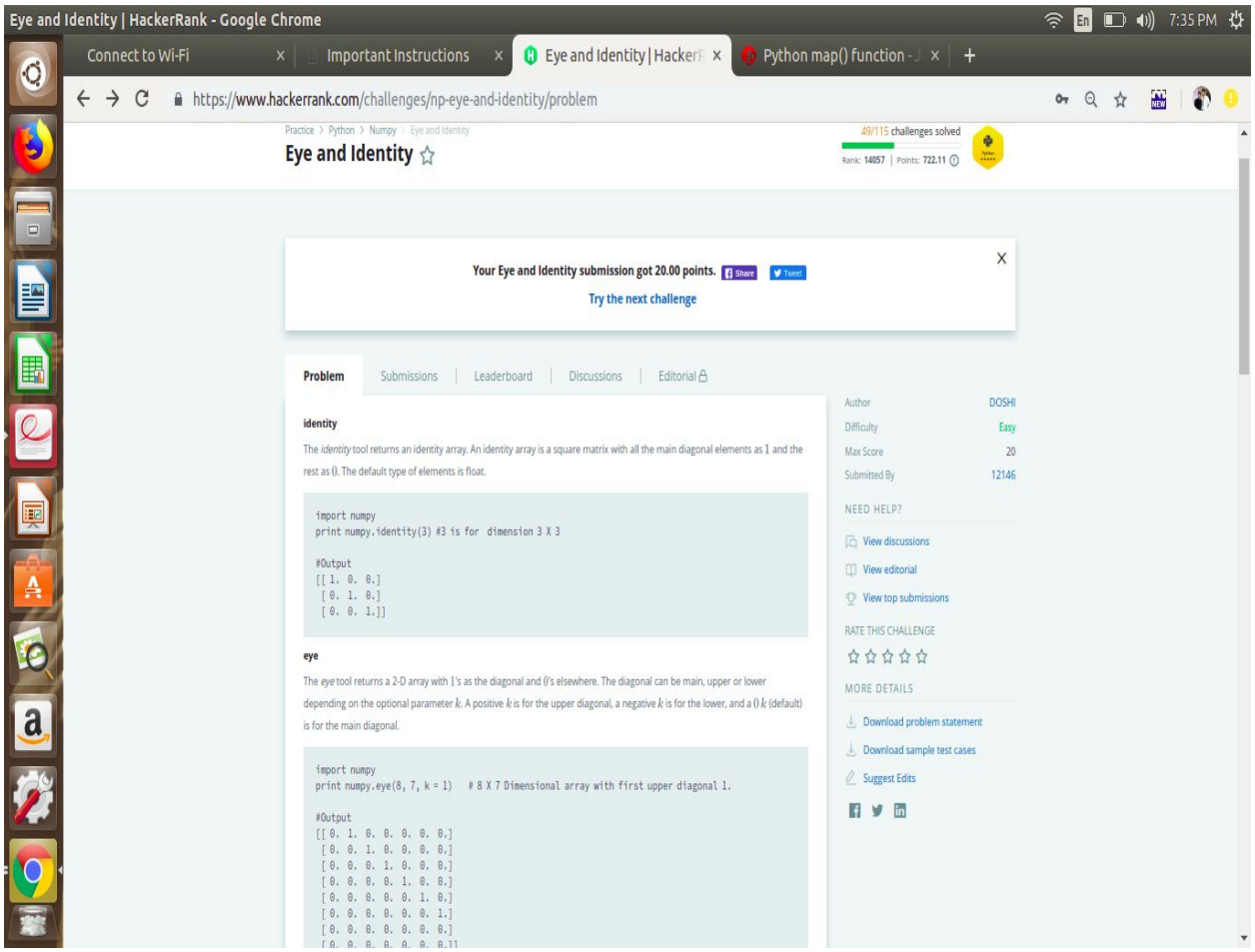
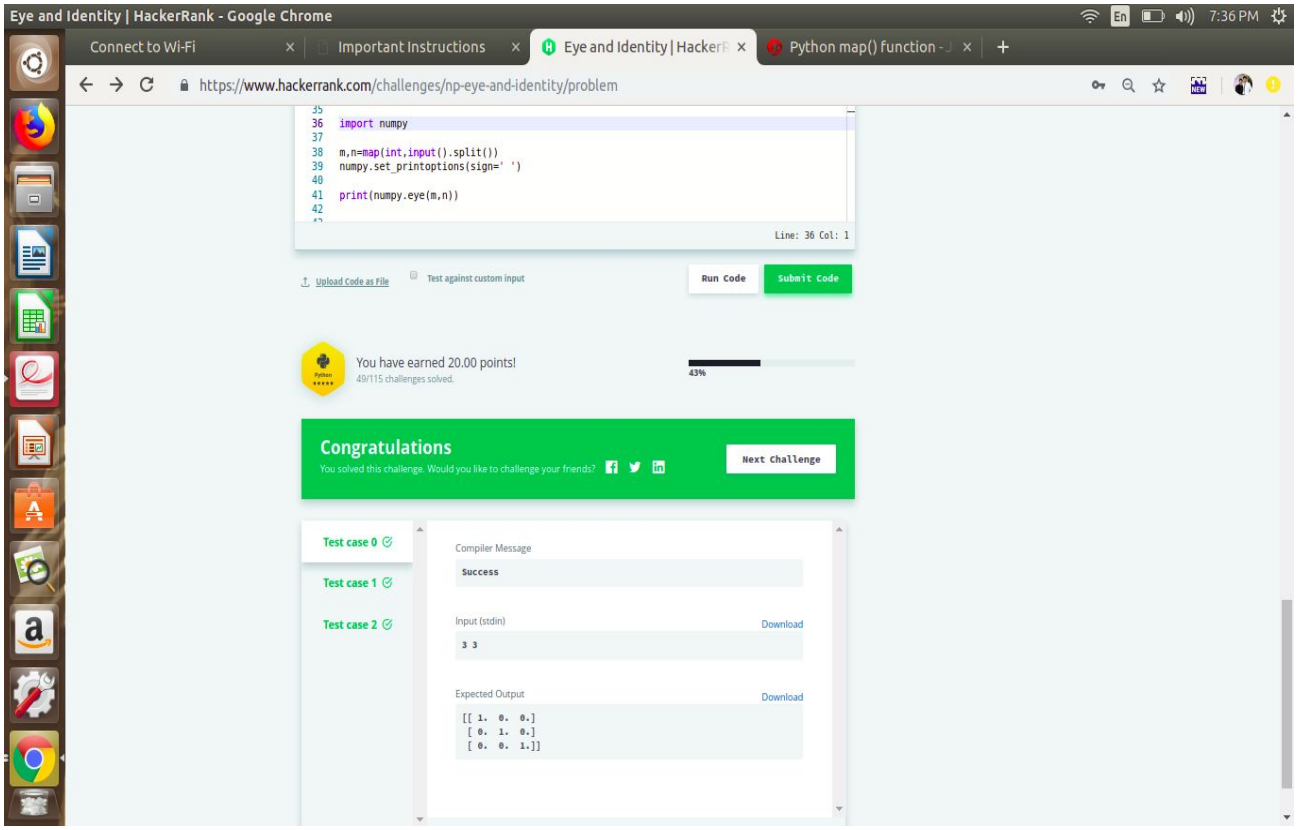
HACKERANK SOLUTION (NUMPY)
#Easy Mode

Problem 1




Eye and Identity | HackerRank - Google Chrome
7:36 PM
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Important Instructions
Eye and Identity | HackerR
Python map() function -
https://www.hackerrank.com/challenges/np-eye-and-identity/problem
import numpy
m,n=map(int,input().split())
numpy.set_printoptions(sign=' ')
print(numpy.eye(m,n))
Line: 36 Col: 1
Upload Code as File
Test against custom input
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You have earned 20.00 points!
49/115 challenges solved.
43%
Congratulations
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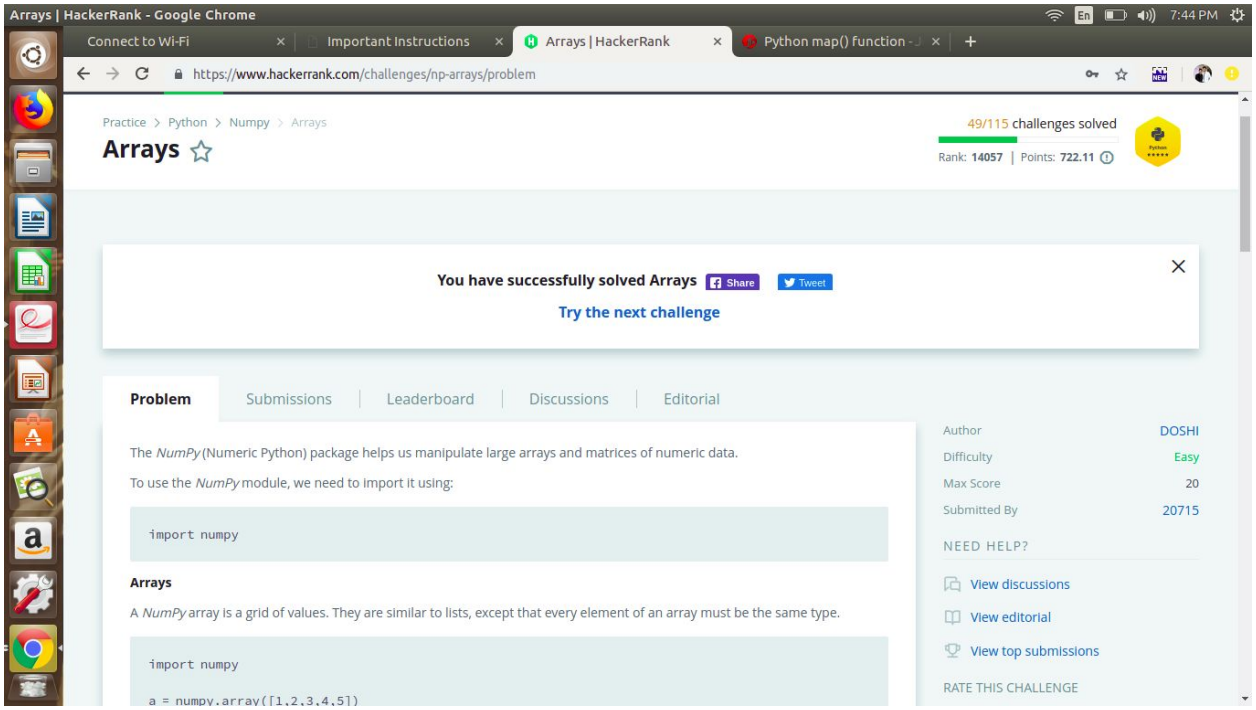
Test case 0
Test case 1
Test case 2
Compiler Message
Success
Input (stdin)
Download
3 3
Expected Output
Download
[[1. 0. 0.]
[0. 1. 0.]
[0. 0. 1.]]

Problem 2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Arrays | HackerRank
Python map() function -
https://www.hackerrank.com/challenges/np-arrays/problem
Practice > Python > Numpy > Arrays
Arrays
49/115 challenges solved
Rank: 14057 | Points: 722.11
You have successfully solved Arrays
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The NumPy (Numeric Python) package helps us manipulate large arrays and matrices of numeric data.
To use the NumPy module, we need to import it using:
import numpy
Arrays
A NumPy array is a grid of values. They are similar to lists, except that every element of an array must be the same type.
import numpy
a = numpy.array([1,2,3,4,5])
Author
DOSHI
Difficulty
Easy
Max Score
20
Submitted By
20715
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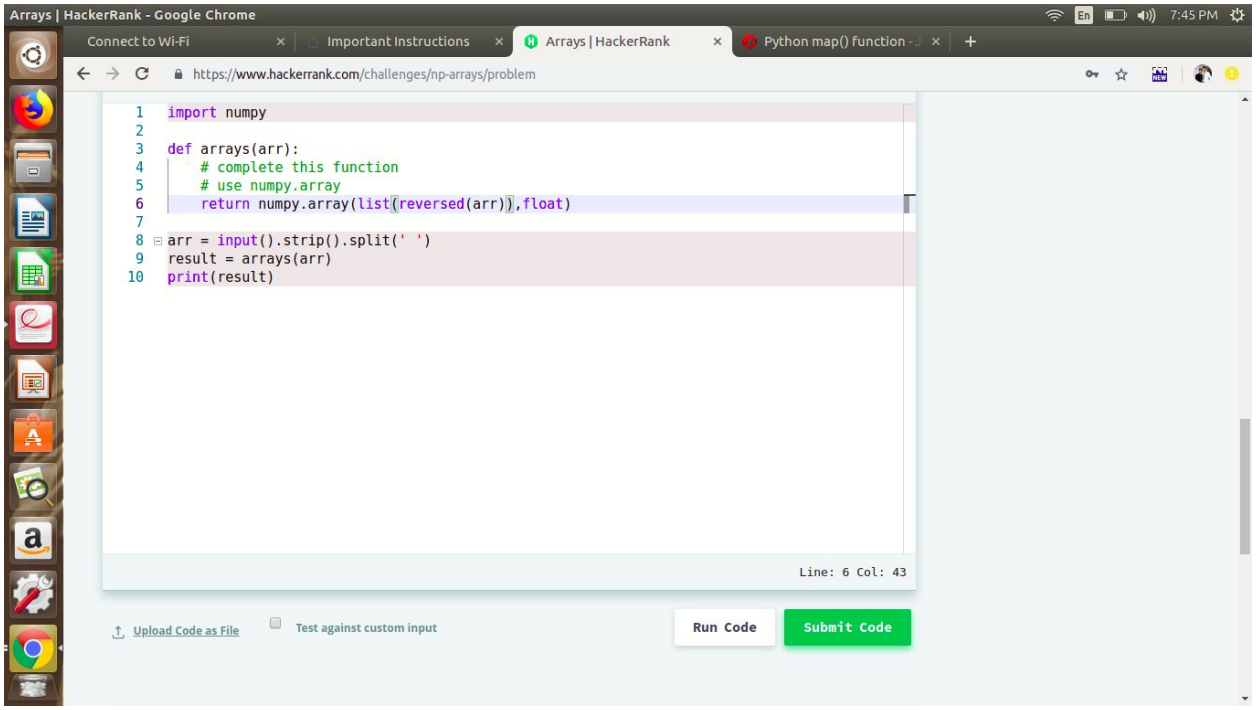
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Important Instructions
Arrays | HackerRank
Python map() function
https://www.hackerrank.com/challenges/np-arrays/problem
import numpy
def arrays(arr):
# complete this function
# use numpy.array
return numpy.array(list(reversed(arr)),float)
arr = input().strip().split(' ')
result = arrays(arr)
print(result)
Line: 6 Col: 43
Upload Code as File
Test against custom input
Run Code
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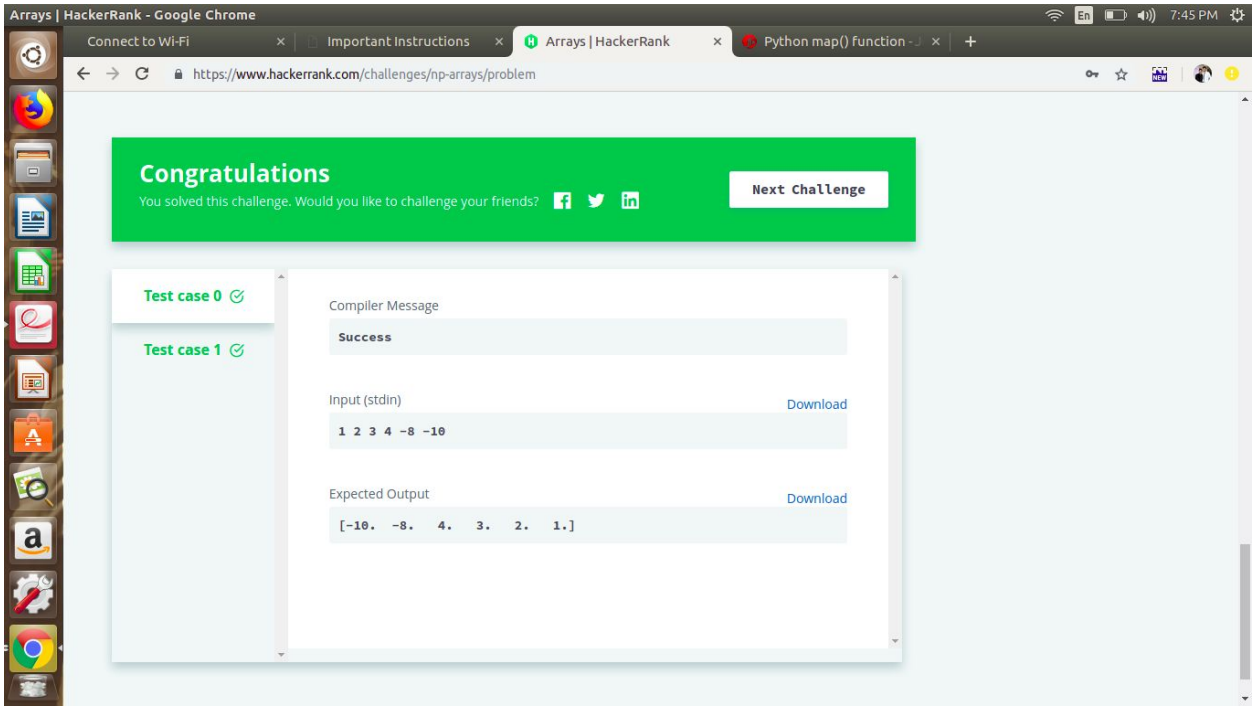
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https://www.hackerrank.com/challenges/np-arrays/problem
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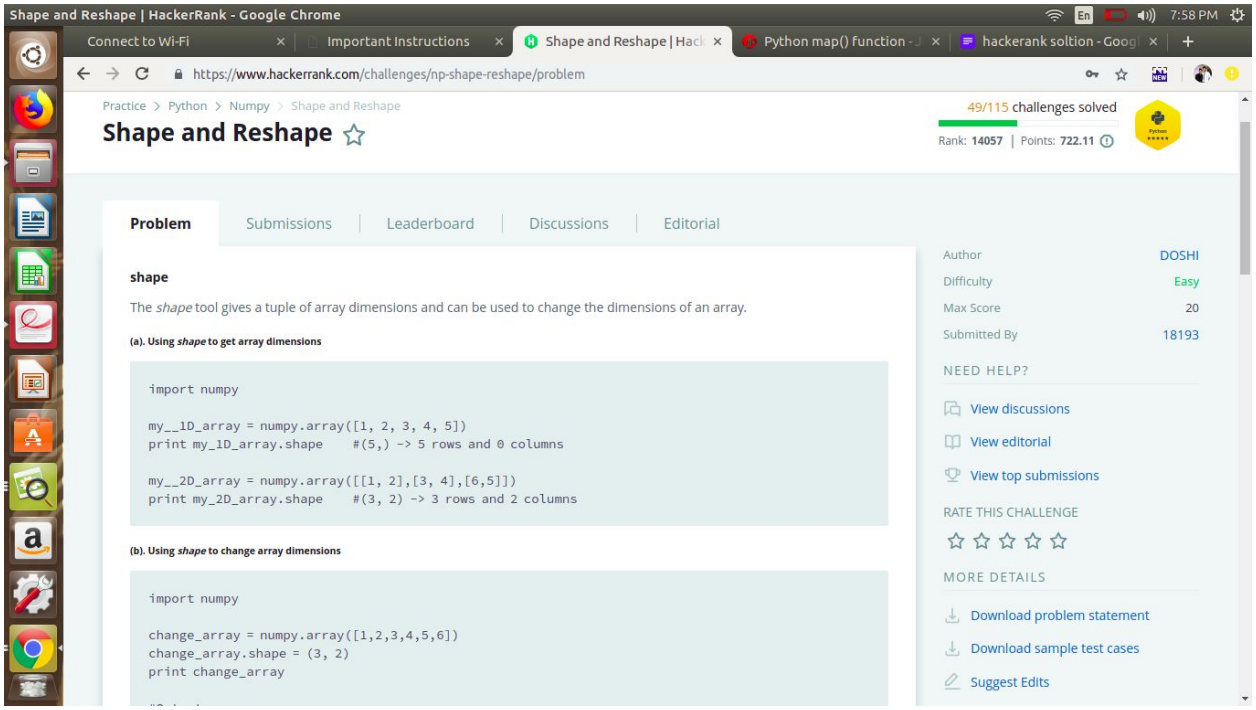
Test case 0
Test case 1
Compiler Message
Success
Input (stdin)
Download
1 2 3 4 -8 -10
Expected Output
Download
[-10. -8. 4. 3. 2. 1.]

