Machine Learning Assignment 1

**Team: D.Pavan IS201401018, Ch.Sai Manideep IS201401014, Chandrasekhar IS201699001**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Input | Depth – First Search STEPS/TIME | Breath-First Search STEPS/TIME | Uniform Cost Search STEPS/TIME | Bi-Directional Search STEPS/TIME |
| 1,b,3,4,2,5,7,8,6 | 31/0.01310 | 11/0.006249 | 12/0.00966 | 5/0.005409 |
| 1,2,3,4,b,5,7,8,6 | 2/0.000272 | 5/0.0026340 | 8/0.006678 | 2/0.001929 |
| 1,2,b,4,5,3,7,8,6 | 2/0.000329 | 3/0.0004880 | 3/0.000800 | 2/0.000927 |
| b,2,3,1,5,6,4,7,8 | 548/1.1254 | 29/0.019023 | 30/0.27472 | 6/0.002784 |
| b,2,3,1,4,5,7,8,6 | 512/1.0086 | 23/0.014589 | 26/0.00986 | 6/0.006649 |
| b,1,3,4,2,5,7,8,6 | 32/0.01390 | 17/0.011542 | 18/0.00692 | 6/0.002259 |
| 1,8,2,b,4,3,7,6,5 | 557/1.1453 | 361/0.79554 | 417/1.3419 | 41/0.04210 |
| 4,1,2,7,5,b,8,6,3 | 1541/8.644 | 302/0.56599 | 338/0.8937 | 34/0.02347 |
| 4,1,b,7,5,2,8,6,3 | 1540/8.675 | 431/1.10732 | 467/1.6657 | 51/0.05085 |
| 1,b,2,4,5,3,7,8,6 | 3/0.000371 | 9/0.0043268 | 9/0.003409 | 4/0.001931 |
| Mean of steps | 476.8 | 119.1 | 132.8 | 15.7 |
| Standard deviation of steps | 609.881 | 172.347 | 192.082 | 18.649 |

# Observation:

# 1. BDS is faster compared to all others

# 2. DFS is the slowest among the four search algorithms