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ACADEMY

Dichi Academy
Data Science Module 1 - Data with Python

Introduction to Python

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Basic Data types

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- **Integers (int):** Whole numbers

  Example: 5, -3, 0
- **Floats (float):** Decimal numbers

  Example: 3.14, -0.001, 2.0
- **Booleans (bool):** True or False
- **Strings (str):** Text data

  Examples: "hello", "Python"

```
# Integer
num1 = 10
num2 = -5

# Float
float1 = 3.14
float2 = -0.45

# Boolean
bool1 = True
bool2 = False

# String
name = "Tom"
sentence = "Hello, My name is Tom!"
```

Number & its Operations

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This is a list of ***basic arithmetic operations*** in Python that can be performed on numbers:

- Addition (+)
- Subtraction (-)
- Multiplication (*)
- Division (/)
- Floor Division (//)
- Modulus (%)
- Exponentiation (**)

```
result = 5 + 3  # result is 8
result = 10 - 2  # result is 8
result = 4 * 3  # result is 12
result = 15 / 4  # result is 3.75
result = 15 // 4  # result is 3
result = 15 % 4  # result is 3
result = 2 ** 3  # result is 8
```

Number & its Operations

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```
a = 10
b = 3

print(a + b)     # Addition: 13
print(a - b)     # Subtraction: 7
print(a * b)     # Multiplication: 30
print(a / b)     # Division: 3.333...
print(a // b)    # Floor Division: 3
print(a % b)     # Modulus: 1
print(a ** b)    # Exponentiation: 1000
```

String & its Operations

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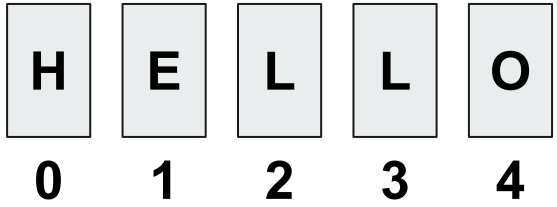
This is a list of string operations in Python that can be performed on string:

- Concatenation (+)
- Repetition (*)
- Length (len())
- Accessing Characters by Index
- Convert to Uppercase (upper())
- Convert to Lowercase (lower())




```python
result = "Hello" + " " + "World"  # result is "Hello World"

result = "Hi! " * 3  # result is "Hi! Hi! Hi! "

length = len("Python")  # length is 6

character = "Python"[0]  # character is 'P'

result = "hello".upper()  # result is "HELLO"

result = "HELLO".lower()  # result is "hello"
```

Collection: List

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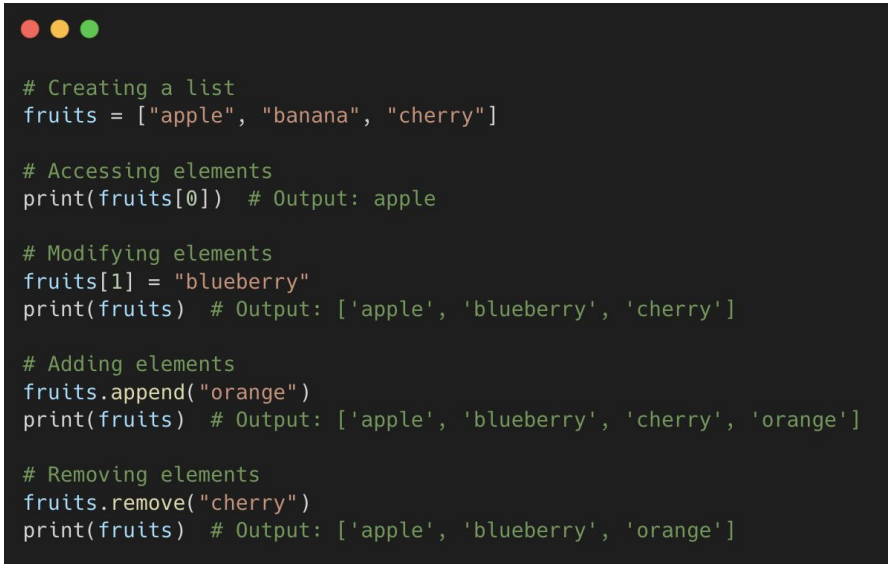
List: a data structure that allows you to store a collection of items in a single variable.

Operations: add, remove, or modify elements

Storing data: Any data type, mix data types.