Problem3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Python map() function -J
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https://www.hackerrank.com/challenges/np-shape-reshape/problem
Practice > Python > Numpy > Shape and Reshape
Shape and Reshape
49/115 challenges solved
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Discussions
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shape
The shape tool gives a tuple of array dimensions and can be used to change the dimensions of an array.
(a). Using shape to get array dimensions
import numpy
my__1D_array = numpy.array([1, 2, 3, 4, 5])
print my_1D_array.shape #(5,) -> 5 rows and 0 columns
my__2D_array = numpy.array([[1, 2],[3, 4],[6,5]])
print my_2D_array.shape #(3, 2) -> 3 rows and 2 columns
(b). Using shape to change array dimensions
import numpy
change_array = numpy.array([1,2,3,4,5,6])
change_array.shape = (3, 2)
print change_array
Author DOSHI
Difficulty Easy
Max Score 20
Submitted By 18193
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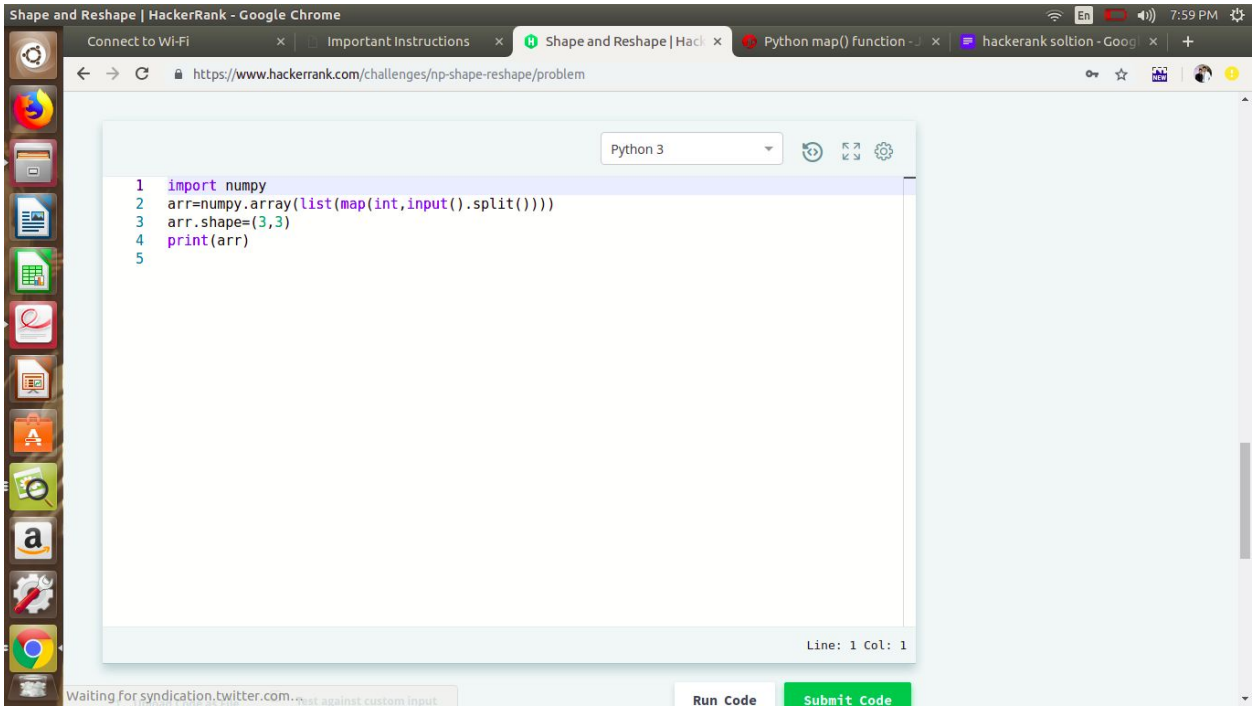
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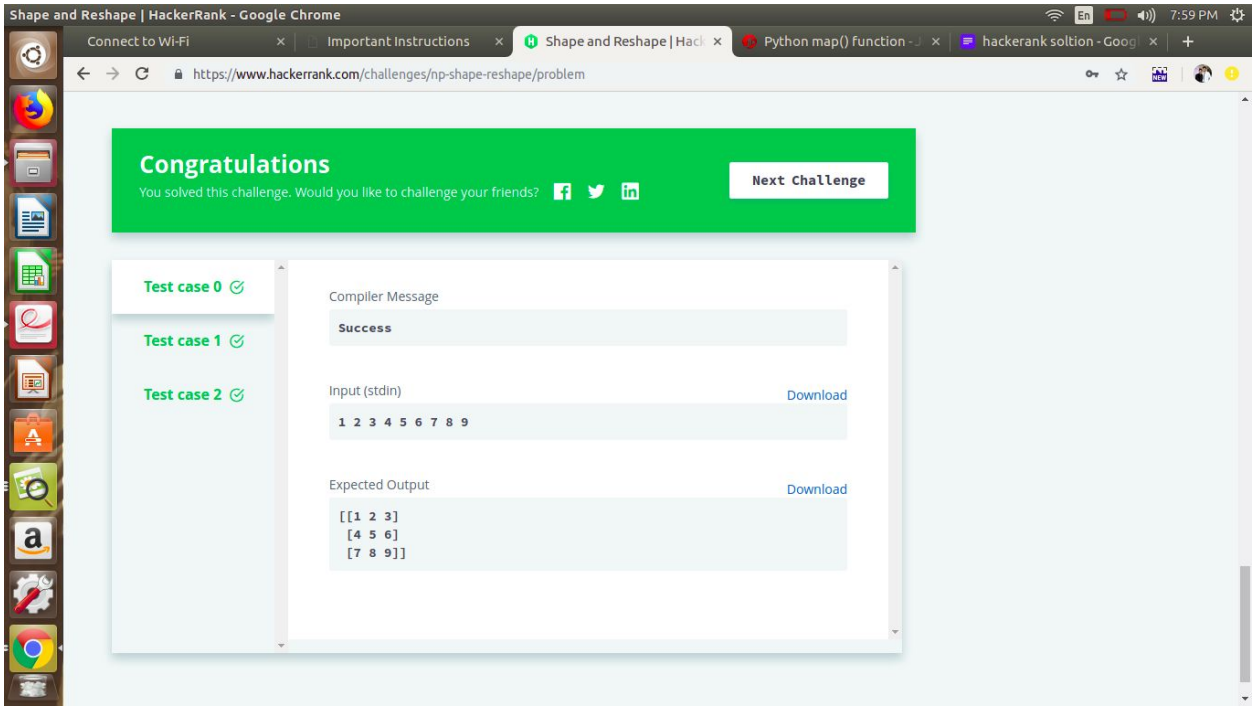
Important Instructions
Shape and Reshape | Hacl
Python map() function -J
hackerank soltion - Goog
https://www.hackerrank.com/challenges/np-shape-reshape/problem
Python 3
1 import numpy
2 arr=numpy.array(list(map(int,input().split())))
3 arr.shape=(3,3)
4 print(arr)
5
Line: 1 Col: 1
Run Code
Submit Code
Waiting for syndication.twitter.com...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https://www.hackerrank.com/challenges/np-shape-reshape/problem
Congratulations
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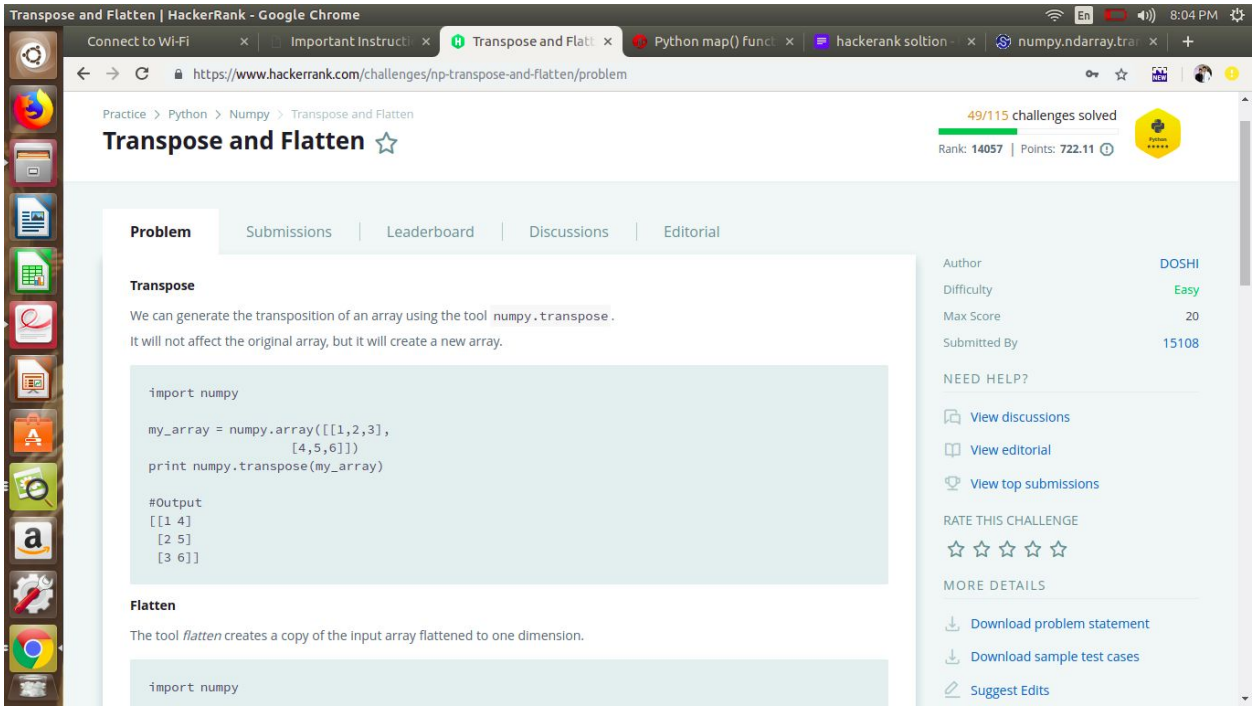
Next Challenge
Test case 0
Test case 1
Test case 2
Compiler Message
Success
Input (stdin)
Download
1 2 3 4 5 6 7 8 9
Expected Output
Download
[[1 2 3]
[4 5 6]
[7 8 9]]

Problem 4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Transpose and Flatt
Python map() funct
hackerank soltion -
numpy.ndarray.tra
https://www.hackerrank.com/challenges/np-transpose-and-flatten/problem
Practice > Python > Numpy > Transpose and Flatten
Transpose and Flatten
49/115 challenges solved
Rank: 14057 | Points: 722.11
Problem
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Transpose
We can generate the transposition of an array using the tool numpy.transpose.
It will not affect the original array, but it will create a new array.
import numpy
my_array = numpy.array([[1,2,3],
[4,5,6]])
print numpy.transpose(my_array)
#Output
[[1 4]
[2 5]
[3 6]]
Flatten
The tool flatten creates a copy of the input array flattened to one dimension.
import numpy
Author DOSHI
Difficulty Easy
Max Score 20
Submitted By 15108
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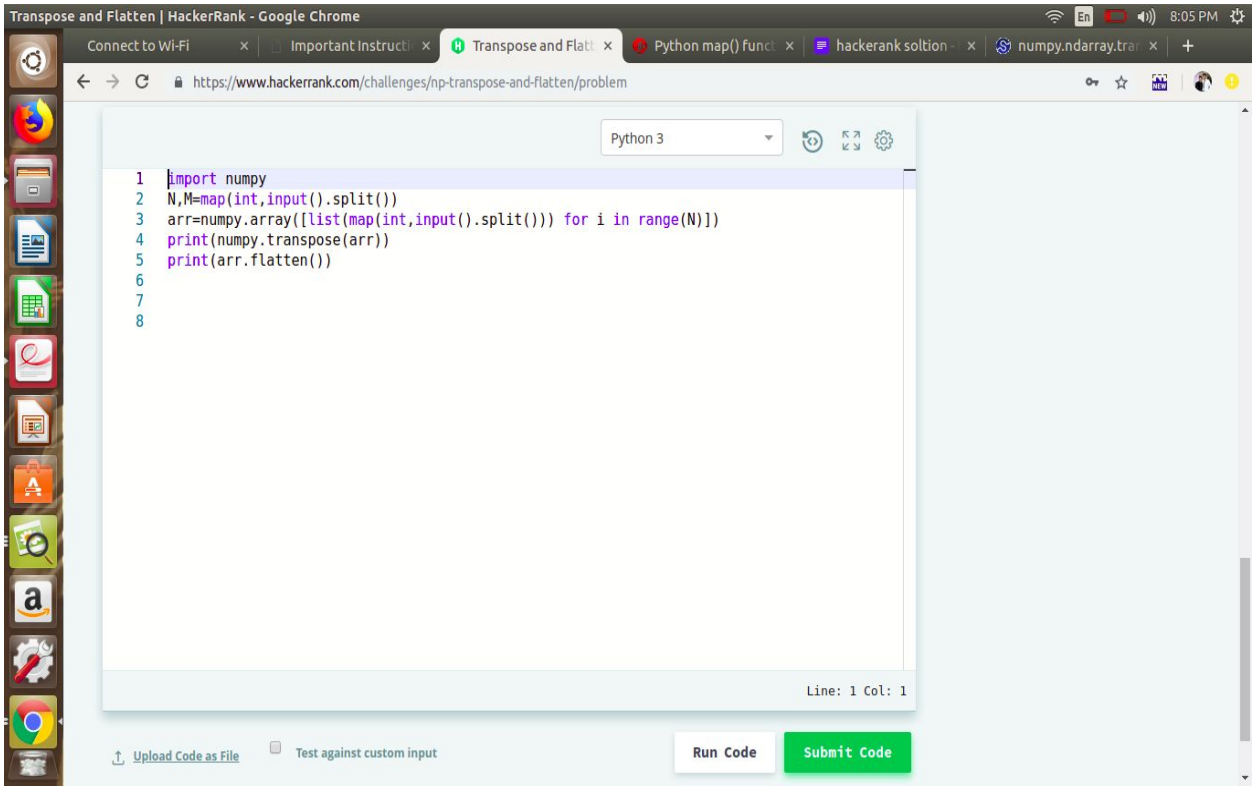
Transpose and Flatten | HackerRank - Google Chrome
8:05 PM
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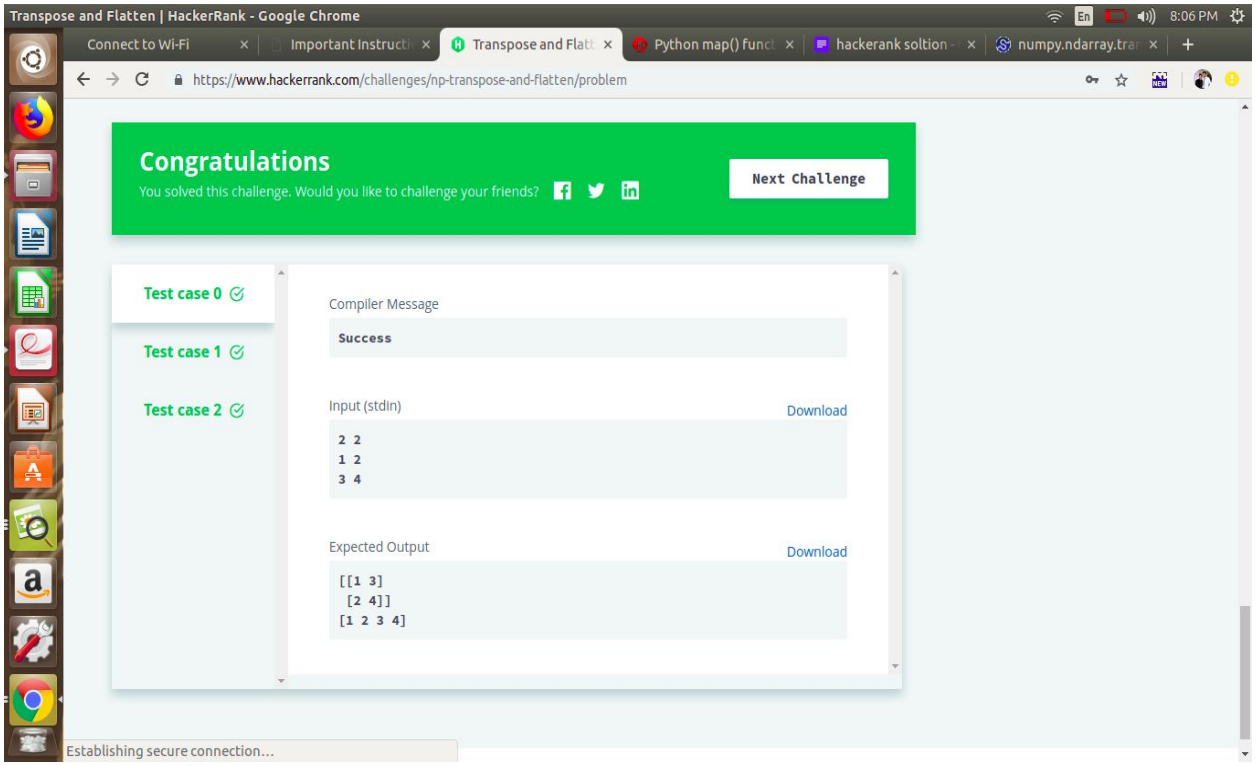
Transpose and Flatt
Python map() funct
hackerank soltion -
numpy.ndarray.tra
https://www.hackerrank.com/challenges/np-transpose-and-flatten/problem
Python 3
1 import numpy
2 N,M=map(int,input().split())
3 arr=numpy.array([list(map(int,input().split())) for i in range(N)])
4 print(numpy.transpose(arr))
5 print(arr.flatten())
6
7
8
Line: 1 Col: 1
Upload Code as File
Test against custom input
Run Code
Submit Code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Python map() funct
hackerank soltion -
numpy.ndarray.tra
https://www.hackerrank.com/challenges/np-transpose-and-flatten/problem
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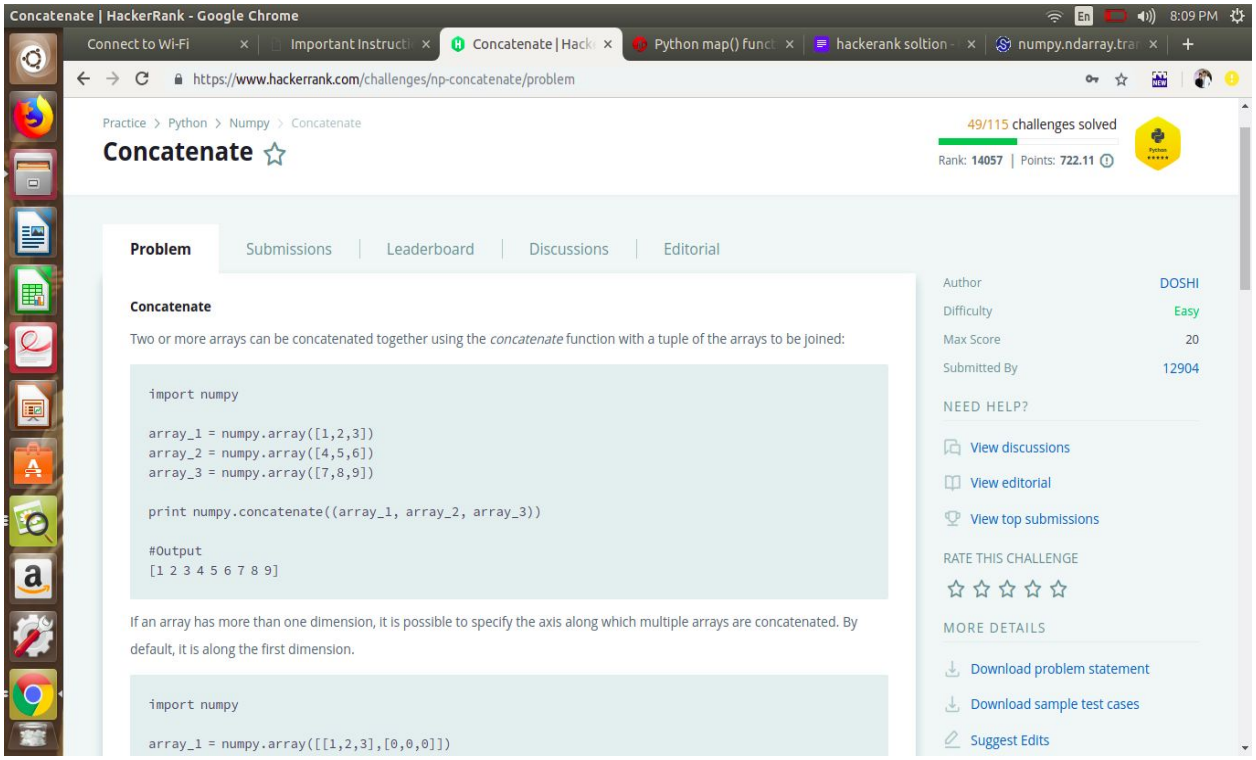
Next Challenge
Test case 0
Test case 1
Test case 2
Compiler Message
Success
Input (stdin)
Download
2 2
1 2
3 4
Expected Output
Download
[[1 3]
[2 4]]
[1 2 3 4]
Establishing secure connection...

