**Safe Travelling Problem**

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| $ python play\_graph.py ./graphs/graph1.json -a bfs |
| Agent cannot find a solution ...  Traversal Order: a->b->d |
| $ python play\_graph.py ./graphs/graph1.json -a dfs |
| Agent cannot find a solution ...  Traversal Order: a->d->b |
| $ python play\_graph.py ./graphs/graph1.json -a astar |
| Agent cannot find a solution ...  Traversal Order: a->b->d |

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| $ python play\_graph.py ./graphs/graph2.json -a bfs |
| Solution Path: a->c->f->g  Path Cost: 5.8863495173726745  Traversal Order: a->b->c->d->f->g |
| $ python play\_graph.py ./graphs/graph2.json -a dfs |
| Solution Path: a->c->f->g  Path Cost: 5.8863495173726745  Traversal Order: a->c->f->g |
| $ python play\_graph.py ./graphs/graph2.json -a ucs |
| Solution Path: a->b->d->f->g  Path Cost: 5.656854249492381  Traversal Order: a->b->c->d->f->g |
| $ python play\_graph.py ./graphs/graph2.json -a astar |
| Solution Path: a->b->d->f->g  Path Cost: 5.656854249492381  Traversal Order: a->b->d->f->g |
| $ python play\_graph.py ./graphs/graph2.json -a gbfs |
| Solution Path: a->b->d->f->g  Path Cost: 5.656854249492381  Traversal Order: a->b->d->f->g |

**Dungeon Scavenging**

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| $ python play\_dungeon.py ./dungeons/dungeon1.txt -a gbfs -hf zero |
| YOU WON!!  Search explored 753 nodes |
| $ python play\_dungeon.py ./dungeons/dungeon1.txt -a gbfs -hf weak |
| YOU WON!!  Search explored 600 nodes |
| $ python play\_dungeon.py ./dungeons/dungeon1.txt -a gbfs -hf strong |
| YOU WON!!  Search explored 53 nodes |
| $ python play\_dungeon.py ./dungeons/dungeon1.txt -a astar -hf zero |
| YOU WON!!  Search explored 749 nodes |
| $ python play\_dungeon.py ./dungeons/dungeon1.txt -a astar -hf weak |
| YOU WON!!  Search explored 680 nodes |
| $ python play\_dungeon.py ./dungeons/dungeon1.txt -a astar -hf strong |
| YOU WON!!  Search explored 96 nodes |

**Note that:** the number of the explored nodes of your strong\_heuristic function may not equal to the above given number but it must be much fewer than the number of the explored nodes of the weak\_heuristic function.