - 1 3 4
 - 2 - 1 3 4
 - 2 - 1 3 4
 - 2 - 1 3 4
 No of moves: 7

Target State

Work Done so far

Stage 1

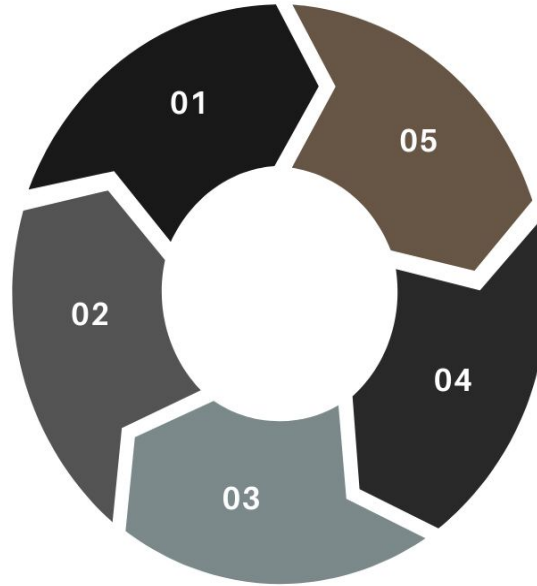
Identification of
problem statement

Stage 2

Design and analysis

Stage 3

Implementation phase I



Work To Be Done

Stage 4

Implementation and Testing

Stage 5

Documentation

THANK YOU