Problem 5


Concatenate | HackerRank - Google Chrome
8:09 PM
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Important Instructi
Concatenate | Hack
Python map() funct
hackerank soltion -
numpy.ndarray.tra
https://www.hackerrank.com/challenges/np-concatenate/problem
Practice > Python > Numpy > Concatenate
Concatenate
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Editorial
Concatenate
Two or more arrays can be concatenated together using the concatenate function with a tuple of the arrays to be joined:
import numpy
array_1 = numpy.array([1,2,3])
array_2 = numpy.array([4,5,6])
array_3 = numpy.array([7,8,9])
print numpy.concatenate((array_1, array_2, array_3))
#Output
[1 2 3 4 5 6 7 8 9]
If an array has more than one dimension, it is possible to specify the axis along which multiple arrays are concatenated. By default, it is along the first dimension.
import numpy
array_1 = numpy.array([[1,2,3],[0,0,0]])
Author DOSHI
Difficulty Easy
Max Score 20
Submitted By 12904
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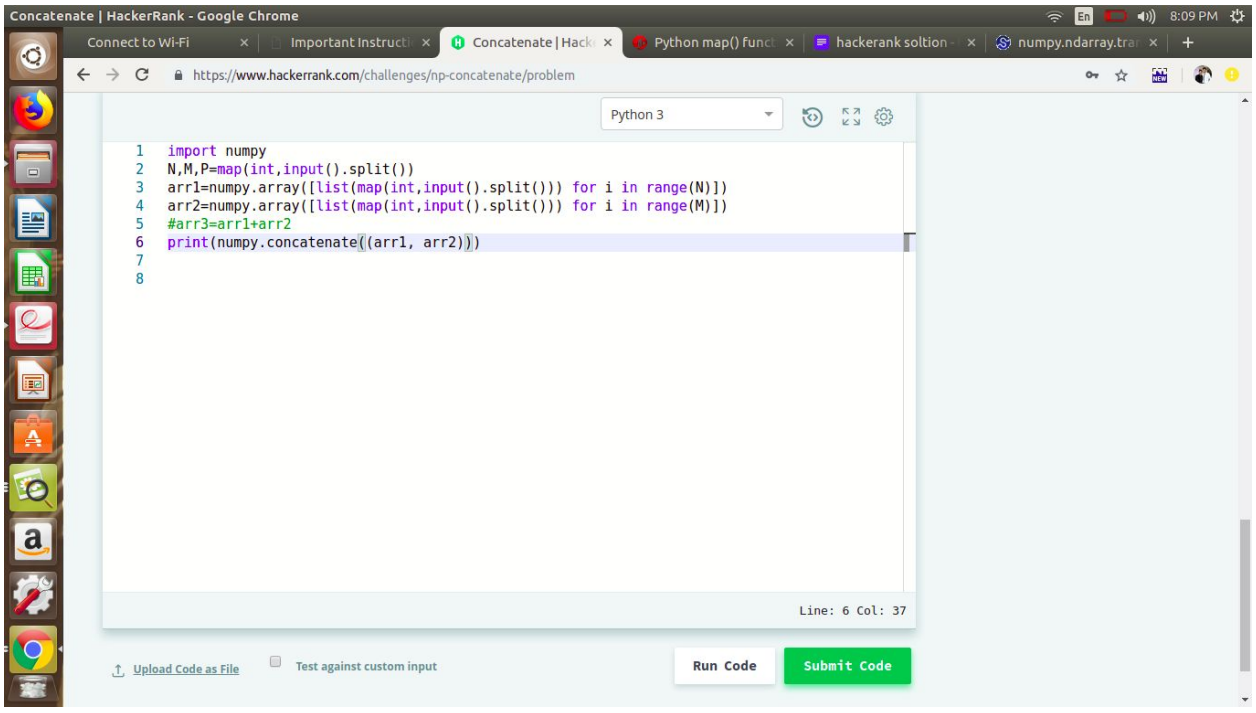
Concatenate | HackerRank - Google Chrome
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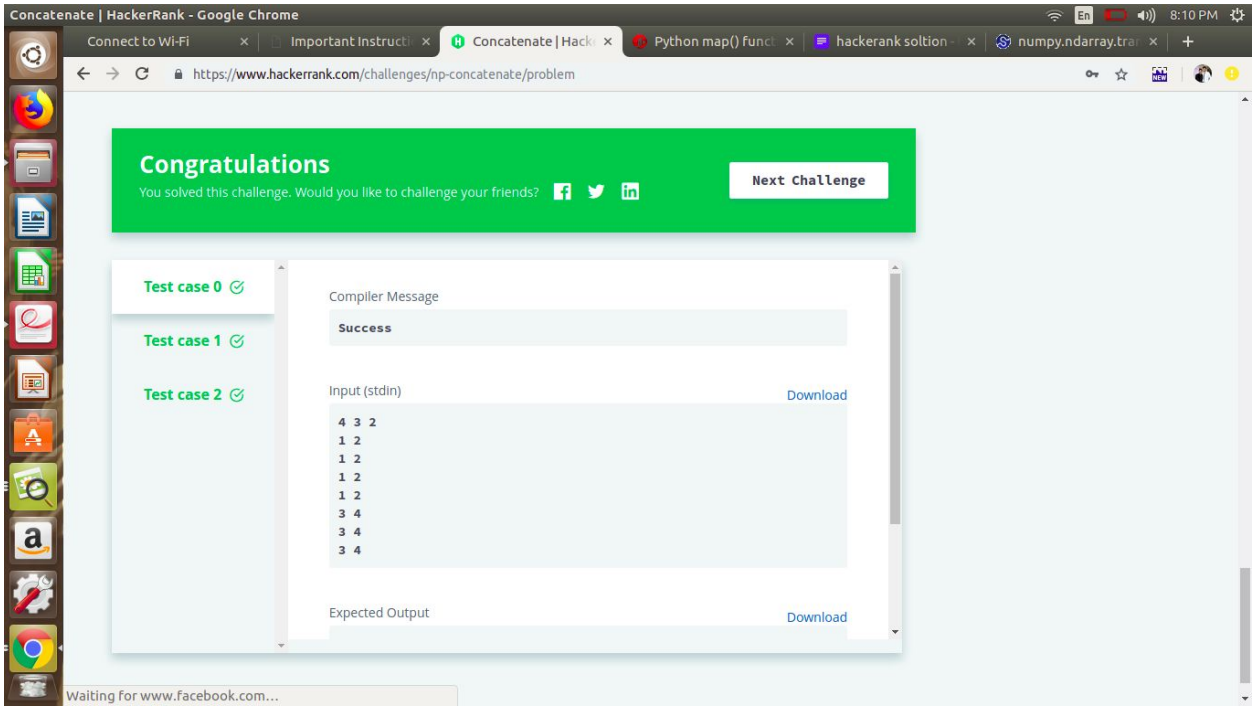
Concatenate | Hack
Python map() funct
hackerank soltion -
numpy.ndarray.tra
https://www.hackerrank.com/challenges/np-concatenate/problem
Python 3
import numpy
N,M,P=map(int,input().split())
arr1=numpy.array([list(map(int,input().split())) for i in range(N)])
arr2=numpy.array([list(map(int,input().split())) for i in range(M)])
#arr3=arr1+arr2
print(numpy.concatenate((arr1, arr2)))
Line: 6 Col: 37
Upload Code as File
Test against custom input
Run Code
Submit Code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Concatenate | Hack
Python map() funct
hackerank soltion -
numpy.ndarray.tra
https://www.hackerrank.com/challenges/np-concatenate/problem
Congratulations
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Test case 0
Test case 1
Test case 2
Compiler Message
Success
Input (stdin)
Download
4 3 2
1 2
1 2
1 2
1 2
3 4
3 4
3 4
Expected Output
Download
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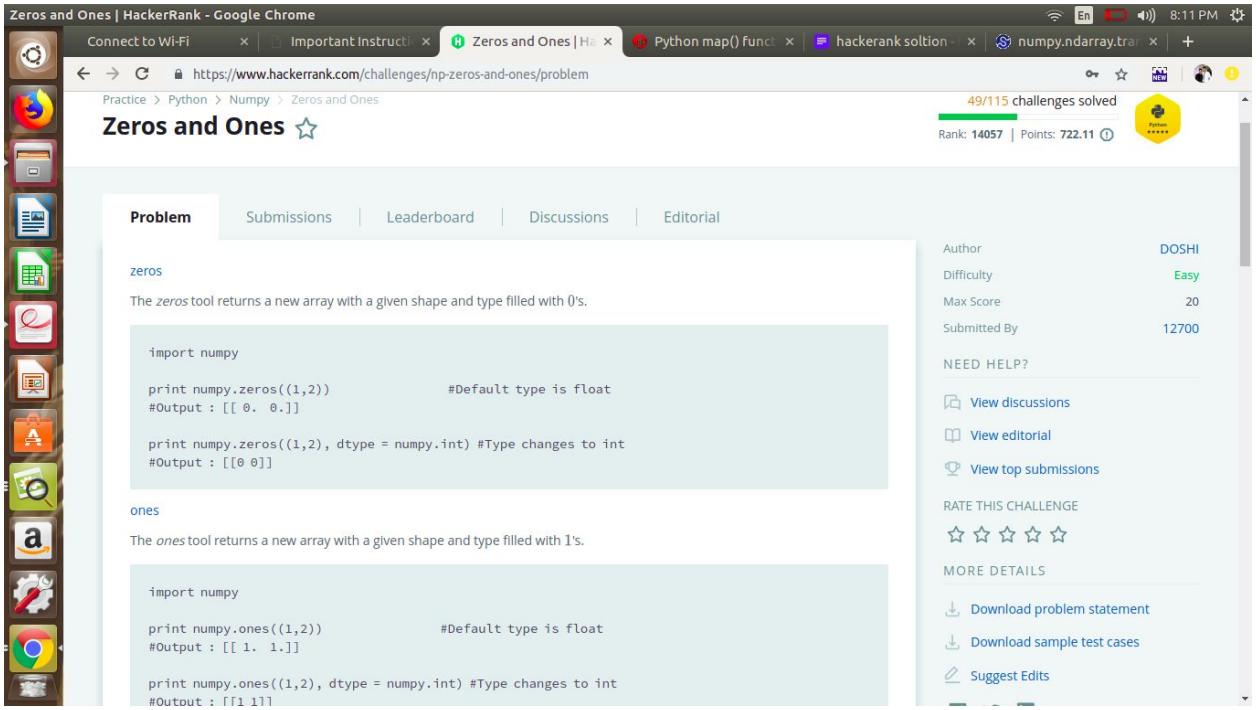
Problem 6