```python
# Creating a list
fruits = ["apple", "banana", "cherry"]

# Accessing elements
print(fruits[0])  # Output: apple

# Modifying elements
fruits[1] = "blueberry"
print(fruits)  # Output: ['apple', 'blueberry', 'cherry']

# Adding elements
fruits.append("orange")
print(fruits)  # Output: ['apple', 'blueberry', 'cherry', 'orange']

# Removing elements
fruits.remove("cherry")
print(fruits)  # Output: ['apple', 'blueberry', 'orange']
```

Input & Output

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Syntax to get input from user in Python:

- **input() :** String
- **eval(input()):** Numeric values

```
x = input("Enter your name: ")
print("Hello, ", x)
```

```
x = input("Enter your number: ")
# input value = 6
result = x * 4
print(result)    result = 6666
```

```
x = eval(input("Enter your number: "))
# input value = 6
result1 = x // 4
Result2 = x%4
print(result1)  #result = 1
print(result2)      # result = 2
```

Let’s Practice!

Practice 2

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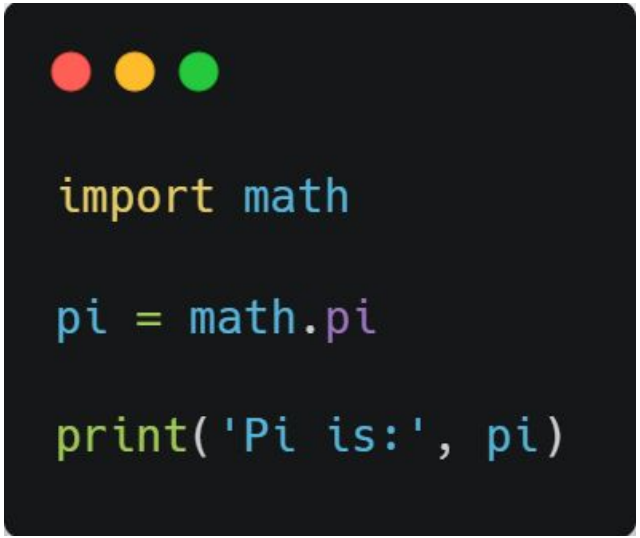
We have a cylinder with radius of 5m and height of 10m.
Compute the following using Python:

1. The area of the cylinder
2. The volume of the cylinder

Formulas:
area = radius * radius * π
volume = area * height



```
import math

pi = math.pi

print('Pi is:', pi)
```

Practice 1

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Write a program to get the input information from user and display it as follows:

```
Enter your name: Pagna
Enter your age: 25
Hello, Pagna ! You are 25 years old.
```

Practice 3

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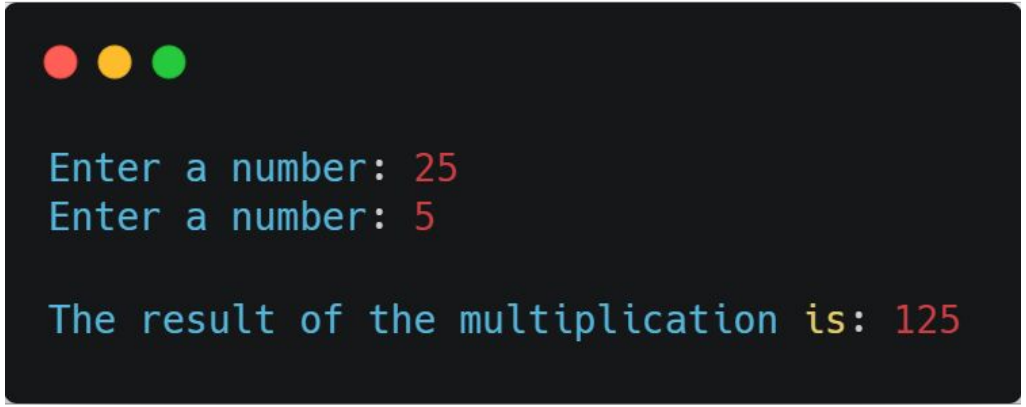
Write a Python Program to:

- Get two integers from users.
- Print the result of multiplication of both values



Practice 4

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Write a program to calculate the average of three numbers which are obtained from user. The program should print out the result as follows:

```
Enter the first number: 1
Enter the second number: 2
Enter the third number: 3

The average of 1 2 3 is 2.0
```

Thank You
for
Your Attention!