

Primera clase

Python

El problema de “medición”

Simple programa

Comenzamos con un problema simple: medir el agua con la ayuda de dos recipientes impares.

Tenemos 2 botellas, una de 3 litros y otra de 5 litros.

Reglas

- Tenemos el agua suficiente que necesitamos
- No podemos llenar una botella a la mitad, no hay botellas de 1 litro, 2 litros o 4 litros.

Tarea 1: Medir 2 litros

1. Lleno completamente la botella de 5 litros con agua
2. Desde la botella de 5 litros lleno la botella de 3 litros.

Con lo cual el remanente en la botella de 5 litros es igual a **2 litros**.

Tarea 2: Medir 1 litros

1. Primero llenas la botella de 3 litros por completo
2. Pasas poco a poco lo de la botella de 3 litros a la de 5.
3. Volvemos a repetir el mismo proceso invertido

El remanente de la botella de 3 litros es ahora **1 litro**.

Tarea 3: Medir 4 litros

1. Repetimos el anterior
2. Vaciamos la botella
3. Agregamos la botella de 3 a la de 5.
4. Rellenamos la de 3 y la vaciamos.

El remanente es 4 litro.

Programa

Es una secuencia de pasos o actividades que buscan un objetivo.

Variable

Es una cantidad que puede cambiar según el contexto del programa.

Fill the 5 liter bottle with water.

Pour 3 liters of water from the 5 liter bottle into the empty 3 liter bottle.

This leaves exactly 2 liters of water in the 5 liter bottle.

Drain the whole water from the 3 liter bottle.

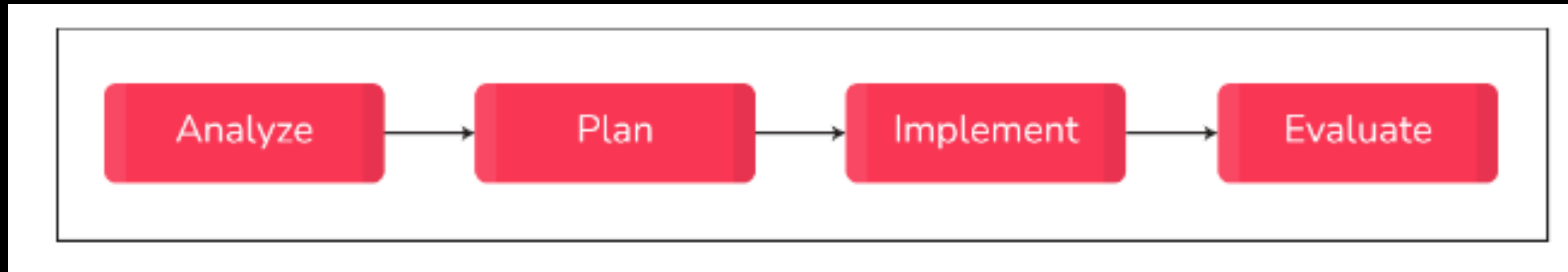
Pour the remaining 2 liters of water from the 5 liter bottle into the 3 liter bottle.

Fill the 5 liter bottle with water for the 2nd time.

Pour enough water from the 5 liter bottle to entirely fill the 3 liter bottle.

The 5 liter bottle now has exactly 4 liters of water.

Proceso de solucionar un problema



Herramientas para el curso

- Python
- VisualStudio Code (extensiones: python y python indent)

Strings

Indices

Index:

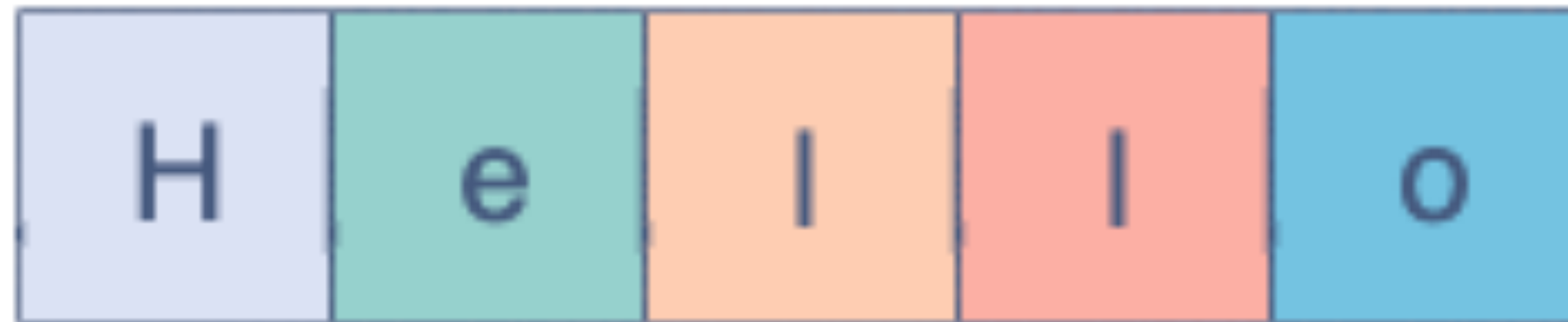
0

1

2

3

4



Length: 5

Operadores

Operator	Description	Syntax	Results x=7 and y=4
+	Addition: Adds two operands	x + y	11
-	Subtraction: Subtracts two operands	x - y	3
*	Multiplication: Multiplies two operands	x * y	28
/	Non-integer division: Divides the first operand by the second and returns a floating point quotient	x / y	1.75
//	Integer division: Divides the first operand by the second, and forces the result to be an integer	x // y	1
%	Modulo: Returns the remainder when the first operand is divided by the second	x % y	3
**	Power: Returns the first number raised to power of the second number.	x ** y	2401

Operadores

Operator	Description	Syntax	Results x=7 and y=4
>	Greater than: True if the left operand is greater than the right	x > y	True
<	Less than: True if the left operand is less than the right	x < y	False
==	Equal to: True if both operands are equal	x == y	False
!=	Not equal to: True if both operands are not equal	x != y	True
>=	Greater than or equal to: True if the left operand is greater than or equal to the right	x >= y	True
<=	Less than or equal to: True if the left operand is less than or equal to the right	x <= y	False

Operadores

Logical Operators

Operator	Description	Syntax	Results x=7 and y=4
and	Logical AND: True if both the operands are true	x > 4 and y > 4	False
or	Logical OR: True if either of the operands is true	x > 4 or y > 4	True
not	Logical NOT: True if the operand is false	not x > 4	False

Operadores

Operator	Description	Syntax	Results x=7 and y=4
+=	Add and assign: Add the right-side operand with the left-side operand, and assign the result to the left operand (x = x + y)	x += y	x = 11
-=	Subtract and assign: Subtract the right-side operand from the left-side operand and assign the result to the left operand (x = x - y)	x -= y	x = 3
*=	Multiply and assign: Multiply the right-side operand with the left side operand and assign the result to the left operand (x = x * y)	x *= y	x = 28
/=	Divide and assign: Divide the left operand with the right operand, and then assign it to the left operand (x = x / y)	x /= y	x = 1.75
//=	Integer divide and assign: Divide the left operand and the right operand, and assign the integer value (floor of the result) to the left operand (x = x // y)	x //= y	x = 1
%=	Modulo and assign: Take modulo after dividing the left operand with the right operand, and assign the result to the left operand (x = x % y)	x %= y	x = 3
**=	Exponent and assign: Calculate the exponent (raised power) value using operands and assign the value to the left operand (x = x ** y)	x **= y	x = 2401