Zeros and Ones | HackerRank - Google Chrome
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Zeros and Ones | Ha
Python map() funct
hackerank soltion -
numpy.ndarray.tra
https://www.hackerrank.com/challenges/np-zeros-and-ones/problem
Practice > Python > Numpy > Zeros and Ones
Zeros and Ones
49/115 challenges solved
Rank: 14057 | Points: 722.11
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Leaderboard
Discussions
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zeros
The zeros tool returns a new array with a given shape and type filled with 0's.
import numpy
print numpy.zeros((1,2)) #Default type is float
#Output : [[0. 0.]]
print numpy.zeros((1,2), dtype = numpy.int) #Type changes to int
#Output : [[0 0]]
ones
The ones tool returns a new array with a given shape and type filled with 1's.
import numpy
print numpy.ones((1,2)) #Default type is float
#Output : [[1. 1.]]
print numpy.ones((1,2), dtype = numpy.int) #Type changes to int
#Output : [[1 1]]
Author DOSHI
Difficulty Easy
Max Score 20
Submitted By 12700
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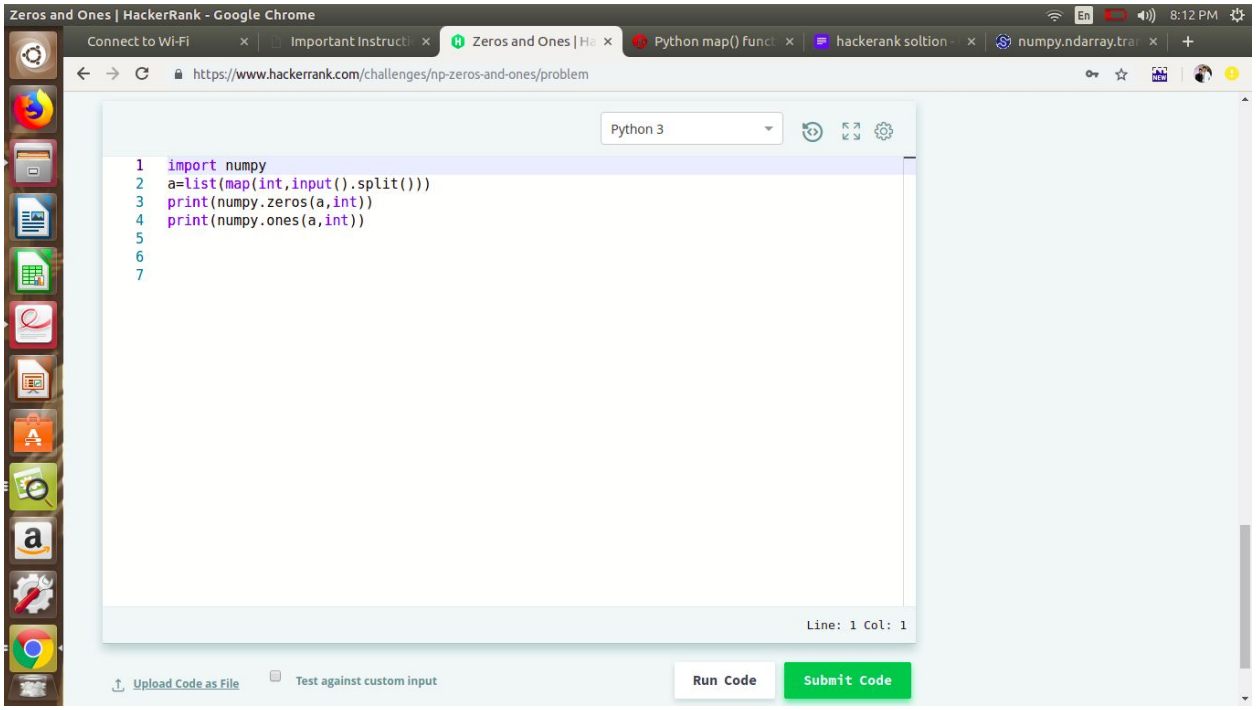
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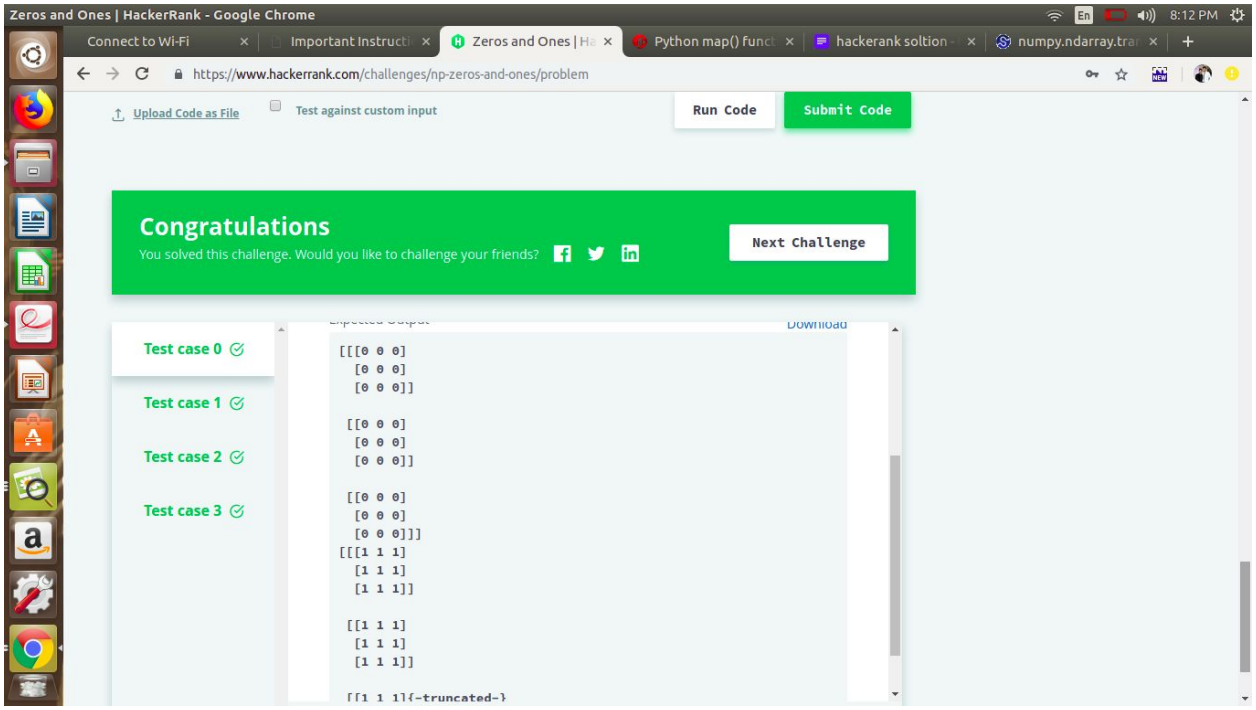
Python map() funct
hackerank soltion
numpy.ndarray.tra
https://www.hackerrank.com/challenges/np-zeros-and-ones/problem
Python 3
1 import numpy
2 a=list(map(int,input().split()))
3 print(numpy.zeros(a,int))
4 print(numpy.ones(a,int))
5
6
7
Line: 1 Col: 1
Upload Code as File
Test against custom input
Run Code
Submit Code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Zeros and Ones | Ha
Python map() funct
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numpy.ndarray.tra
https://www.hackerrank.com/challenges/np-zeros-and-ones/problem
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Run Code
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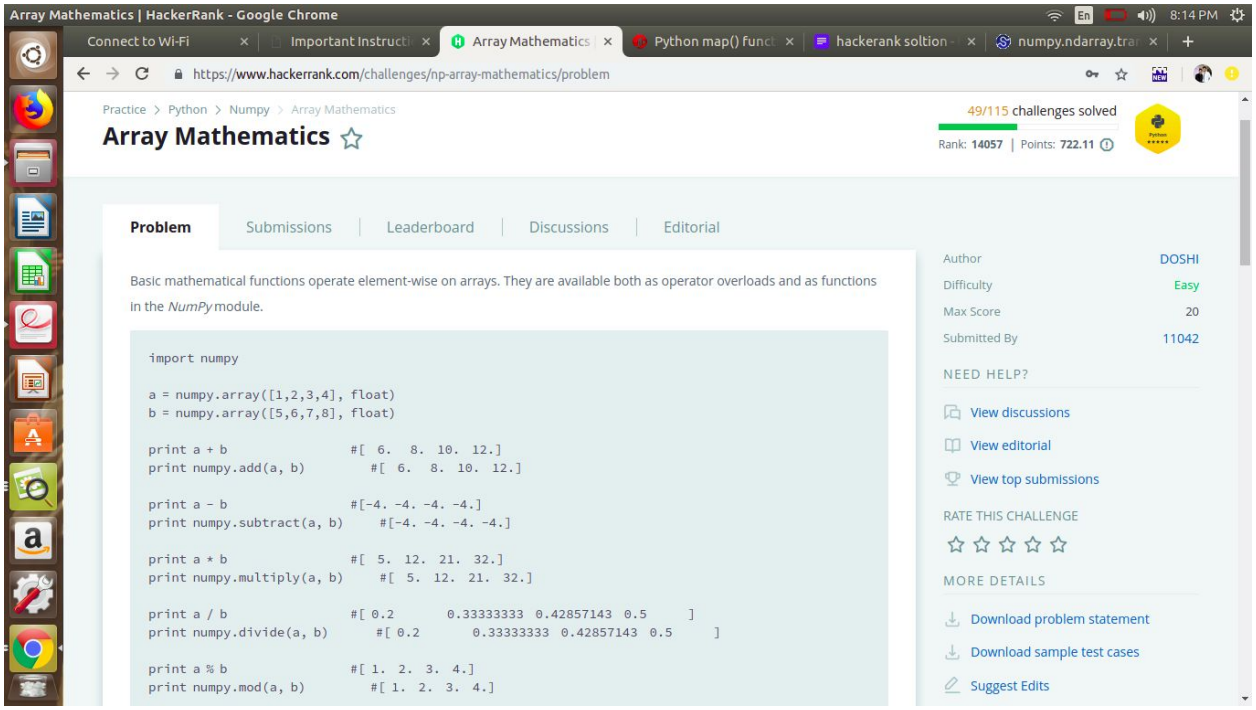
Next Challenge
Test case 0
Test case 1
Test case 2
Test case 3
Download
[[[0 0 0]
[0 0 0]
[0 0 0]]
[[0 0 0]
[0 0 0]
[0 0 0]]
[[0 0 0]
[0 0 0]
[0 0 0]]]
[[[1 1 1]
[1 1 1]
[1 1 1]]
[[1 1 1]
[1 1 1]
[1 1 1]]

Problem 7


Array Mathematics | HackerRank - Google Chrome
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Array Mathematics
Python map() funct
hackerank soltion
numpy.ndarray.tra
https://www.hackerrank.com/challenges/np-array-mathematics/problem
Practice > Python > Numpy > Array Mathematics
Array Mathematics
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Rank: 14057 | Points: 722.11
Problem
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Leaderboard
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Basic mathematical functions operate element-wise on arrays. They are available both as operator overloads and as functions in the NumPy module.
import numpy
a = numpy.array([1,2,3,4], float)
b = numpy.array([5,6,7,8], float)
print a + b #[6. 8. 10. 12.]
print numpy.add(a, b) #[6. 8. 10. 12.]
print a - b #[-4. -4. -4. -4.]
print numpy.subtract(a, b) #[-4. -4. -4. -4.]
print a * b #[5. 12. 21. 32.]
print numpy.multiply(a, b) #[5. 12. 21. 32.]
print a / b #[0.2 0.33333333 0.42857143 0.5]
print numpy.divide(a, b) #[0.2 0.33333333 0.42857143 0.5]
print a % b #[1. 2. 3. 4.]
print numpy.mod(a, b) #[1. 2. 3. 4.]
Author DOSHI
Difficulty Easy
Max Score 20
Submitted By 11042
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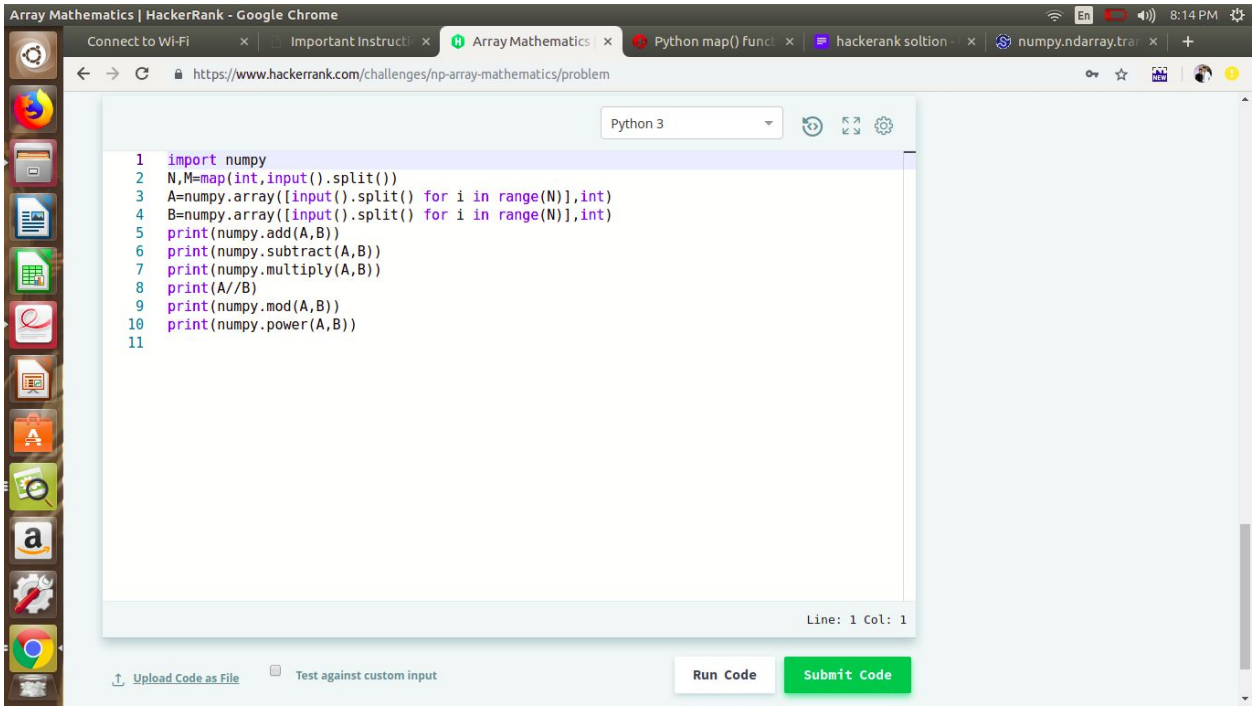
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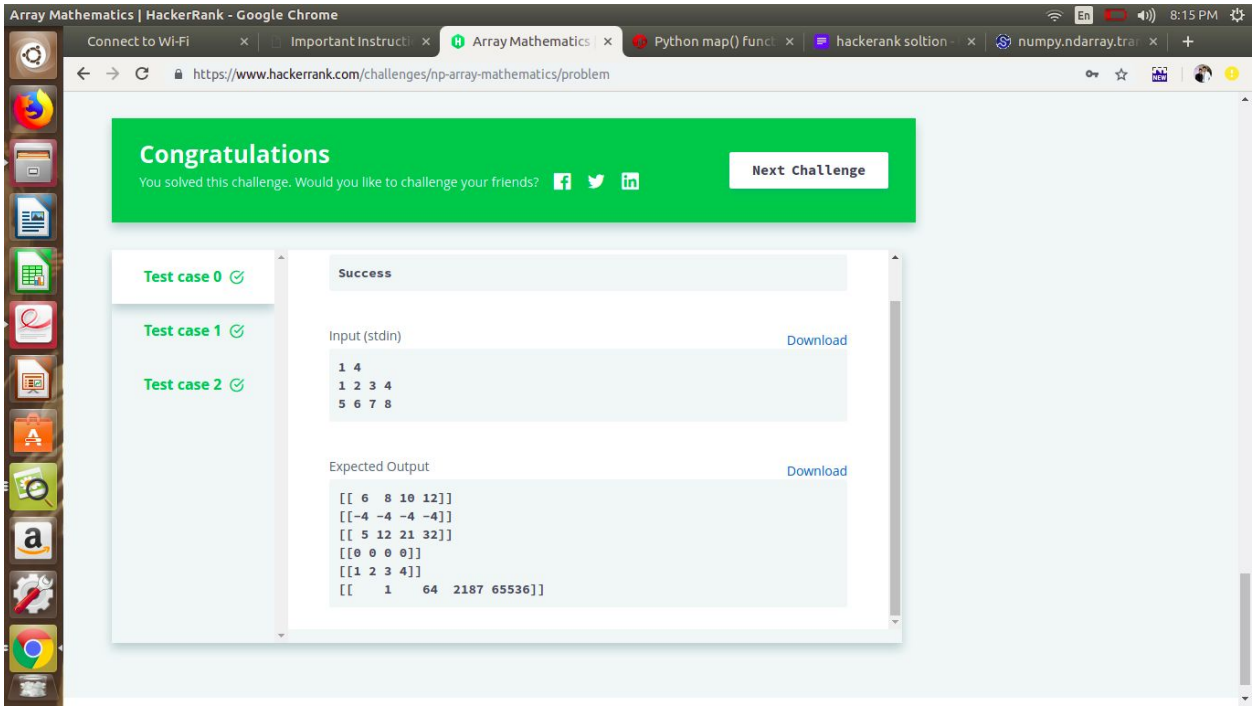
Important Instructi
Array Mathematics
Python map() funct
hackerank soltion
numpy.ndarray.tra
https://www.hackerrank.com/challenges/np-array-mathematics/problem
Python 3
1 import numpy
2 N,M=map(int,input().split())
3 A=numpy.array([input().split() for i in range(N)],int)
4 B=numpy.array([input().split() for i in range(N)],int)
5 print(numpy.add(A,B))
6 print(numpy.subtract(A,B))
7 print(numpy.multiply(A,B))
8 print(A//B)
9 print(numpy.mod(A,B))
10 print(numpy.power(A,B))
11
Line: 1 Col: 1
Upload Code as File
Test against custom input
Run Code
Submit Code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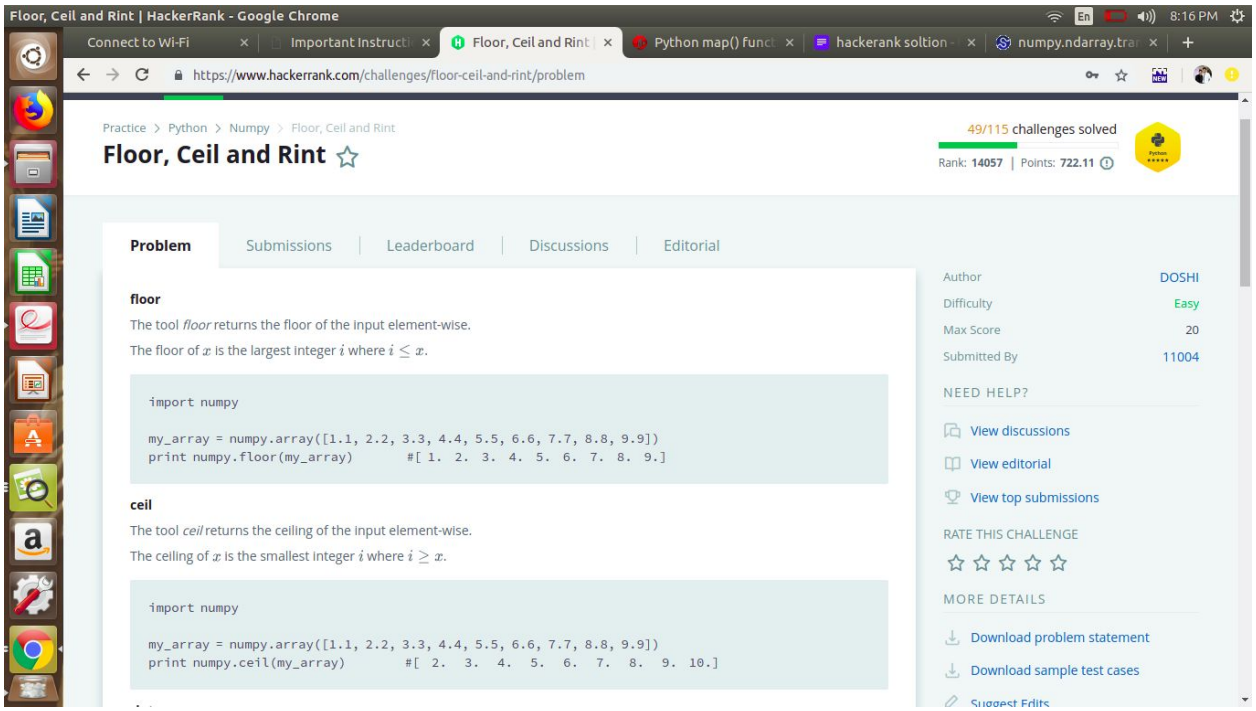
Array Mathematics
Python map() funct
hackerank soltion
numpy.ndarray.tra
https://www.hackerrank.com/challenges/np-array-mathematics/problem
Congratulations
You solved this challenge. Would you like to challenge your friends?
Next Challenge
Test case 0
Test case 1
Test case 2
Success
Input (stdin)
Download
1 4
1 2 3 4
5 6 7 8
Expected Output
Download
[[6 8 10 12]]
[[-4 -4 -4 -4]]
[[5 12 21 32]]
[[0 0 0 0]]
[[1 2 3 4]]
[[1 64 2187 65536]]

