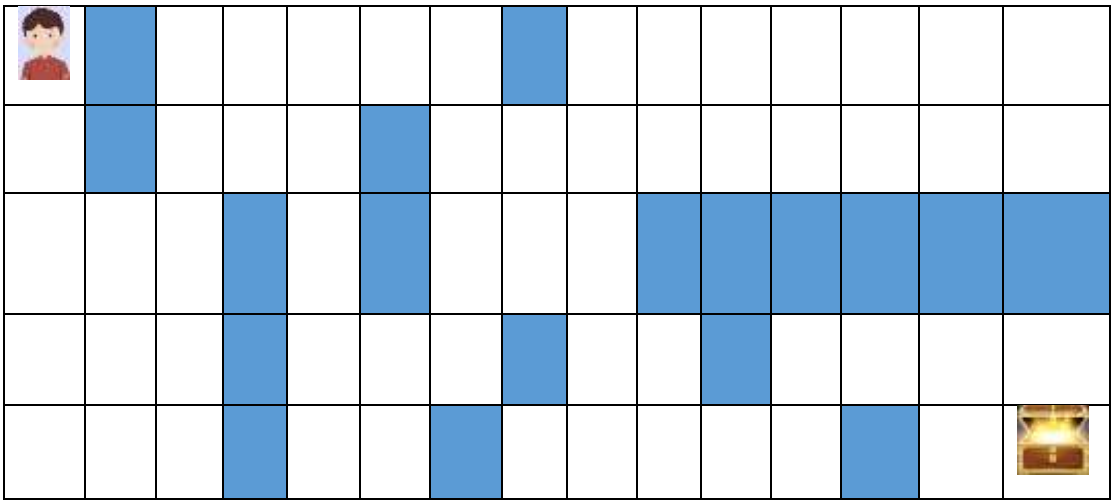
Assignment-1:(20 Marks)

A young boy Mr. Peter spent most of the time hunting treasures on Uzee Island. Since the area of this island is huge, he was unable to find a treasure. As an AI expert, you have to help the peter navigate the given path so that he finds the treasure at minimum cost. Note that the movement cost of each neighbor (left, right, up, down, not diagonal) is 1, and the blue cell represents the sea. If the peter reaches the sea cell, he will death. As a heuristic function, we use the Manhattan distance from each node to the goal node.

To find the treasure, apply an A* search on the given scenario and return the optimal path with its cost.



Assignment-2:

Files

distances.csv: distance from a star to another

Coordinates.csv: coordinate of a star in a 3D plane

Example: Coordinate of Proxima Centauri is `176,-406,-49`

And YZ Ceti is `-280,1568,40`

The euclidean distance between them is 2028 but the distance file shows that the distance is 2273. So, you see that the actual distance isn't actually the euclidean distance due to the fact that the void between two stars are filled with meteorites etc.

distances.csv file contains distance from a source star to a destination if and only if there's a "space way" from the source to the destination. If no such entry is found then there isn't a direct way between

those stars (might be a path but no direct edge/way i.e you can't go directly from those two stars you might need to visit some intermediary stars first).

Think of the stars as vertices and the actual distance between them as edges. Now, you can create an adjacency list out of this information.

Now, you are on a spaceship & you start from the Sun. Find the shortest path from the **Sun** to the **Upsilon Andromedae** using Dijkstra's algorithm and A* then find out how these two differ in terms of result and/or time? Were you able to reach there? If not then try to reach **`61 Virginis`**

Another good test case is: Src: `TRAPPIST-1`

Dst: `55 Cancri`