Linear Algebra ★

70/115 challenges solved

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Problem Submissions Leaderboard Editorial

The NumPy module also comes with a number of built-in routines for linear algebra calculations. These can be found in the sub-module linalg.

linalg.det

The linalg.det tool computes the determinant of an array.

```
print numpy.linalg.det([[1 , 2], [2, 1]])      #Output : -3.0
```

linalg.eig

The linalg.eig computes the eigenvalues and right eigenvectors of a square array.

```
vals, vecs = numpy.linalg.eig([[1 , 2], [2, 1]])
print vals                              #Output : [ 3. -1.]
print vecs                              #Output : [[ 0.70710678 -0.70710678]
                                       #        [ 0.70710678  0.70710678]]
```

linalg.inv

The linalg.inv tool computes the (multiplicative) inverse of a matrix.

```
print numpy.linalg.inv([[1 , 2], [2, 1]])      #Output : [[-0.33333333  0.66666667]
                                       #        [ 0.66666667 -0.33333333]]
```

Other routines can be found here

Task

You are given a square matrix A with dimensions NXN. Your task is to find the determinant. Note: Round the answer to 2 places after the decimal.

Input Format

The first line contains the integer N.
The next N lines contains the N space separated elements of array A.

Output Format

Print the determinant of A.

Sample Input

```
2
1.1 1.1
1.1 1.1
```

Sample Output

```
0.0
```

Change Theme Python 3

```python
import numpy as np

if __name__ == '__main__':
    n = int(input())

    data = []

    for _ in range(n):
        data.append(tuple(map(float, input().split())))

    matrix = np.array(data)

    determinant = np.linalg.det(matrix)
    if (determinant == 0):
        print(determinant)
    else:
        print(round(determinant, 2))

```

Line: 10 Col: 1

Upload Code as File Test against custom input Run Code Submit Code

You have earned 20.00 points!

70/115 challenges solved.

61%

Congratulations

You solved this challenge. Would you like to challenge your friends?

Next Challenge

Test case 0

Test case 1

Test case 2

Compiler Message

Success

Input (stdin) Download

```
2
1.1 1.1
1.1 1.1
```

Expected Output Download

```
0.0
```