AHMED L SAEED

CIS 3501 002

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PROGRAM 01 - HAPPY LANDINGS

**Table 1**

|  |  |  |
| --- | --- | --- |
| Function | Time Analysis | Space Analysis |
| comparison | O( 1 ) | O( 1 ) |
| PlaneDetails | O( 1 ) | O( 1 ) |
| ~PlaneDetails | O( 1 ) | O( 1 ) |
| insert\_plane | O( 1 ) | O( 1 ) |
| determine\_sequence | O( n \* n! ) | O( n2 ) |
| determine\_distance | O( n ) | O( 1 ) |
| display\_results | O( n ) | O( 1 ) |
| main | O( n2 \* n! ) | O( n2 ) |

**Table 2**

|  |  |  |  |
| --- | --- | --- | --- |
| Reason for Test | Actual Input Data | Expected Output | Actual Output |
| To test if program can handle many test cases. | 5  3  0 2 0 4 0 6  4  1 5 5 10 10 15 20 30  2  18 42 50 100  2  0 10 0 20  3  0 10 100 200 50 60 | 1 2 3 3.00  1 2 3 4 5.00  1 2 82.00  1 2 20.00  1 3 2 60.00 | 1 2 3 3.00  1 2 3 4 5.00  1 2 82.00 1 2 20.00  1 3 2 60.00 |
| To test with obscene interval values (test limits). | 1  3  2424 2588 42 245 999 99999 | 2 1 3 2546.00 | 2 1 3 2546.00 |
| To determine if program will print lexicographically if all inputs hold same intervals. | 1 3 0 10 0 10 0 10 | 1 2 3 5.00 | 1 2 3 5.00 |
| Test various planes. Check if algorithm can handle it. | 1 10 0 2 0 4 0 6 0 8 0 10  0 12 0 14 0 16 0 18  0 20 | 1 2 3 4 5 6 7 8 9 10 2.22 | 1 2 3 4 5 6 7 8 9 10 2.22 |