provide metrics on number of node expansions required, number of goal tests, time elapsed, and optimality of solution for each search algorithm. Include the result of at least three of these searches, including breadth-first and depth-first, in your write-up (breadth\_first\_search and depth\_first\_graph\_search).

Problem 1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Search strategy | Optimal | Plan length | Node expansions | Number of goal tests | Time elapsed(s) |
| Breadth first | Y | 6 | 43 | 56 | 0.032 |
| Breadth first tree | Y | 6 | 1458 | 1459 | 0.968 |
| Depth first | N | 20 | 21 | 22 | 0.015 |
| Depth limited | N | 50 | 101 | 271 | 0.096 |
| Uniform cost | Y | 6 | 55 | 57 | 0.041 |
| Recursive best first | Y | 6 | 4229 | 4230 | 2.785 |
| Greedy best first | Y | 6 | 7 | 9 | 0.005 |

Problem 2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Search strategy | Optimal | Plan length | Node expansions | Number of goal tests | Time elapsed(s) |
| Breadth first |  | 9 | 3346 | 4612 | 9.331 |
| Breadth first tree |  |  |  |  |  |
| Depth first |  | 105 | 107 | 108 | 0.336 |
| Depth limited |  |  |  |  |  |
| Uniform cost |  | 9 | 4853 | 4855 | 12.975 |
| Recursive best first |  |  |  |  |  |
| Greedy best first |  | 21 | 998 | 1000 | 2.501 |

Problem 3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Search strategy | Optimal | Plan length | Node expansions | Number of goal tests | Time elapsed(s) |
| Breadth first |  | 12 | 14120 | 17673 | 42.903 |
| Breadth first tree |  |  |  |  |  |
| Depth first |  | 288 | 292 | 293 | 1.193 |
| Depth limited |  |  |  |  |  |
| Uniform cost |  | 12 | 18223 | 18225 | 55.916 |
| Recursive best first |  |  |  |  |  |
| Greedy best first |  | 22 | 5578 | 5580 | 17.776 |

Problem 1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Search strategy | Optimal | Plan length | Node expansions | Number of goal tests | Time elapsed(s) |
| A\* with h1 |  | 6 | 55 | 57 | 0.045 |
| A\* with ignore |  | 6 | 41 | 43 | 0.037 |
| A\* with level sum |  | 6 | 11 | 13 | 1.567 |

Problem 2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Search strategy | Optimal | Plan length | Node expansions | Number of goal tests | Time elapsed(s) |
| A\* with h1 |  | 9 | 4853 | 4855 | 12.240 |
| A\* with ignore |  | 9 | 1450 | 1452 | 4.340 |
| A\* with level sum |  | 9 | 86 | 88 | 204.522 |

Problem 3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Search strategy | Optimal | Plan length | Node expansions | Number of goal tests | Time elapsed(s) |
| A\* with h1 |  | 12 | 18223 | 18225 | 56.071 |
| A\* with ignore |  | 12 | 5040 | 5042 | 17.543 |
| A\* with level sum |  | 12 | 325 | 327 | 1089.815 |