

# Introduction to Sets

A *set* is an unordered collection of elements without duplicate entries. When printed, iterated or converted into a sequence, its elements will appear in an arbitrary order.

## Example

```
>>> print set()
set([])

>>> print set('HackerRank')
set(['a', 'c', 'e', 'H', 'k', 'n', 'r', 'R'])

>>> print set([1,2,1,2,3,4,5,6,0,9,12,22,3])
set([0, 1, 2, 3, 4, 5, 6, 9, 12, 22])

>>> print set((1,2,3,4,5,5))
set([1, 2, 3, 4, 5])

>>> print set(set(['H','a','c','k','e','r','r','a','n','k']))
set(['a', 'c', 'r', 'e', 'H', 'k', 'n'])

>>> print set({'Hacker' : 'DOSHI', 'Rank' : 616 })
set(['Hacker', 'Rank'])

>>> print set(enumerate(['H','a','c','k','e','r','r','a','n','k']))
set([(6, 'r'), (7, 'a'), (3, 'k'), (4, 'e'), (5, 'r'), (9, 'k'), (2, 'c'), (0, 'H'), (1, 'a'), (8, 'n')])
```

Basically, sets are used for membership testing and eliminating duplicate entries.

## Task

Now, let's use our knowledge of sets and help Mickey.

Ms. Gabriel Williams is a botany professor at District College. One day, she asked her student Mickey to compute the average of all the plants with distinct heights in her greenhouse.

Formula used:

$$\text{Average} = \frac{\text{Sum of Distinct Heights}}{\text{Total Number of Distinct Heights}}$$

## Function Description

Complete the *average* function in the editor below.

*average* has the following parameters:

- *int arr*: an array of integers

## Returns

- *float*: the resulting float value rounded to 3 places after the decimal

## Input Format

The first line contains the integer,  $N$ , the size of *arr*.  
The second line contains the  $N$  space-separated integers, *arr*[*i*].

**Constraints**

$$0 < N \leq 100$$

**Sample Input**

STDIN	Function
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10	arr[] size N = 10
161 182 161 154 176 170 167 171 170 174	arr = [161, 181, ..., 174]

**Sample Output**

169.375
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**Explanation**

Here, *set*([154, 161, 167, 170, 171, 174, 176, 182]) is the set containing the distinct heights. Using the *sum()* and *len()* functions, we can compute the average.

$$Average = \frac{1355}{8} = 169.375$$