

The function: reduce

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## reduce() Function

# PES UNIVERSITY

#### Introduction

The reduce() is a function that applies a given function to the elements of an iterable, reducing them to a single value. This function is defined in "functools" module.

#### **Syntax**

functools.reduce(function, iterable[, initializer])

- The **function argument** is a function that takes two arguments and returns a single value. The first argument is the accumulated value, and the second argument is the current value from the iterable.
- The iterable argument is the sequence of values to be reduced.
- The optional initializer argument is used to provide an initial value. If no initializer is specified, the first element of the iterable is used as the initial value.

### reduce() Function



#### Working of reduce function:

- •At first step, first two elements of the sequence are picked and the result is obtained.
- •The same function is applied to the previously attained result and the number just succeeding the second element and the result is again stored.
- •This process continues till no more elements are left in the container.
- •There will be n-1 calls if no initializer is specified.(n is the number of elements in the input iterable)
- •The final result is returned as a single value.

# **Examples**



Example 1.To find the factorial of a number using reduce() function

```
import functools
n = 5
print("The factorial is ",functools.reduce(int.__mul___, range(1, n + 1)))
Output:
The factorial is 120
```

The factorial is 120

Example 2. To find the sum of first 10 numbers using reduce() function import functools print(functools.reduce(int.\_\_add\_\_, range(10))) output

The sum of first 10 numbers is 55

# **Examples**



Example 3.To find the product of numbers with 100 as the initial value.

#### Output:

product : 100 11

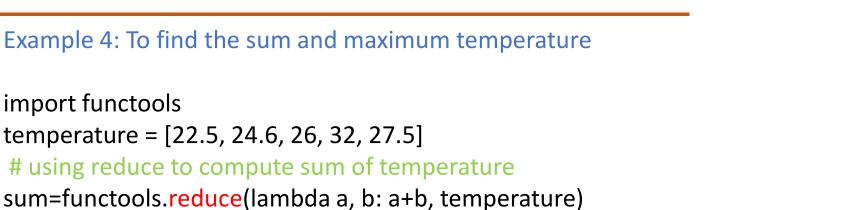
product: 1100 22

product: 24200 33

product: 798600 44

The product with 100 as initial value is 35138400

# Examples



print("The average temperature is ", sum/5)

# using reduce to compute maximum temperature in the list
print("The maximum temperature is : ", end="")

print( The maximum temperature is: , end= , print(functools.reduce(lambda a, b: a if a > b else b, temperature))

#### **Output:**

The average temperature is 26.52 The maximum temperature is : 32





# **THANK YOU**

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