Problem 8


Floor, Ceil and Rint | HackerRank - Google Chrome
8:16 PM
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Important Instructi
Floor, Ceil and Rint
Python map() funct
hackerank soltion
numpy.ndarray.tra
https://www.hackerrank.com/challenges/floor-ceil-and-rint/problem
Practice > Python > Numpy > Floor, Ceil and Rint
Floor, Ceil and Rint
49/115 challenges solved
Rank: 14057 | Points: 722.11
Problem
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Discussions
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floor
The tool floor returns the floor of the input element-wise.
The floor of x is the largest integer i where i ≤ x.
import numpy
my_array = numpy.array([1.1, 2.2, 3.3, 4.4, 5.5, 6.6, 7.7, 8.8, 9.9])
print numpy.floor(my_array) #[1. 2. 3. 4. 5. 6. 7. 8. 9.]
ceil
The tool ceil returns the ceiling of the input element-wise.
The ceiling of x is the smallest integer i where i ≥ x.
import numpy
my_array = numpy.array([1.1, 2.2, 3.3, 4.4, 5.5, 6.6, 7.7, 8.8, 9.9])
print numpy.ceil(my_array) #[2. 3. 4. 5. 6. 7. 8. 9. 10.]
Author DOSHI
Difficulty Easy
Max Score 20
Submitted By 11004
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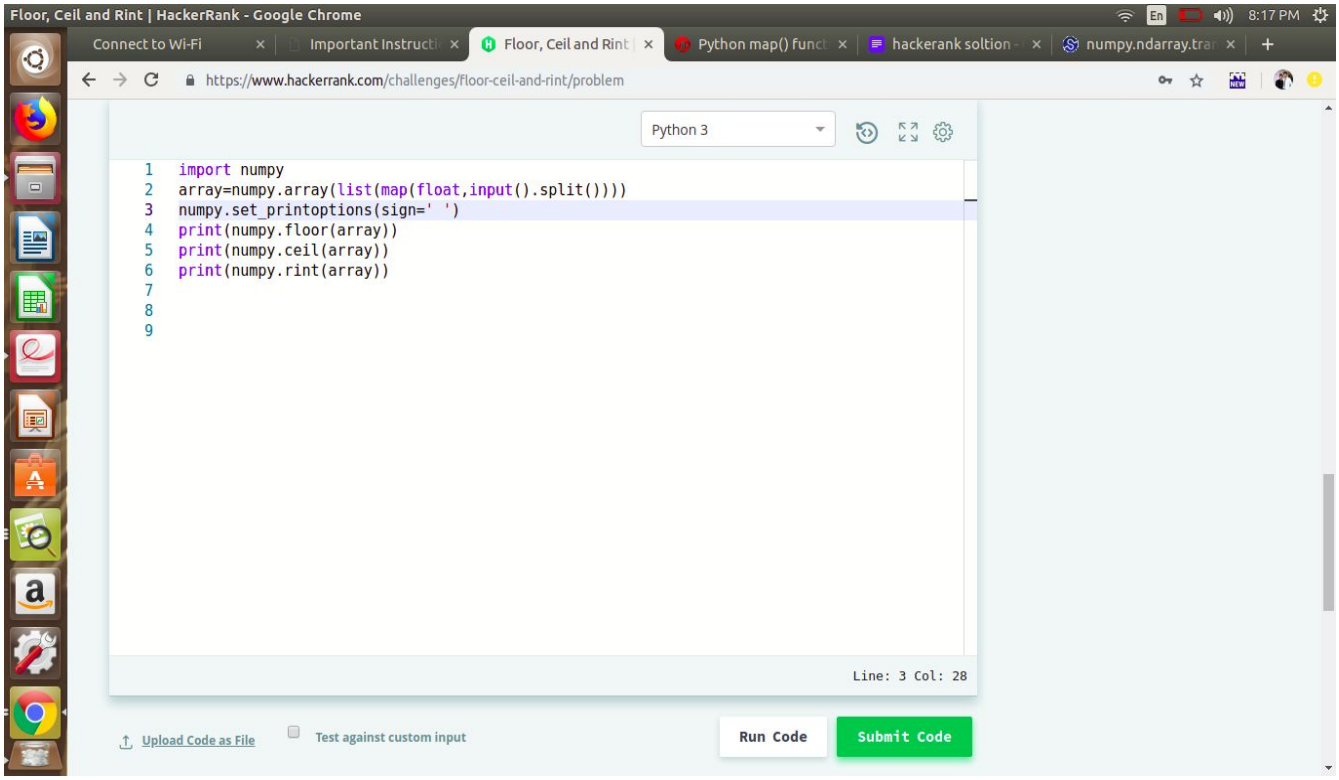
Floor, Ceil and Rint | HackerRank - Google Chrome
Floor, Ceil and Rint
https://www.hackerrank.com/challenges/floor-ceil-and-rint/problem
Python 3
import numpy
array=numpy.array(list(map(float,input().split())))
numpy.set_printoptions(sign=' ')
print(numpy.floor(array))
print(numpy.ceil(array))
print(numpy.rint(array))
Line: 3 Col: 28
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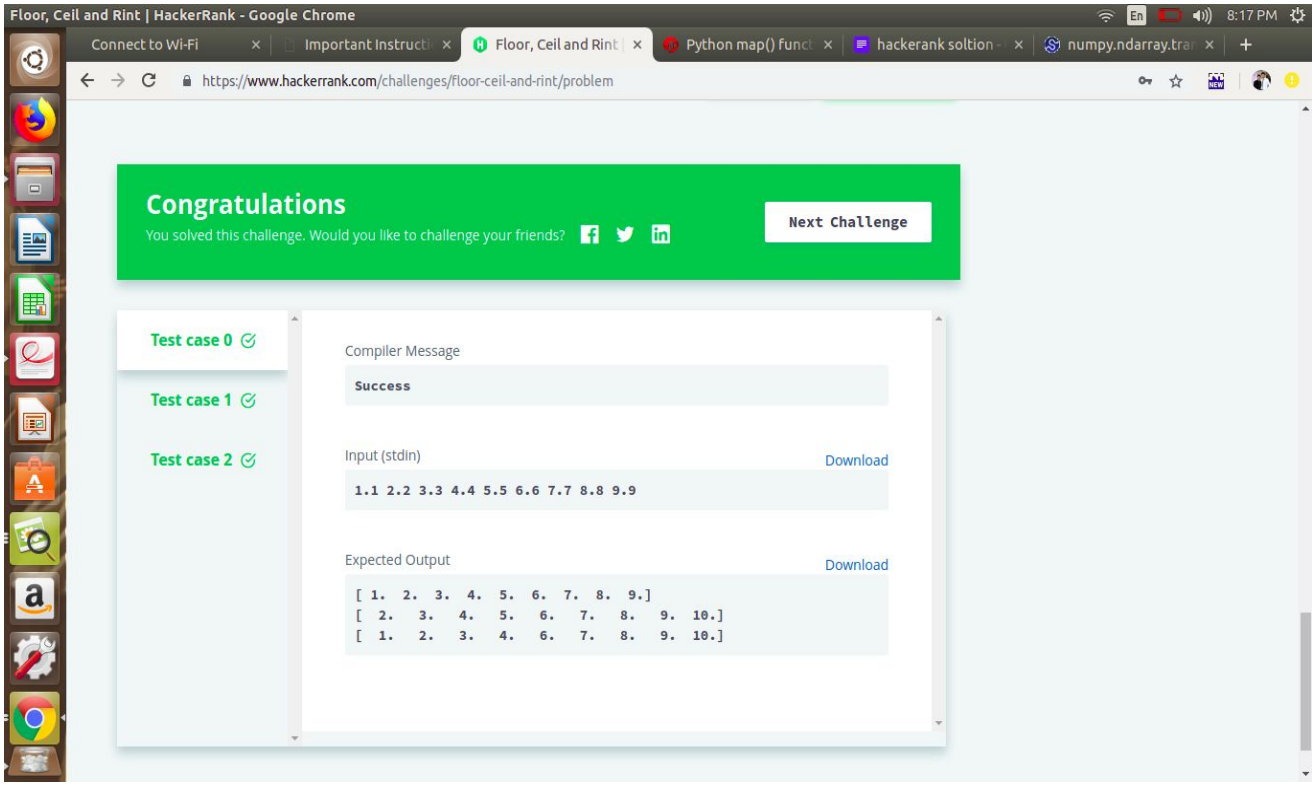
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Test case 2
Compiler Message
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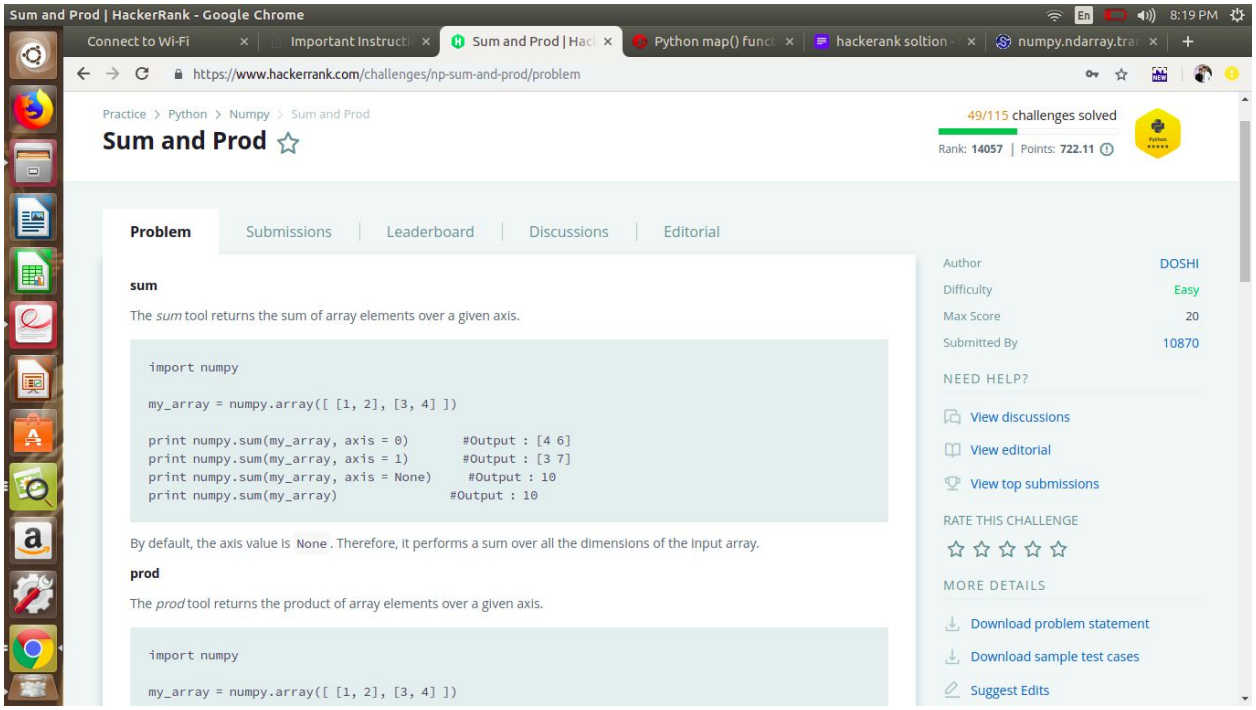
Input (stdin)
Download
1.1 2.2 3.3 4.4 5.5 6.6 7.7 8.8 9.9
Expected Output
Download
[1. 2. 3. 4. 5. 6. 7. 8. 9.]
[2. 3. 4. 5. 6. 7. 8. 9. 10.]
[1. 2. 3. 4. 6. 7. 8. 9. 10.]

Problem 9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numpy.ndarray.tra
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Practice > Python > Numpy > Sum and Prod
Sum and Prod
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sum
The sum tool returns the sum of array elements over a given axis.
import numpy
my_array = numpy.array([[1, 2], [3, 4]])
print numpy.sum(my_array, axis = 0) #Output : [4 6]
print numpy.sum(my_array, axis = 1) #Output : [3 7]
print numpy.sum(my_array, axis = None) #Output : 10
print numpy.sum(my_array) #Output : 10
By default, the axis value is None. Therefore, it performs a sum over all the dimensions of the input array.
prod
The prod tool returns the product of array elements over a given axis.
import numpy
my_array = numpy.array([[1, 2], [3, 4]])
Author DOSHI
Difficulty Easy
Max Score 20
Submitted By 10870
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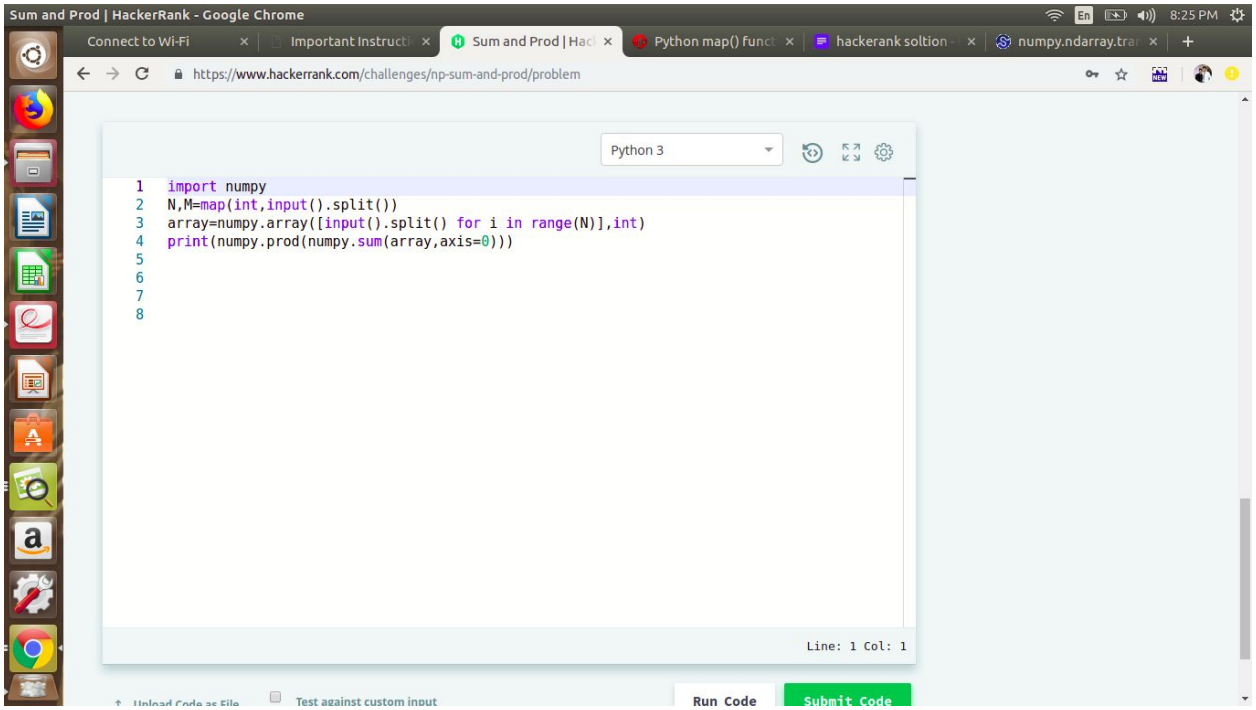
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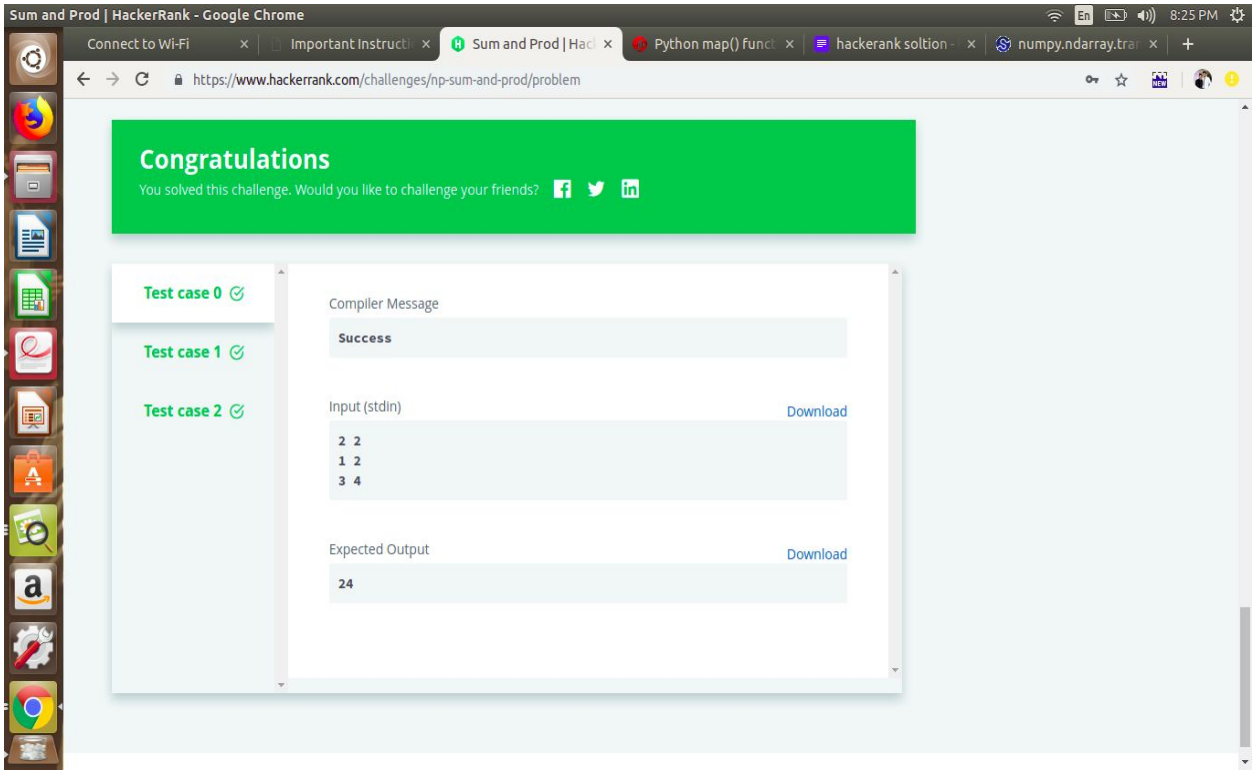
numpy.ndarray.tra
https://www.hackerrank.com/challenges/np-sum-and-prod/problem
Python 3
1 import numpy
2 N,M=map(int,input().split())
3 array=numpy.array([input().split() for i in range(N)],int)
4 print(numpy.prod(numpy.sum(array,axis=0)))
5
6
7
8
Line: 1 Col: 1
Test against custom input
Run Code
Submit Code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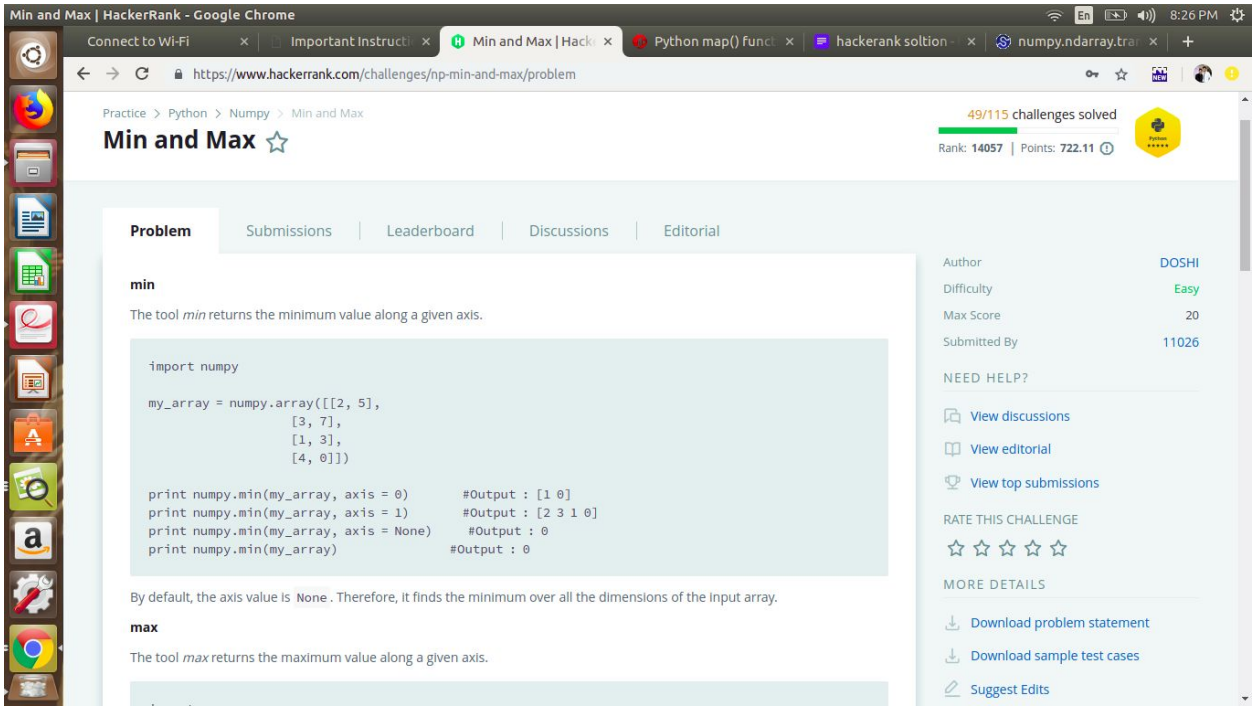
Test case 2
Compiler Message
Success
Input (stdin)
Download
2 2
1 2
3 4
Expected Output
Download
24

