

# Hill Climbing



PARSHWANATH CHARITABLE TRUST'S  
**A.P. SHAH INSTITUTE OF TECHNOLOGY**  
 Department of Computer Science and Engineering  
 Data Science



Semester: 0

Subject: 4

Academic Year: 20 - 20

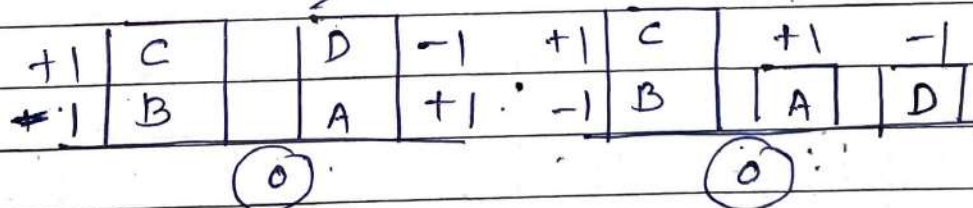
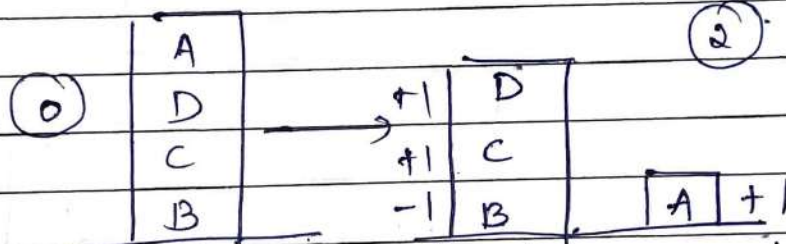
|    |   |    |   |
|----|---|----|---|
| -1 | A | +1 | D |
| +1 | D | +1 | C |
| +1 | C | +1 | B |
| -1 | B | +1 | A |

Initial                      Goal

Local heuristic:

\* +1 for each block that is resting on correct block

\* -1 for each block that is resting on a wrong ~~time~~ block.



Reached to local maxima hence consider Global heuristic.



Semester : \_\_\_\_\_

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Global heuristic

+1 : every block in support structure (Correct)

-1 : every block in support structure (Wrong)

|   |    |   |    |   |   |
|---|----|---|----|---|---|
| A | -3 | D | +3 | P | 3 |
| D | -2 | C | +2 | C | 2 |
| C | -1 | B | +1 | B | 1 |
| B | 0  | A | 0  | A | 0 |

Initial (-6)

Goal (6)

|    |   |   |   |
|----|---|---|---|
| -2 | D |   |   |
| -1 | C |   |   |
| 0  | B | A | 0 |

(-3)

|    |   |  |   |
|----|---|--|---|
| +2 | C |  |   |
| +1 | B |  | 0 |
| 0  | A |  | D |

(3)

|    |   |   |    |    |   |   |   |    |   |   |   |
|----|---|---|----|----|---|---|---|----|---|---|---|
| -1 | C | D | -1 | -1 | C | 0 | 0 | +1 | B | 0 | 0 |
| 0  | B | A | 0  | 0  | B | D | A | 0  | A | D | C |

(-2)      (-1)      (1)

|   |      |   |   |   |   |   |      |    |   |   |   |     |   |   |   |
|---|------|---|---|---|---|---|------|----|---|---|---|-----|---|---|---|
|   | -1   | C |   |   |   |   | C    | -1 |   |   |   |     |   |   |   |
| 0 | B    | 0 | D | A | 0 | 0 | B    | 0  | D | A | 0 | B   | D | A | C |
|   | (-1) |   |   |   |   |   | (-1) |    |   |   |   | (0) |   |   |   |

# Hill Climbing

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|   |   |   |
|---|---|---|
| 1 | 2 | 4 |
| 5 |   | 7 |
| 3 | 6 | 8 |

Initial

$h(n) = 5$

|   |   |   |
|---|---|---|
| 1 | 4 | 7 |
| 2 | 5 | 8 |
| 3 | 6 |   |

Goal

|   |   |   |
|---|---|---|
| 1 |   | 4 |
| 5 | 2 | 7 |
| 3 | 6 | 8 |

$h(n) = 5$

|   |   |   |
|---|---|---|
| 1 | 2 | 4 |
| 5 | 6 | 7 |
| 3 |   | 8 |

$h(n) = 6$

|   |   |   |
|---|---|---|
| 1 | 2 | 4 |
|   | 5 | 7 |
| 3 | 6 | 8 |

$h(n) = 4$

|   |   |   |
|---|---|---|
| 1 | 2 | 4 |
| 5 | 7 |   |
| 3 | 6 | 8 |

$h(n) = 5$

|   |   |   |
|---|---|---|
|   | 2 | 4 |
| 1 | 5 | 7 |
| 3 | 6 | 8 |

$h(n) = 5$

|   |   |   |
|---|---|---|
| 1 | 2 | 4 |
| 3 | 5 | 7 |
|   | 6 | 8 |

$h(n) = 5$

Subject Incharge : \_\_\_\_\_

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