|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Algorithm** | **Initial State** | **Path length** | **No. of state expansions** | **Max. Q length** | **Actual Running Time (sec.)** |
| 1 | BFS\_NO\_VLIST | 042158367 | - | - | - | - |
| 2 | BFS\_VLIST | 042158367 | - | - | - | - |
| 3 | PDS\_NO\_VLIST | 042158367 | - | - | - | - |
| 4 | PDS\_NON\_STRICT\_VLIST | 042158367 | - | - | - | - |
| 5 | ASTAR\_EXP\_LIST\_MISPLACED | 042158367 | - | - | - | - |
| 6 | ASTAR\_EXP\_LIST\_MANHATTAN | 042158367 | - | - | - | - |
| 7 | BFS\_NO\_VLIST | 364058271 | 21 | 76436 | 21827 | 1.922 |
| 8 | BFS\_VLIST | 364058271 | 21 | 626754 | 22 | 0.898 |
| 9 | PDS\_NO\_VLIST | 364058271 | 21 | 626754 | 22 | 0.89621 |
| 10 | PDS\_NON\_STRICT\_VLIST | 364058271 |  |  |  |  |
| 11 | ASTAR\_EXP\_LIST\_MISPLACED | 364058271 | 21 | 8216 | 6112 | 0.062 |
| 12 | ASTAR\_EXP\_LIST\_MANHATTAN | 364058271 | 21 | 424 | 349 | 0.002 |
| 13 | BFS\_NO\_VLIST | 281463075 | 12 | 2052 | 1458 | 0.006 |
| 14 | BFS\_VLIST | 281463075 | 12 | 1488 | 897 | 0.006 |
| 15 | PDS\_NO\_VLIST | 281463075 | 12 | 4772 | 13 | 0.01 |
| 16 | PDS\_NON\_STRICT\_VLIST | 281463075 |  |  |  |  |
| 17 | ASTAR\_EXP\_LIST\_MISPLACED | 281463075 | 12 | 82 | 65 | 0.001 |
| 18 | ASTAR\_EXP\_LIST\_MANHATTAN | 281463075 | 12 | 29 | 25 | 0.000 |
| 19 | BFS\_NO\_VLIST | 567408321 | - | - | - | - |
| 20 | BFS\_VLIST | 567408321 | 30 | 181356 | 24979 | 11.624 |
| 21 | PDS\_NO\_VLIST | 567408321 | 30 | 93758672 | 31 | 133.305 |
| 22 | PDS\_NON\_STRICT\_VLIST | 567408321 |  |  |  |  |
| 23 | ASTAR\_EXP\_LIST\_MISPLACED | 567408321 |  |  |  |  |
| 24 | ASTAR\_EXP\_LIST\_MANHATTAN | 567408321 | 30 | 2735 | 1868 | 0.017 |
| 25 | BFS\_NO\_VLIST | 463508721 | - | - | - | - |
| 26 | BFS\_VLIST | 463508721 | 28 | 179854 | 24979 | 11.519 |
| 27 | PDS\_NO\_VLIST | 463508721 | 28 | 31247556 | 29 | 44.529 |
| 28 | PDS\_NON\_STRICT\_VLIST | 463508721 |  |  |  |  |
| 29 | ASTAR\_EXP\_LIST\_MISPLACED | 463508721 | 28 | 317794 | 241931 | 63.998 |
| 30 | ASTAR\_EXP\_LIST\_MANHATTAN | 463508721 | 28 | 11244 | 9164 | 0.1050 |
| 31 | BFS\_NO\_VLIST | 471506238 | - | - | - | - |
| 32 | BFS\_VLIST | 471506238 | - | - | - | - |
| 33 | PDS\_NO\_VLIST | 471506238 | - | - | - | - |
| 34 | PDS\_NON\_STRICT\_VLIST | 471506238 | - | - | - | - |
| 35 | ASTAR\_EXP\_LIST\_MISPLACED | 471506238 | - | - | - | - |
| 36 | ASTAR\_EXP\_LIST\_MANHATTAN | 471506238 | - | - | - | - |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Item** | **your assignment details** | | **Comments** |
| 1 | Names and ID numbers of Group Members | Sreeman nalli - 14127615  Stefan Venter - 15034130 | | (maximum of 3 members in a group) |
| 2 | Operating System used for testing your codes | Windows 10 Home 64bit | | (e.g. Windows 8.1) Note that the start-up codes only work on Windows. |
| 3 | Compiler used | Gcc 5.2.0 | | (e.g. gcc 5.1.0) |
| 4 | IDE used | Atom text editor  &  SciTE  Version 2.26 | | (e.g. SublimeText 3, ScITE) |
| 5 | Complete source codes (cpp, h files), makefile | BFS\_NO\_VLIST | full/partial | Indicate ‘**full**’, if you have completed the implementation of an algorithm, or ‘partial’, if you are only submitting a partial implementation. |
| BFS\_VLIST | full/partial |
| PDS\_NO\_VLIST | full/partial |
| PDS\_NON\_STRICT\_VLIST | full/partial |
| ASTAR\_EXP\_LIST MISPLACED TILES HEURISTIC | full/partial |
| ASTAR\_EXP\_LIST MANHATTAN DISTANCE HEURISTIC | full/partial |
| 6 | Is your program able to run with the 2 batch files given? | Yes/No | | indicate ‘**Yes**’ or ‘**No**’ (batch files: run\_all.bat, run\_one.bat) |
| 7 | Experiment Results in Excel Worksheet | Yes/No | | indicate ‘**Yes**’ or ‘**No**’ |
| 8 | Extra work (Bonus): Enhancements/Optimisations included | Yes/No. (If Yes, list down all enhancements you have added.)  Heap A\*  Hashing Function for everything | | (e.g. original implementation of the Heaps data structure used to represent the priority Q in the A\* algorithm) |