Problem 10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Practice > Python > Numpy > Min and Max
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min
The tool min returns the minimum value along a given axis.
import numpy
my_array = numpy.array([[2, 5],
[3, 7],
[1, 3],
[4, 0]])
print numpy.min(my_array, axis = 0) #Output : [1 0]
print numpy.min(my_array, axis = 1) #Output : [2 3 1 0]
print numpy.min(my_array, axis = None) #Output : 0
print numpy.min(my_array) #Output : 0
By default, the axis value is None. Therefore, it finds the minimum over all the dimensions of the input array.
max
The tool max returns the maximum value along a given axis.
Author DOSHI
Difficulty Easy
Max Score 20
Submitted By 11026
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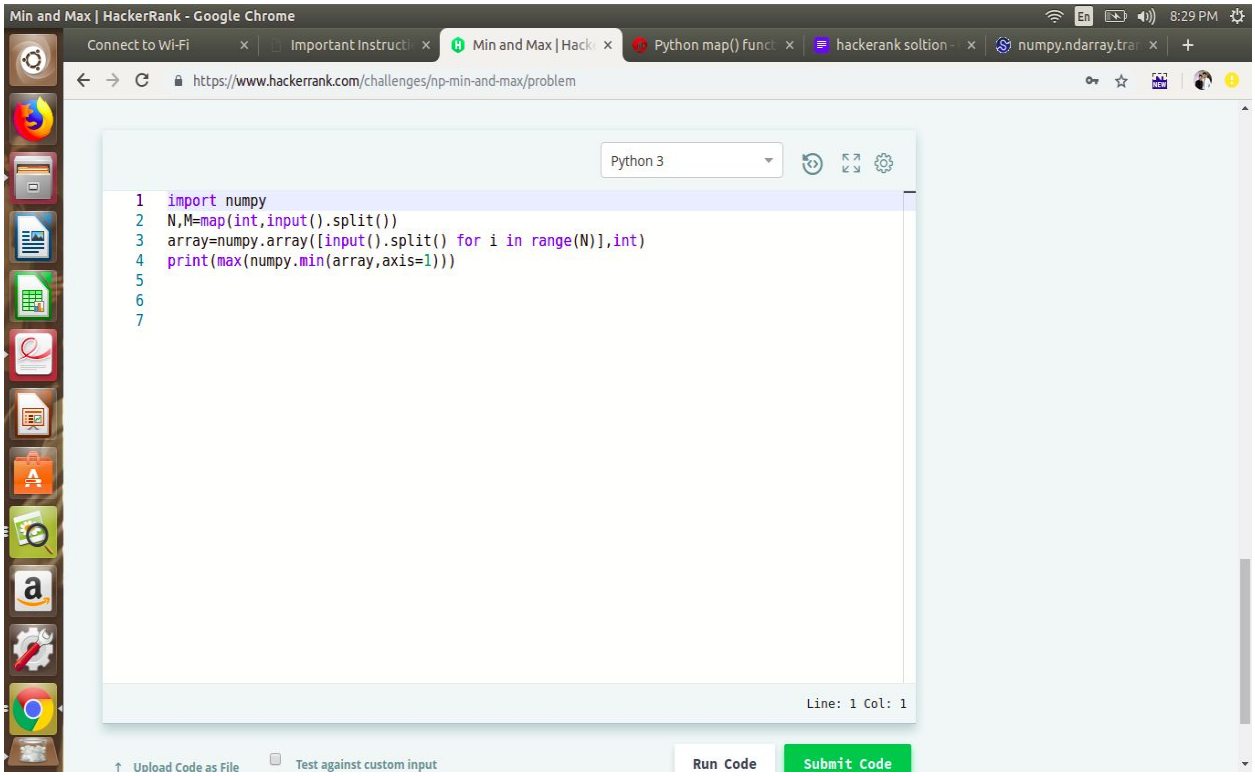
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https://www.hackerrank.com/challenges/np-min-and-max/problem
Python 3
1 import numpy
2 N,M=map(int,input().split())
3 array=numpy.array([input().split() for i in range(N)],int)
4 print(max(numpy.min(array,axis=1)))
5
6
7
Line: 1 Col: 1
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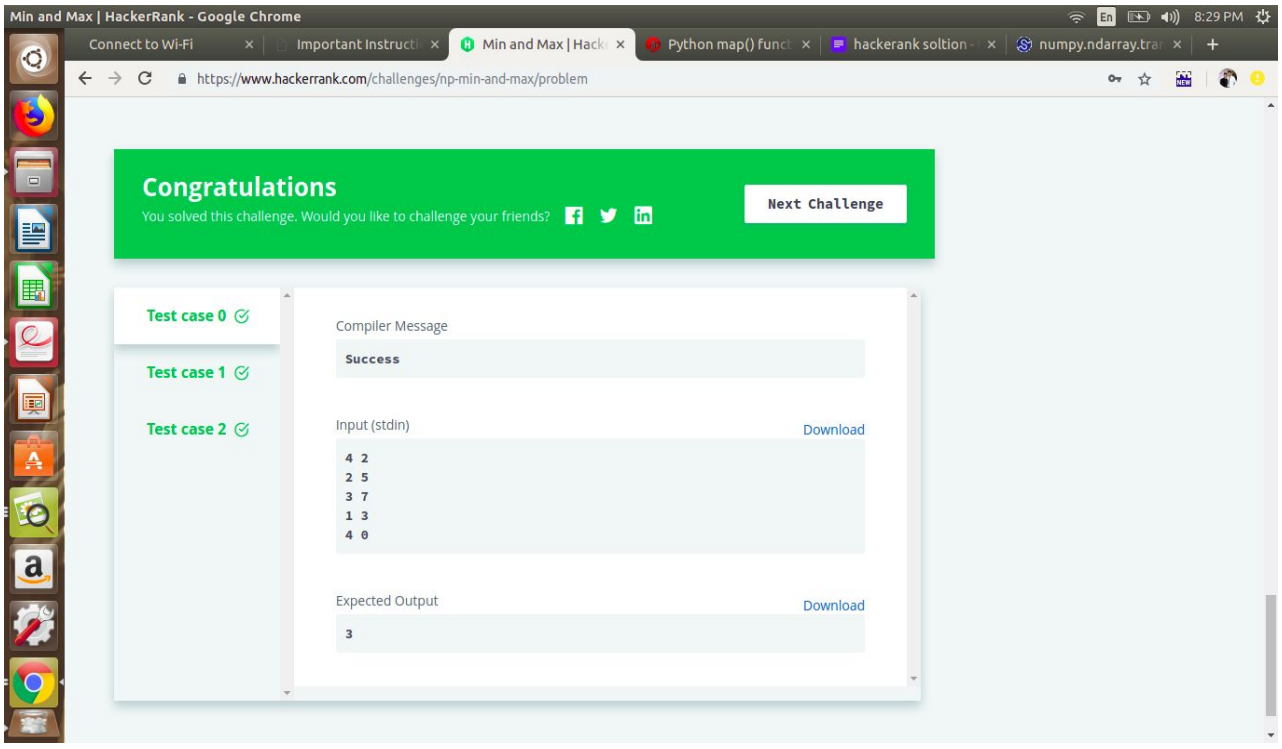
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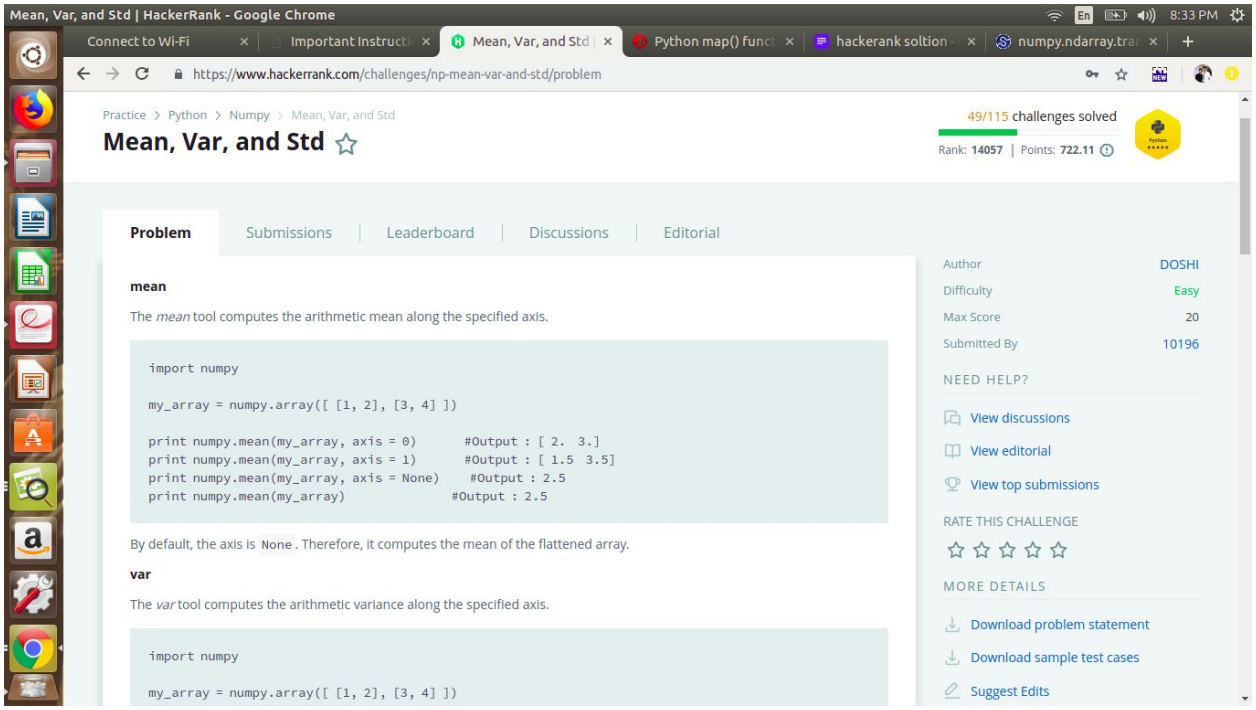
Test case 0
Test case 1
Test case 2
Compiler Message
Success
Input (stdin)
Download
4 2
2 5
3 7
1 3
4 0
Expected Output
Download
3

Problem 11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Practice > Python > Numpy > Mean, Var, and Std
Mean, Var, and Std
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Editorial
mean
The mean tool computes the arithmetic mean along the specified axis.
import numpy
my_array = numpy.array([[1, 2], [3, 4]])
print numpy.mean(my_array, axis = 0) #Output : [2. 3.]
print numpy.mean(my_array, axis = 1) #Output : [1.5 3.5]
print numpy.mean(my_array, axis = None) #Output : 2.5
print numpy.mean(my_array) #Output : 2.5
By default, the axis is None. Therefore, it computes the mean of the flattened array.
var
The var tool computes the arithmetic variance along the specified axis.
import numpy
my_array = numpy.array([[1, 2], [3, 4]])
Author DOSHI
Difficulty Easy
Max Score 20
Submitted By 10196
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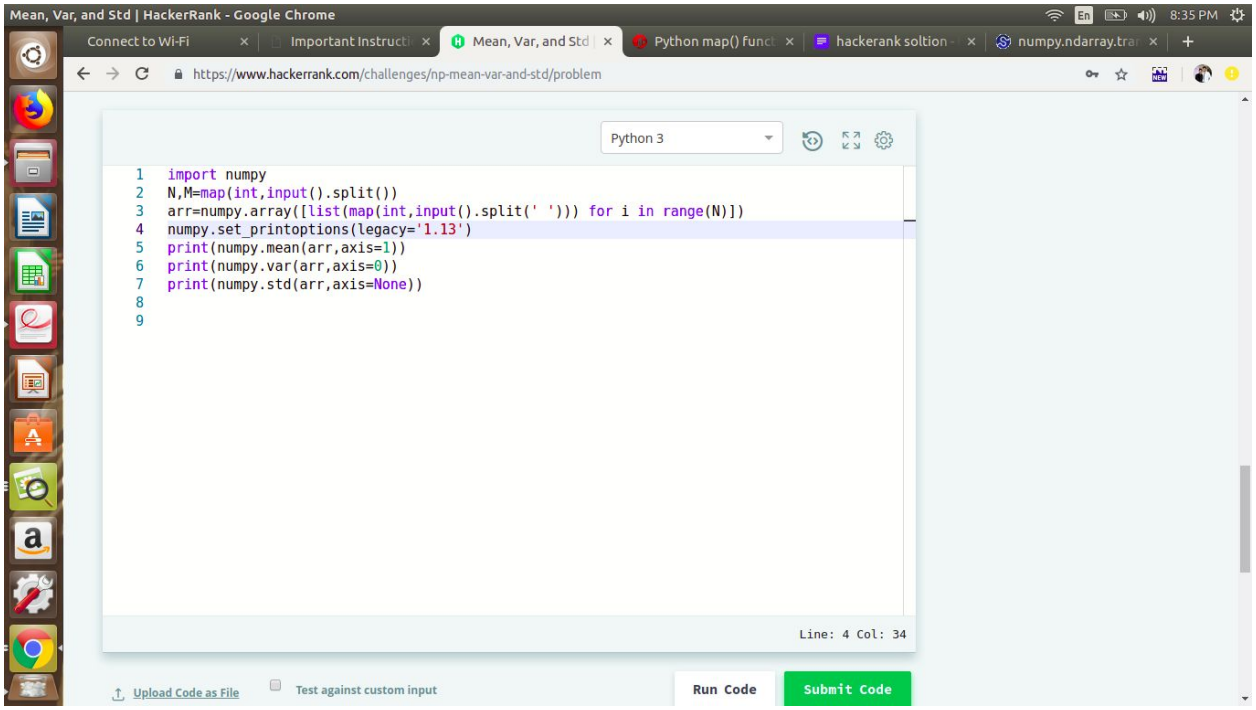
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https://www.hackerrank.com/challenges/np-mean-var-and-std/problem
Python 3
1 import numpy
2 N,M=map(int,input().split())
3 arr=numpy.array([list(map(int,input().split(' '))) for i in range(N)])
4 numpy.set_printoptions(legacy='1.13')
5 print(numpy.mean(arr,axis=1))
6 print(numpy.var(arr,axis=0))
7 print(numpy.std(arr,axis=None))
8
9
Line: 4 Col: 34
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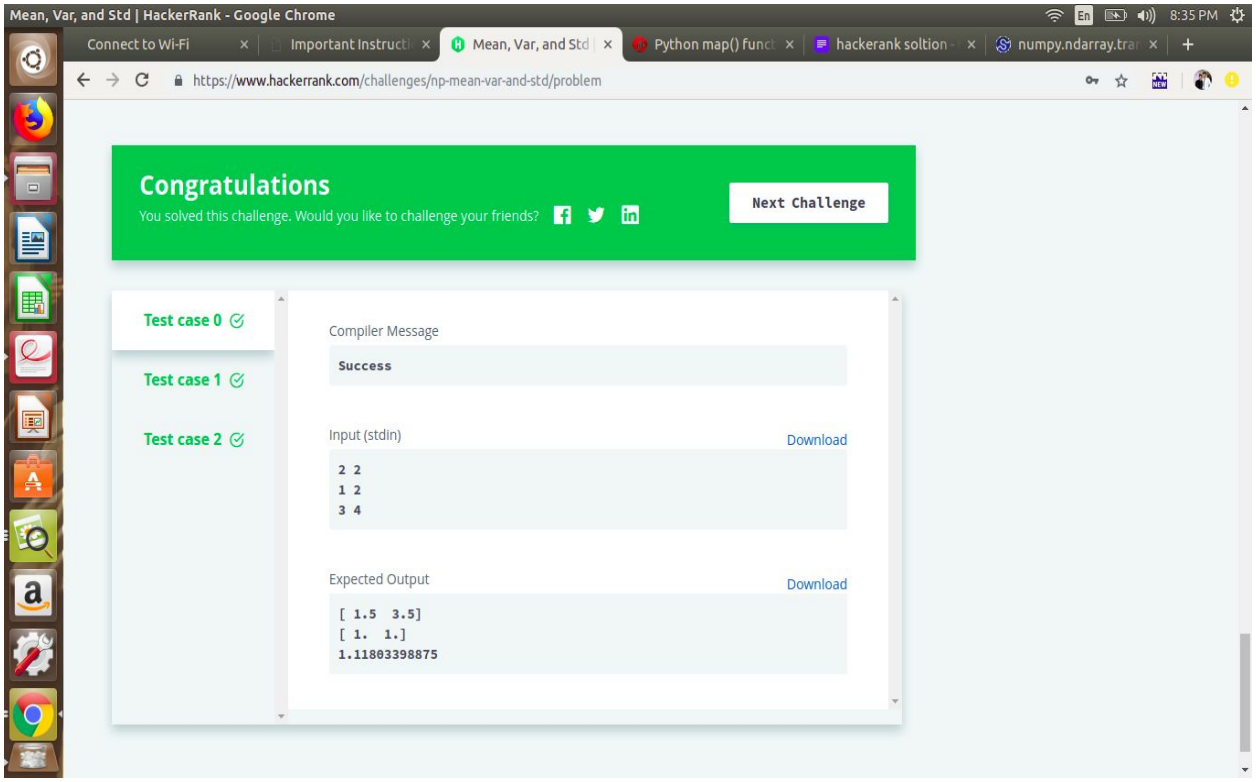
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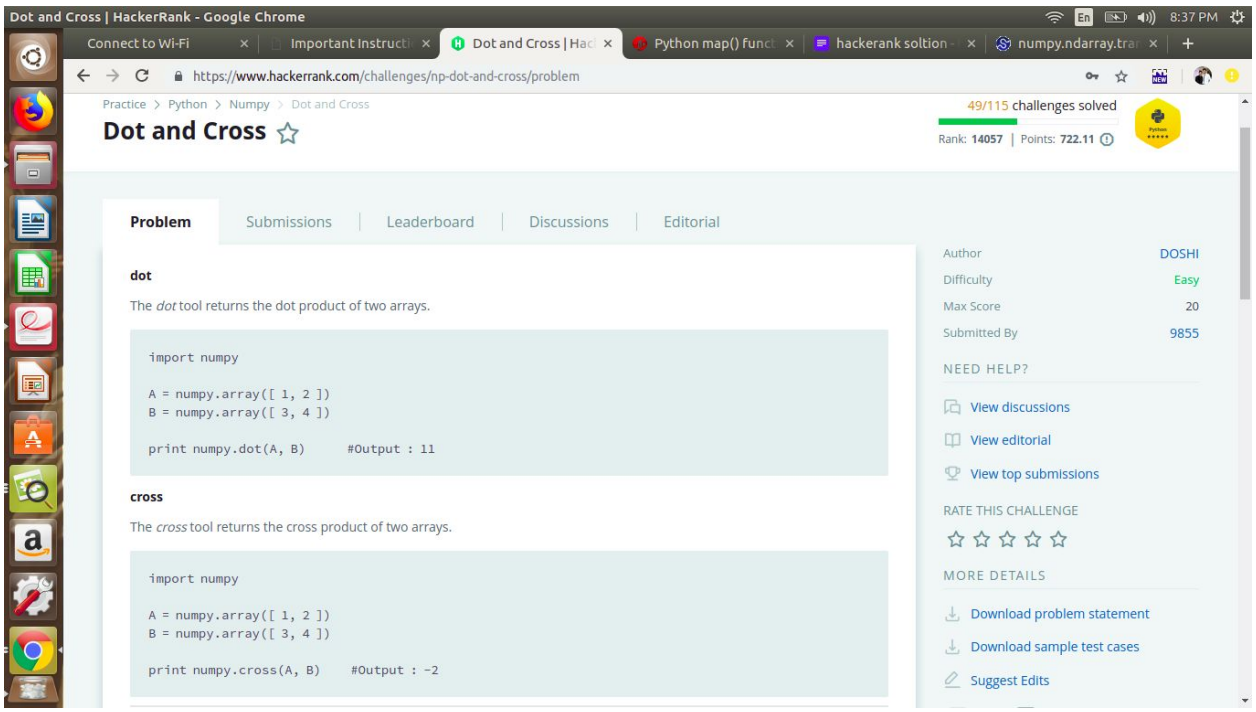
Test case 1
Test case 2
Compiler Message
Success
Input (stdin)
Download
2 2
1 2
3 4
Expected Output
Download
[1.5 3.5]
[1. 1.]
1.11803398875

