Developed By:
Malaiarasu GRaj
LinkedIn | GitHub

Primary Inputs

Input your preferences

Topic/Subject:

python list

Familiarity Level:

Beginner

Learning Mode:

- Select...
- Lesson
- Quiz

Time Available (Minutes):

30

5 120 30

Additional Inputs

Preferred Language (Optional):

Enter preferred language...

Upload Reference Material (Optional, PDF)

Drag and drop files here
Limit 200MB per file • PDF
Browse files

Sum of number ... 28.0KB

Additional Instructions (Optional):

All required fields are filled!

Generate Content

SambaNova's QuiZenius AI

Smart Learning, Enhanced by AI 📚🤖

Welcome to the world of Python programming! Today, we're going to explore one of the most fundamental data structures in Python: lists. A list is a collection of items that can be of any data type, including strings, integers, floats, and other lists.

Imagine you're a librarian, and you have a collection of books on a shelf. Each book has a title, author, and publication date. You can represent this collection of books as a list in Python, where each book is an item in the list.

Let's start with a simple example. Suppose we have a list of numbers: `[12, 67, 98, 34]`. We can calculate the sum of the digits of each number in the list using a loop.

```
test_list = [12, 67, 98, 34]
print("The original list is : " + str(test_list))
res = []
for ele in test_list:
    sum = 0
    for digit in str(ele):
        sum += int(digit)
    res.append(sum)
print("List integer summation : " + str(res))
```

This code will output: `[3, 13, 17, 7]`, which is the sum of the digits of each number in the list.

Now, let's explore other ways to achieve the same result using different techniques.

Method 2: Using List Comprehension

```
test_list = [12, 67, 98, 34]
print("The original list is : " + str(test_list))
res = [sum(int(sub) for sub in str(ele)) for ele in test_list]
print("List integer summation : " + str(res))
```

Method 3: Using `sum` and `reduce`

```
from functools import reduce
test_list = [12, 67, 98, 34]
print("The original list is : " + str(test_list))
res = reduce(lambda x, y: int(x) + int(y), [str(i) for i in test_list])
print("List integer summation : " + str(res))
```

Method 4: Using `numpy`

```
import numpy as np
test_list = [12, 67, 98, 34]
print("The original list is : " + str(test_list))
res = np.sum([list(map(int, str(ele))) for ele in test_list], axis=1)
print("List integer summation : " + str(list(res)))
```

Method 5: Using `itertools`

```
import itertools
test_list = [12, 67, 98, 34]
print("The original list is : " + str(test_list))
```

```
res = sum(map(int, list(itertools.chain(*[str(ele) for ele in test_list]))))
print("List integer summation : " + str(res))
```

Now, let's create a function that takes a list of numbers as input and returns the sum of the digits of each number in the list.

```
def sum_of_digits(lst):
    return [sum(int(digit) for digit in str(num)) for num in lst]

print(sum_of_digits([12, 67, 98, 34]))
```

This will output: `[3, 13, 17, 7]`.

Hands-on Practice

1. Create a list of numbers and calculate the sum of the digits of each number in the list using a loop.
2. Use list comprehension to achieve the same result.

Free Online Courses

1. **Python for Everybody** by Charles Severance (Coursera)
2. **Python Data Structures** by Charles Severance (Coursera)
3. **Python Crash Course** by Eric Matthes (Udemy)

YouTube Lectures

1. **Python Lists** by Corey Schafer (YouTube)
2. **Python List Comprehensions** by Corey Schafer (YouTube)

I hope this helps you understand the basics of Python lists and how to calculate the sum of the digits of each number in a list using different techniques. Happy coding!