https://lh5.googleusercontent.com/dplghwJq6X4fhzS5H6mFhAFj9x6vI-Y8xCT8NFOTS1m1Xqxiq7nkadVUnCPhdF0ePu4loIUkqVjtvmt0NXfO2k9ohAj4vSqxuecZS-EBDoWiRGD-hgPkQa4QEs6nQaUoqsWtkTeeVLr0namIZbmEyQhttps://lh3.googleusercontent.com/BTBdPiSJjxGslQH3BeZD4BaoJZ39HCgQmAhUsT_pMmuCBkQpXF4Oufxkc29xElrbY7UOC_t-XYD8wCe8-xr0WMFCu3DhySoqaYXxkDd4zDvRd6uFglNfbvwNH7fYiWW7sNqHblYmu1wrAZV9wwFdXA

**GHARDA FOUNDATION**

**GHARDA INSTITUTE OF TECHNOLOGY, LAVEL**

Department of Computer Engineering

**Evaluation Sheet**

Class: TE-Computer Engineering Sem: V Subject: **Artificial Intelligence Lab(CSL604)**

Experiment No: 6

Title of Experiment: Study the implementation of Hill Climbing Algorithm.

Name of Student: Niraj Nitin Surve Roll No: 68

Date of Performance:

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. No. | Evaluation Criteria | Max Marks | Marks Obtained |
| 1 | Practical Performance | 8 |  |
| 2 | Oral | 5 |  |
| 3 | Timely Submission | 2 |  |
|  | Total | 15 |  |

                   Signature of Subject Teacher

     (Prof. M. A. Khandke)

**Program Code –**

import random

print("\*\*\*\*\* 4-Queen Problem using Hill Climbing Algorithm \*\*\*\*\*")

def get\_board\_cost(board):

cost = 0

for i in range(len(board)):

for j in range(i+1, len(board)):

if board[i] == board[j] or abs(board[i]-board[j]) == abs(i-j):

cost += 1

return cost

def hill\_climb():

board = [random.randint(0, 3) for \_ in range(4)]

print("Board: ", board)

cost = get\_board\_cost(board)

while cost > 0:

new\_board = list(board)

for i in range(len(board)):

for j in range(4):

if j != board[i]:

new\_board[i] = j

new\_cost = get\_board\_cost(new\_board)

if new\_cost < cost:

board = list(new\_board)

cost = new\_cost

break

if board == new\_board:

break

return board

print("Solution: ", hill\_climb())

**Output –**

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