Problem 12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numpy.ndarray.trar
https://www.hackerrank.com/challenges/np-dot-and-cross/problem
Practice > Python > Numpy > Dot and Cross
Dot and Cross
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dot
The dot tool returns the dot product of two arrays.
import numpy
A = numpy.array([1, 2])
B = numpy.array([3, 4])
print numpy.dot(A, B) #Output : 11
cross
The cross tool returns the cross product of two arrays.
import numpy
A = numpy.array([1, 2])
B = numpy.array([3, 4])
print numpy.cross(A, B) #Output : -2
Author DOSHI
Difficulty Easy
Max Score 20
Submitted By 9855
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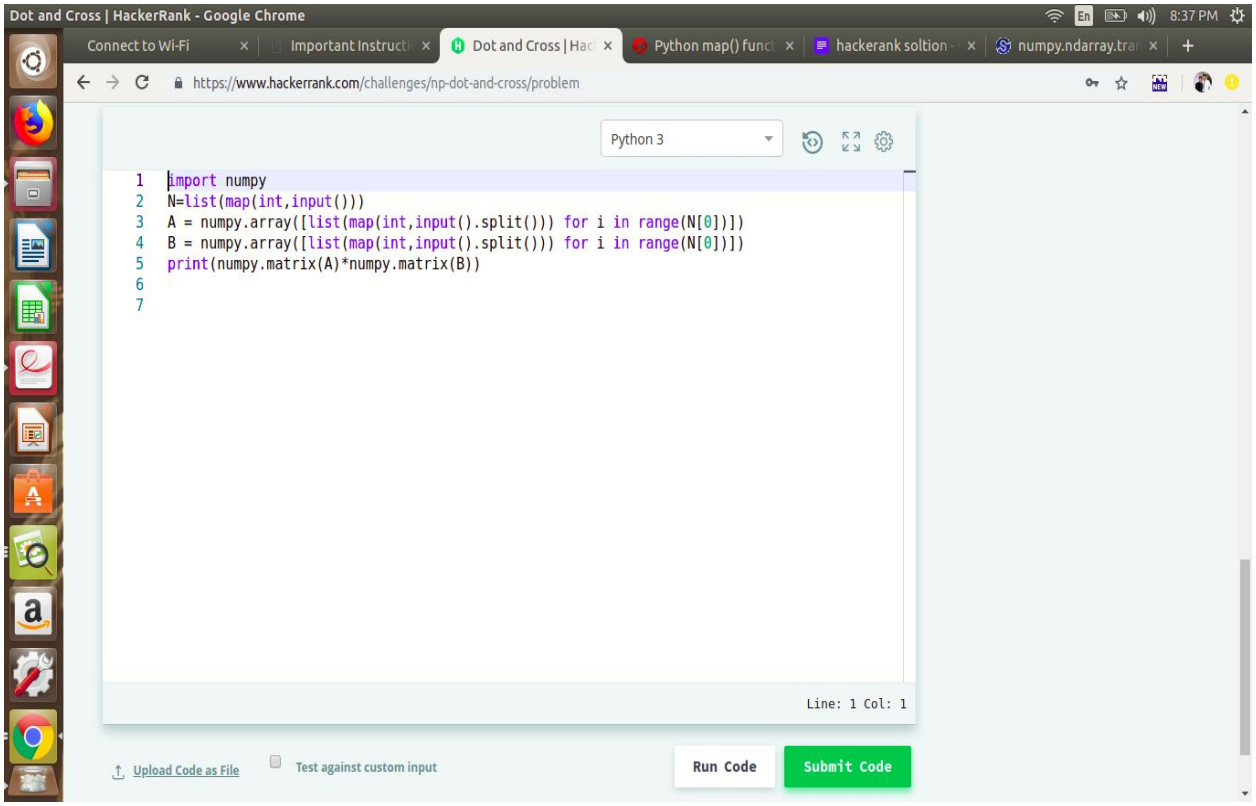
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Python map() funct
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numpy.ndarray.trar
https://www.hackerrank.com/challenges/np-dot-and-cross/problem
Python 3
1 import numpy
2 N=list(map(int,input()))
3 A = numpy.array([list(map(int,input().split())) for i in range(N[0])])
4 B = numpy.array([list(map(int,input().split())) for i in range(N[0])])
5 print(numpy.matrix(A)*numpy.matrix(B))
6
7
Line: 1 Col: 1
Upload Code as File
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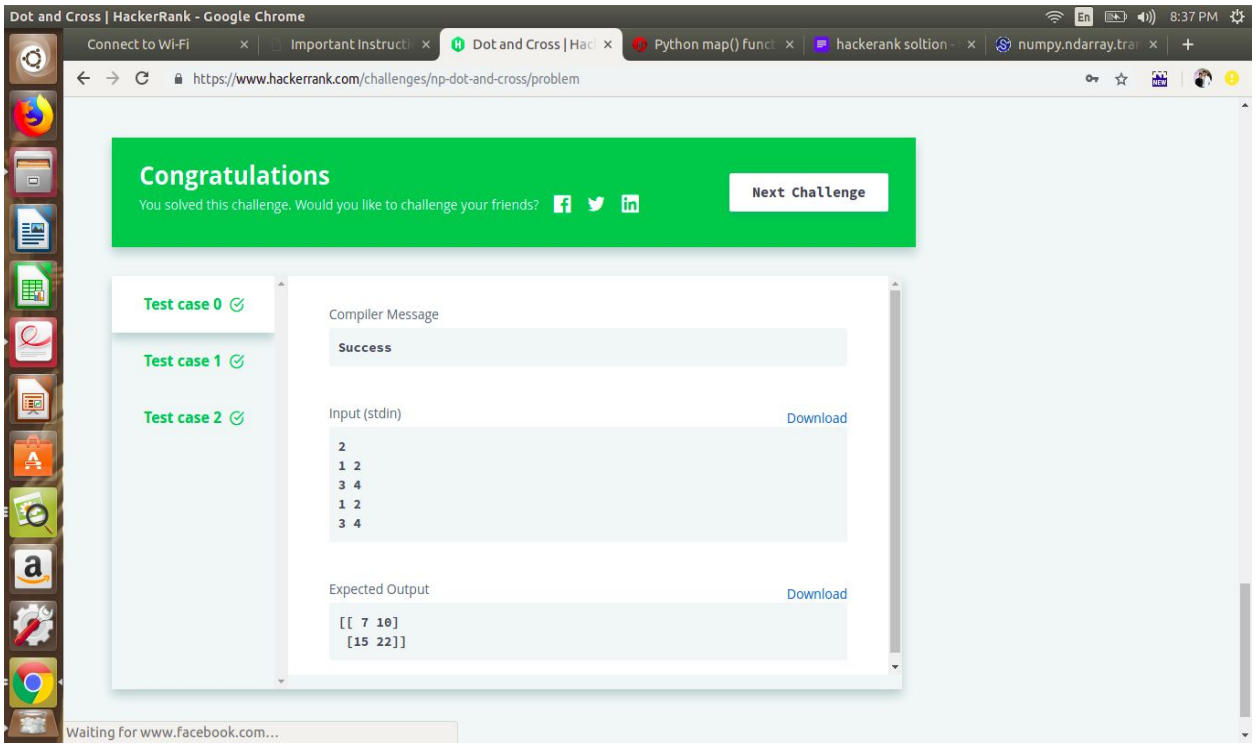
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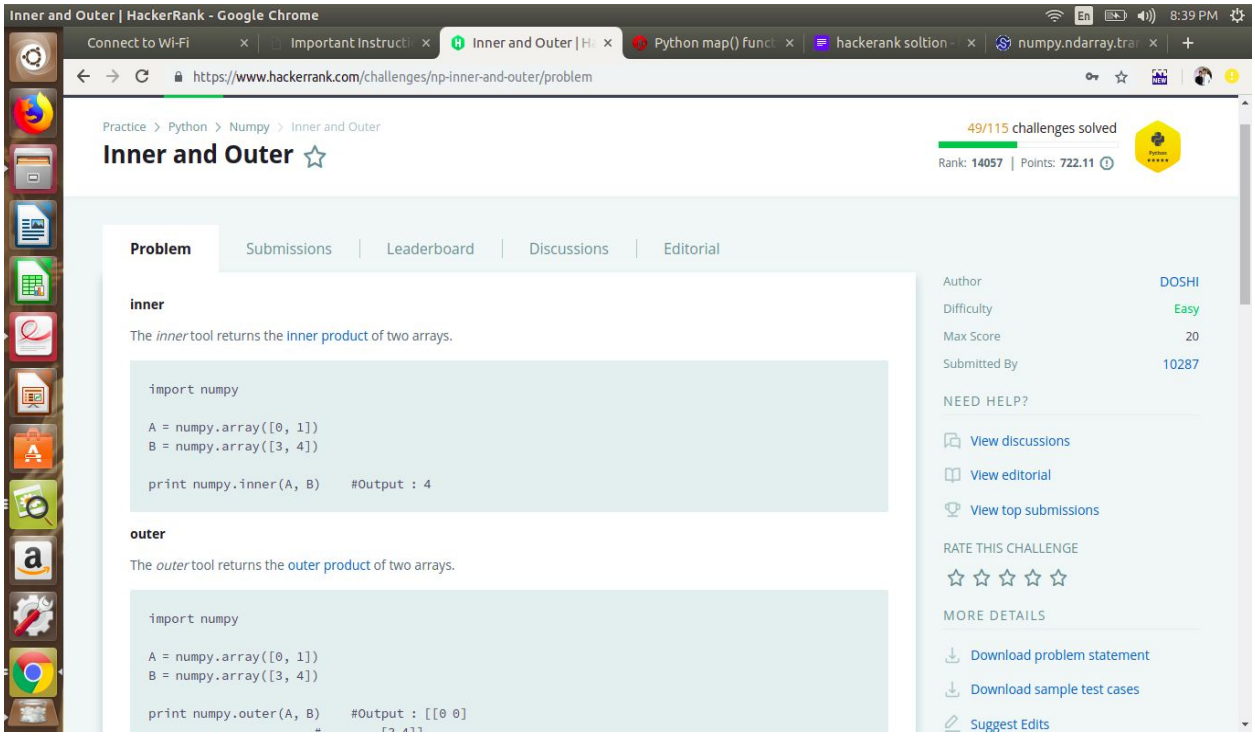
Test case 1
Test case 2
Compiler Message
Success
Input (stdin)
Download
2
1 2
3 4
1 2
3 4
Expected Output
Download
[[7 10]
[15 22]]
Waiting for www.facebook.com...

Problem 13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inner
The inner tool returns the inner product of two arrays.
import numpy
A = numpy.array([0, 1])
B = numpy.array([3, 4])
print numpy.inner(A, B) #Output : 4
outer
The outer tool returns the outer product of two arrays.
import numpy
A = numpy.array([0, 1])
B = numpy.array([3, 4])
print numpy.outer(A, B) #Output : [[0 0]
Author DOSHI
Difficulty Easy
Max Score 20
Submitted By 10287
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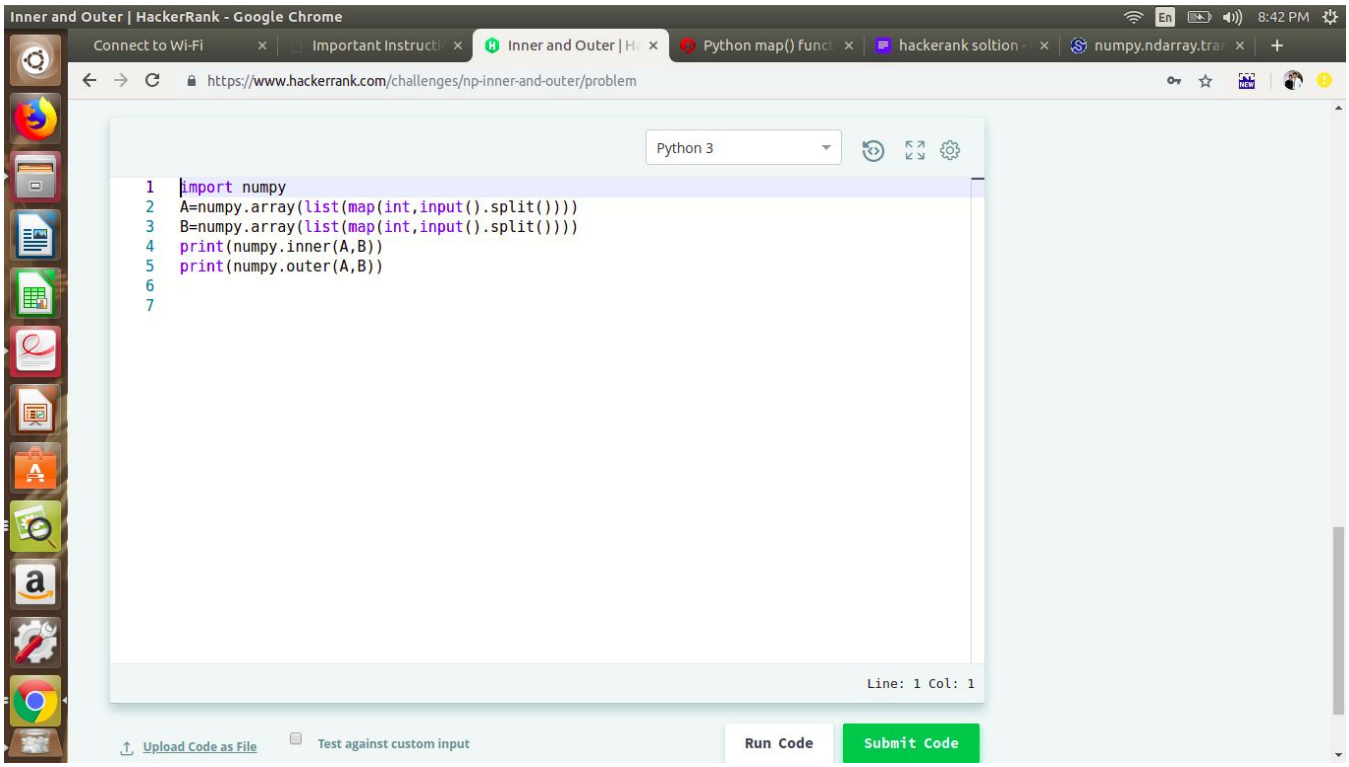
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numpy.ndarray.tra
https://www.hackerrank.com/challenges/np-inner-and-outer/problem
Python 3
1 import numpy
2 A=numpy.array(list(map(int,input().split())))
3 B=numpy.array(list(map(int,input().split())))
4 print(numpy.inner(A,B))
5 print(numpy.outer(A,B))
6
7
Line: 1 Col: 1
Upload Code as File
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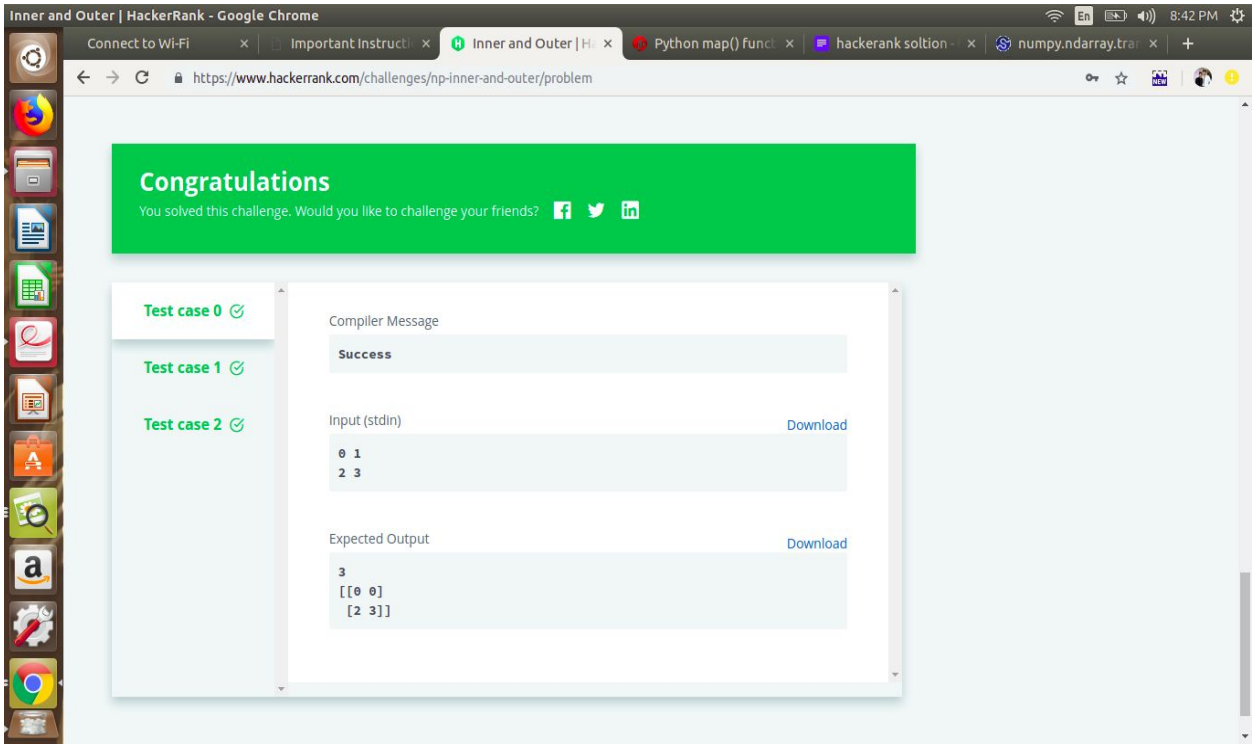
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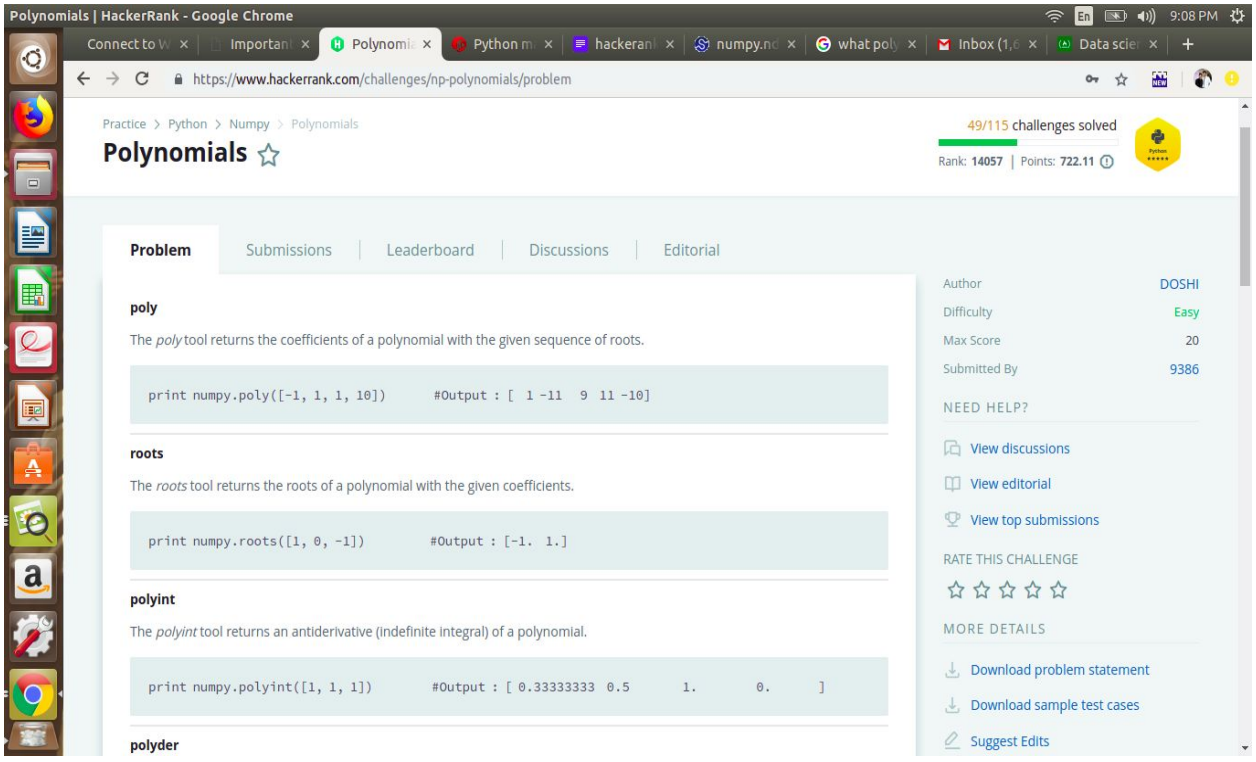
Test case 2
Compiler Message
Success
Input (stdin)
Download
0 1
2 3
Expected Output
Download
3
[[0 0]
[2 3]]

