Date:

Aim.

To Find the shortest path from a start rade to a goal node using the A* search algorithm.

Should be form of long, when were a your

Algorithm:

Step on: create open a closed sets: start with the initial nodo.

Step 02: Add the start node to the open set with an initial cost 90.

Step 03: If they remove the node, with the lowest of value from the open set.

Stepoy. If the current in noole is the goal node, reconstruct the path.

Stopes: For each neighbour, calculate g.h. 1 f.

Stopos. If the neighbour is not in the open set on a lower cost path, is found, update costs 2 patent

Stepon: Add the neighbour to the open set if it is not already in the closed set.

Step 68 Repeat with the epen set is empty on the

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  Program:
    import heapq
     der a star (star, goal. h. neigh bours):
        open_set =[]
      heapq. heappush lopen set. (0+h(8tast).0, start))
         came from : 24
         9-score = { start 309
        f-Score: Estart & h (start) }
        while open-set:
     current-g, current= heapq. heappop
(open-set)
                            of two batters
         If current = > goals
                       signs of the venous he real
        patr.[]
          while current in come-from:
      path. append (current)
              current = came- from (current)
      path append (start)
           return pata [: -1] prior and 1 109/12
      for neighbour in neighbour (current)
            tentative - g = g-score [current] +
if neighbour not in g-score or tentative-9 (
            9- score (neighbour 7:
Come-from [neighbour] = current
               9-sure [neighbour] + tentative q
                f-score [neighbour] = tentative_g + h (neighbour)
          If neighbour not in Offiz J for ? in open_set J:
           / heapq. heappush (ofen_set. (f-score [neighbour])
               tentative-g. neighbur)
```

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mitteeth and illy
                                                                                                                                                         20 Loldax-
     Return None,
      def heuristic (node):
                  goal - position = (5,5)
         return abs (node [a] - goal position (a]) +
                                abs (node [1] - goal. position [17)
             get veidyponiz (vogs):
                                                                                                                                         copie code:
                               x,y=hode philipal 20 par morphilipal 20 par morphil
                            return ((xH,4), (x-1,4), (x, 4+1), (x, 4-1)
                   start = (0,0)
                                                                                                                              mortaly tragain
                   900d = (5,5)
                                                                                                                                       and timpel
                       path = a -star (start, goal, heuristic, neighbour)
                         print (path)
                                                                                                                                       1-= MAMOH
             output:
                                                             Poroto ! (Coroto), (Coroto) : bood
                     [(0,0),(1,0),(2,0),(8,0),(4,0),(5,0),(5,1),(5,2),
                            (5.3), (5.4), (5.2) Jamo ), etal), (6.2)
                   Result:
                                                                   elif while Abb, Human):
                                Thus the 1th search program is executed and the
                          output à verified successfully.
200
                                                                                         dy, win ( States player):
                                                                                                            ) = stots_mus
                   िक्षा हिंदी, अर्थि हिंदिन, इंटिक हिंदिन नी,
                  एर हिस्स १८०० । स्ट्रीस ११००० । स्ट्रीस ११००० १०० ।
                   (तिक ि अति । अवि प्रकार (१०१८) व्याप
                      (عالمن (ماله) ، مرل (ماله) عليه (ماله) ما
                   LUCE OF SIGNOTING SICE (SICE)
          िरिहारो गम्प्रदेश हो। केले हिल्ली केला
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