**Practical No.04**

Q.A] Write a program to implement A\* algorithm.

**Code:**

from simpleai.search import SearchProblem, astar

GOAL = 'HELLO WORLD'

class HelloProblem(SearchProblem):

def actions(self, state):

if len(state) < len(GOAL):

return list(' ABCDEFGHIJKLMNOPQRSTUVWXYZ')

else:

return []

def result(self, state, action):

return state + action

def is\_goal(self, state):

return state == GOAL

def heuristic(self, state):

# how far are we from the goal?

wrong = sum([1 if state[i] != GOAL[i] else 0

for i in range(len(state))])

missing = len(GOAL) - len(state)

return wrong + missing

problem = HelloProblem(initial\_state='')

result = astar(problem)

print(result.state)

print(result.path())

**Output:**