Problem 14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Practice > Python > Numpy > Polynomials
Polynomials
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Editorial
poly
The poly tool returns the coefficients of a polynomial with the given sequence of roots.
print numpy.poly([-1, 1, 1, 10]) #Output : [1 -11 9 11 -10]
roots
The roots tool returns the roots of a polynomial with the given coefficients.
print numpy.roots([1, 0, -1]) #Output : [-1. 1.]
polyint
The polyint tool returns an antiderivative (indefinite integral) of a polynomial.
print numpy.polyint([1, 1, 1]) #Output : [0.33333333 0.5 1. 0.]
polyder
Author DOSHI
Difficulty Easy
Max Score 20
Submitted By 9386
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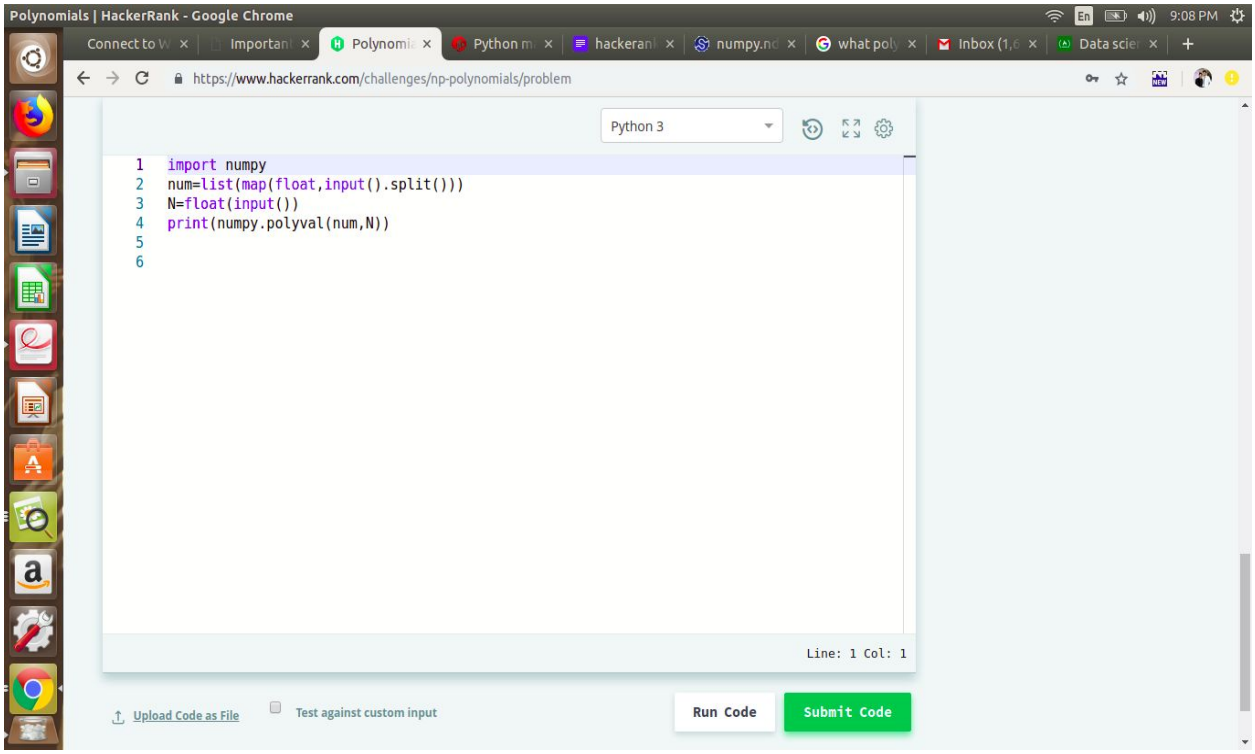
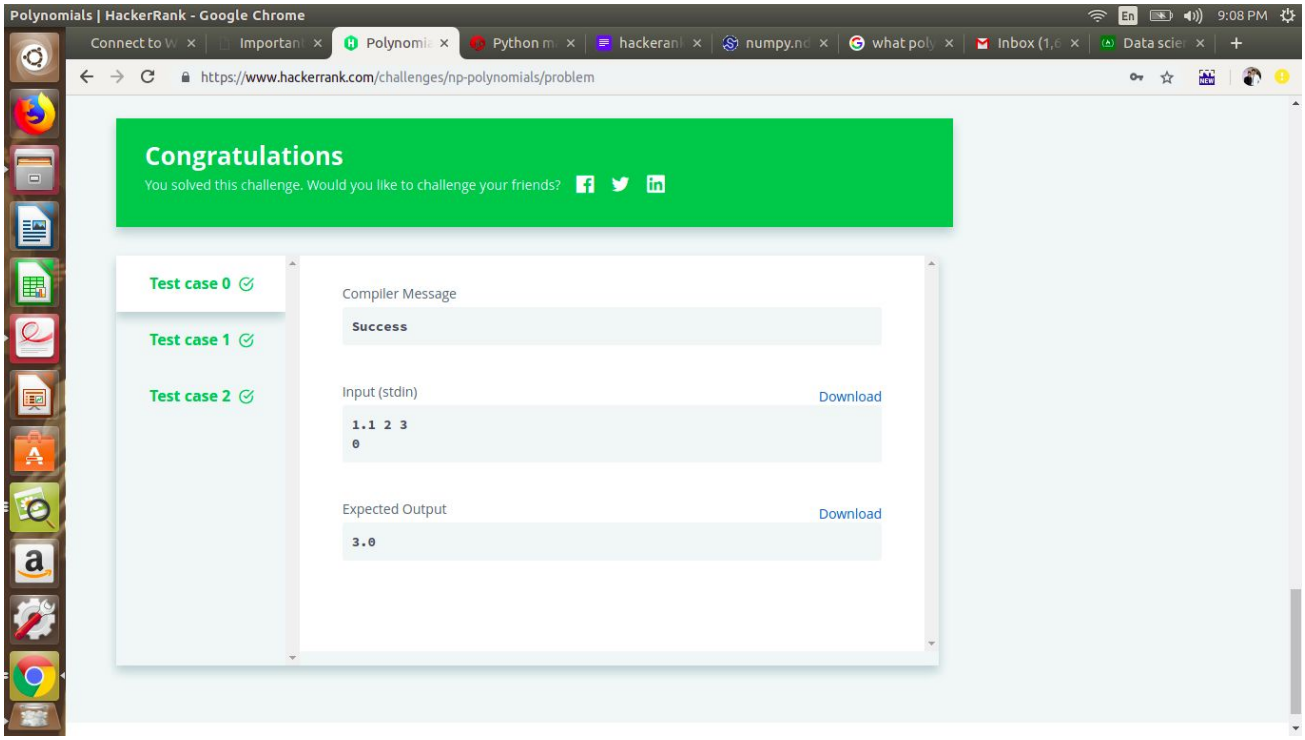

Polynomials | HackerRank - Google Chrome
https://www.hackerrank.com/challenges/np-polynomials/problem
Python 3
1 import numpy
2 num=list(map(float,input().split()))
3 N=float(input())
4 print(numpy.polyval(num,N))
5
6
Line: 1 Col: 1
Upload Code as File
Test against custom input
Run Code
Submit Code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Test case 0
Test case 1
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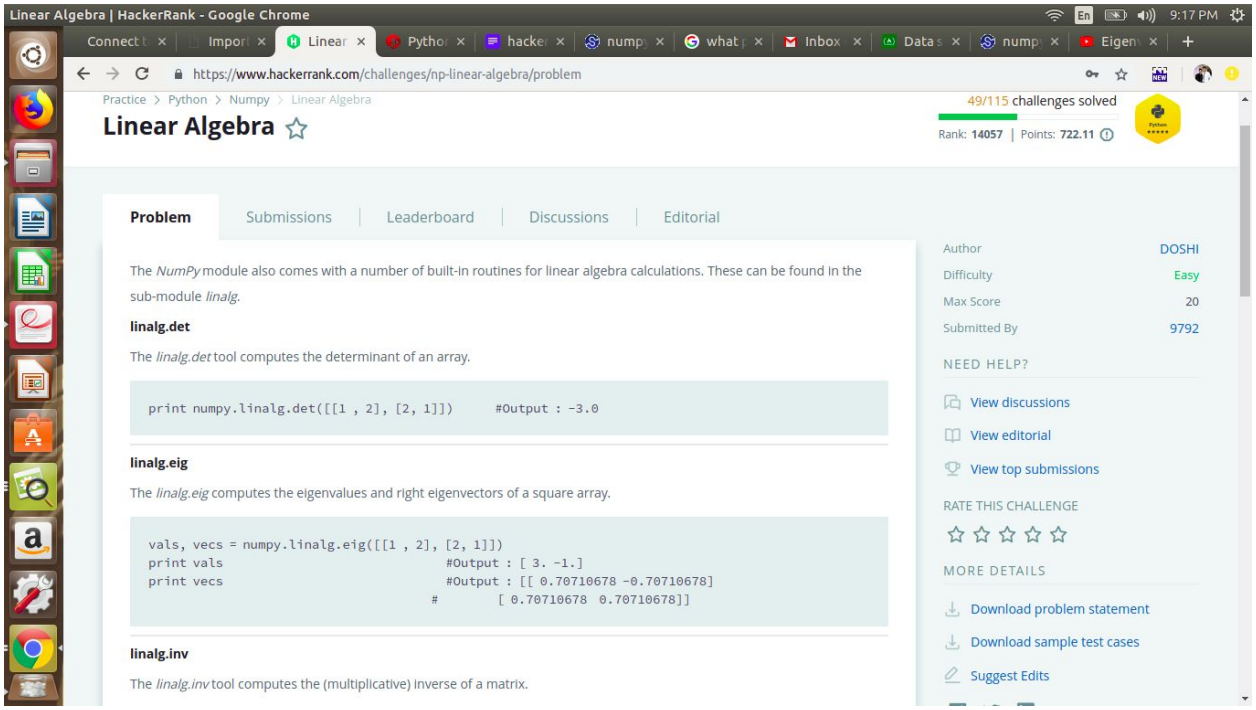
Compiler Message
Success
Input (stdin)
Download
1.1 2 3
0
Expected Output
Download
3.0

Problem 15


Linear Algebra | HackerRank - Google Chrome
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Practice > Python > Numpy > Linear Algebra
Linear Algebra
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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.
Author DOSHI
Difficulty Easy
Max Score 20
Submitted By 9792
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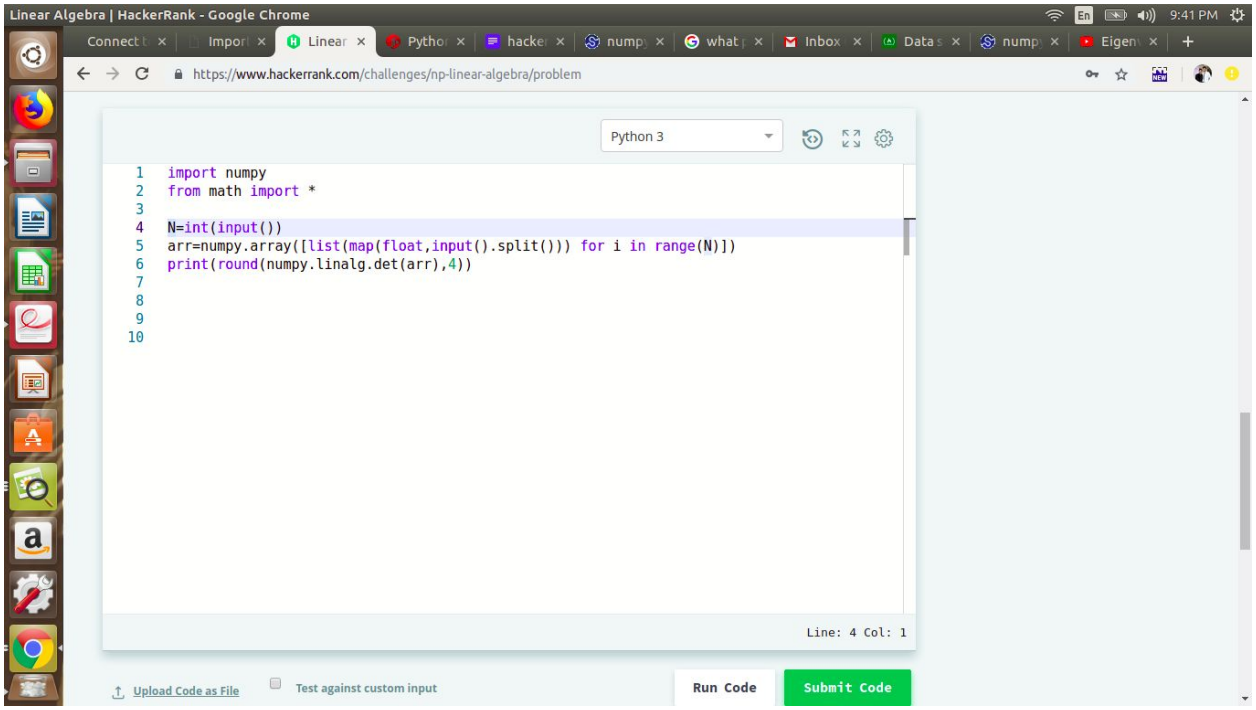
Linear Algebra | HackerRank - Google Chrome
9:41 PM
https://www.hackerrank.com/challenges/np-linear-algebra/problem
Python 3
1 import numpy
2 from math import *
3
4 N=int(input())
5 arr=numpy.array([list(map(float,input().split())) for i in range(N)])
6 print(round(numpy.linalg.det(arr),4))
7
8
9
10
Line: 4 Col: 1
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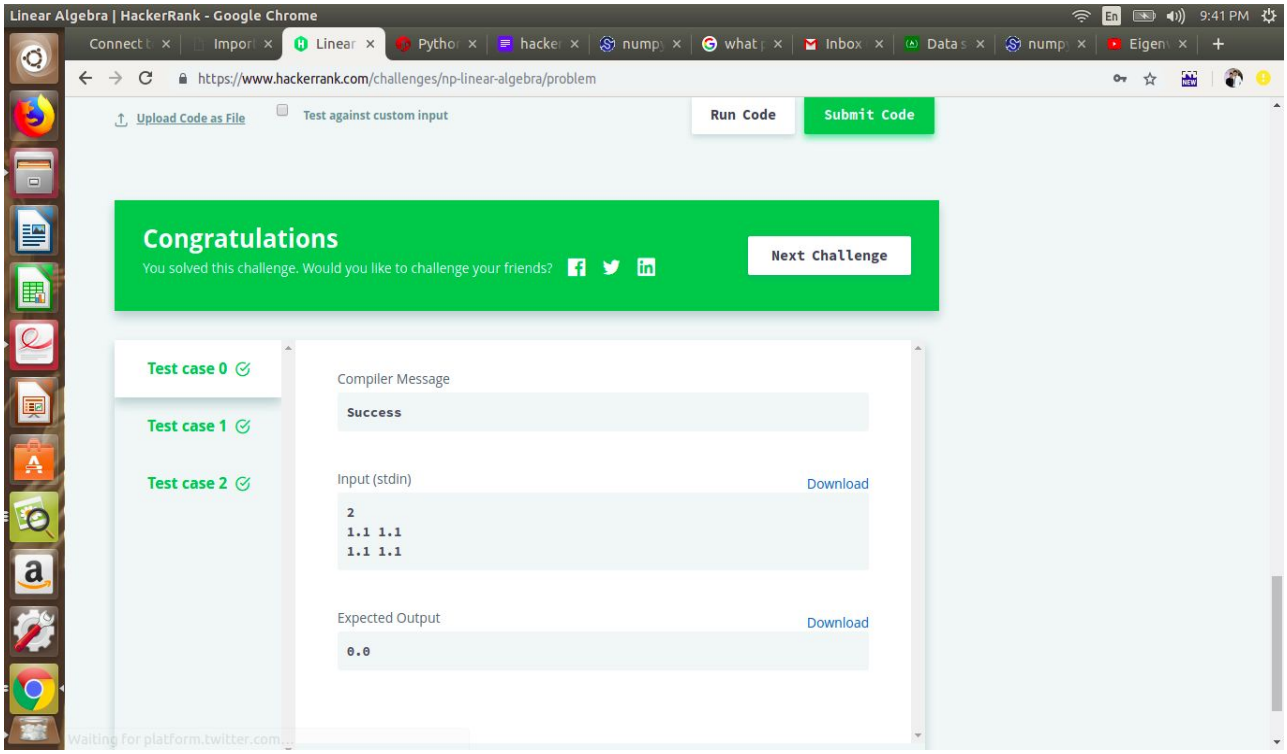

Aman Agarwal