

Our Solution(s)		Run Code	Your Solutions			Run Code
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Solution 1	Solution 2
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```
1 // Copyright © 2020 AlgoExpert, LLC. All rights reserved.
2
3 using namespace std;
4
5 // O(n) time | O(n) space - where n is the total number of elements
6 vector<int> spiralTraverse(vector<vector<int>> array) {
7     if (array.size() == 0)
8         return {};
9
10    vector<int> result = {};
11    int startRow = 0;
12    int endRow = array.size() - 1;
13    int startCol = 0;
14    int endCol = array[0].size() - 1;
15
16    while (startRow <= endRow && startCol <= endCol) {
17        for (int col = startCol; col <= endCol; col++) {
18            result.push_back(array[startRow][col]);
19        }
20
21        for (int row = startRow + 1; row <= endRow; row++) {
22            result.push_back(array[row][endCol]);
23        }
24
25        for (int col = endCol - 1; col >= startCol; col--) {
26            if (startRow == endRow)
27                break;
28            result.push_back(array[endRow][col]);
29        }
30
31        for (int row = endRow - 1; row > startRow; row--) {
32            if (startCol == endCol)
33                break;
```

Solution 1	Solution 2	Solution 3
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```
1 using namespace std;
2
3 vector<int> spiralTraverse(vector<vector<int>> array) {
4     // Write your code here.
5     return {};
6 }
7
```

```
1 # Test 1
2 def test1():
3     # Test 1: 1D array
4     x = np.zeros(10)
5     x[0] = 1
6     x[5] = 2
7     x[9] = 3
8     x[0] = 4
9     x[5] = 5
10    x[9] = 6
11    x[0] = 7
12    x[5] = 8
13    x[9] = 9
14    x[0] = 10
15    x[5] = 11
16    x[9] = 12
17    x[0] = 13
18    x[5] = 14
19    x[9] = 15
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765   x[5] = 499
766   x[9] = 500
767   x[0] = 499
768   x[5] = 500
769   x[9] = 501
770   x[0] = 500
771   x[5] = 501
772   x[9] = 502
773   x[0] = 501
774   x[5] = 502
775   x[9] = 503
776   x[0] = 502
777   x[5] = 503
778   x[9] = 504
779   x[0] = 503
780   x[5] = 504
781   x[9] = 505
782   x[0] = 504
783   x[5] = 505
784   x[9] = 506
785   x[0] = 505
786   x[5] = 506
787   x[9] = 507
788   x[0] = 506
789   x[5] = 507
790   x[9] = 508
791   x[0] = 507
792   x[5] = 508
793   x[9] = 509
794   x[0] = 508
795   x[5] = 509
796   x[9] = 510
797   x[0] = 509
798   x[5] = 510
799   x[9] = 511
800   x[0] = 510
801   x[5] = 511
802   x[9] = 512
803   x[0] = 511
804   x[5] = 512
805   x[9] = 513
806   x[0] = 512
807   x[5] = 513
808   x[9] = 514
809   x[0] = 513
810   x[5] = 514
811   x[9] = 515
812   x[0] = 514
813   x[5] = 515
814   x[9] = 516
815   x[0] = 515
816   x[5] = 516
817   x[9] = 517
818   x[0] = 516
819   x[5] = 517
820   x[9] = 518
821   x[0] = 517
822   x[5] = 518
823   x[9] = 519
824   x[0] = 518
825   x[5] = 519
826   x[9] = 520
827   x[0] = 519
828   x[5] = 520
829   x[9] = 521
830   x[0] = 520
831   x[5] = 521
832   x[9] = 522
833   x[0] = 521
834   x[5] = 522
835   x[9] = 523
836   x[0] = 522
837   x[5] = 523
838   x[9] = 524
839   x[0] = 523
840   x[5] = 524
841   x[9] = 525
842   x[0] = 524
843   x[5] = 525
844   x[9] = 526
845   x[0] = 525
846   x[5] = 526
847   x[9] = 527
848   x[0] = 526
849   x[5] = 527
850   x[9] = 528
851   x[0] = 527
852   x[5] = 528
853   x[9] = 529
854   x[0] = 528
855   x[5] = 529
856   x[9] = 530
857   x[0] = 529
858   x[5] = 530
859   x[9] = 531
860   x[0] = 530
861   x[5] = 531
862   x[9] = 532
863   x[0] = 531
864   x[5] = 532
865   x[9] = 533
866   x[0] = 532
867   x[5] = 533
868   x[9] = 534
869   x[0] = 533
870   x[5] = 534
871   x[9] = 535
872   x[0] = 534
873   x[5] = 535
874   x[9] = 536
875   x[0] = 535
876   x[5] = 536
877   x[9] = 537
878   x[0] = 536
879   x[5] = 537
880   x[9] = 538
881   x[0] = 537
882   x[5] = 538
883   x[9] = 539
884   x[0] = 538
885   x[5] = 539
886   x[9] = 540
887   x[0] = 539
888   x[5] = 540
889   x[9] = 541
890   x[0] = 540
891   x[5] = 541
892   x[9] = 542
893   x[0] = 541
894   x[5] = 542
895   x[9] = 543
896   x[0] = 542
897   x[5] = 543
898   x[9] = 544
899   x[0] = 543
9
```