



# Variables

A variable stores a **reference** to a value.


Created by assignment:

```
name = "Alice"  
age = 20  
height = 1.75
```

Rules:


- Start with a letter or \_
  - Letters, digits, underscores allowed
  - Case-sensitive: `count` ≠ `Count`
-

# Data Types

 `int`

Whole numbers, positive or negative.  
Example:

```
age = 25
```

 `float`

Decimal numbers.

```
pi = 3.14
```

 `str`


Text data in quotes.

```
city = "Baku"
```

 `bool`

Logical values: `True` or `False`.

```
is_student = True
```

 `NoneType`

Represents "no value".

```
result = None
```

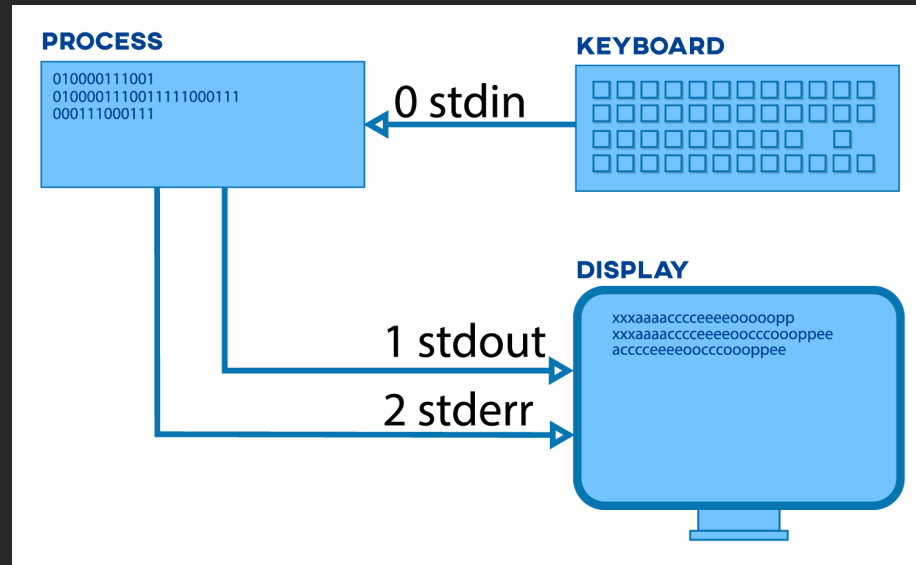
# Input & Output

## Output (stdout)

```
name = "ElnurBDa"  
print("Hello")  
print("User:", name)  
print(f"The F String is used by  
{name}")
```

[finished]

```
Hello  
User: ElnurBDa  
The F String is used by ElnurBDa
```



## Input (stdin)

```
name = input("Enter your name: ")
```

**input()** always returns **str**.

Convert for numeric use:

```
age = int(input("Enter age: "))
```

# Arithmetic Operators

## Operator Summary

```
+  addition
-  subtraction
*  multiplication
/  division (float)
// floor division (drops decimals)
%  remainder
** exponent
```

## Examples

```
10 + 3  # 13
10 - 3  # 7
10 * 3  # 30
10 / 3  # 3.333...
10 // 3 # 3
10 % 3  # 1
2 ** 3  # 8
```

## Comparison Operators

```
x == y    # equal  
x != y    # not equal  
x > y  
x < y  
x >= y  
x <= y
```

Example:

```
score = 85  
score >= 90    # False  
score < 100    # True
```

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# Logical Operators

```
and  # both conditions True  
or   # at least one True  
not  # reverses boolean
```

Example:

```
age = 20  
has_id = True  
  
age >= 18 and has_id  # True  
age < 18 or has_id    # True  
not has_id            # False
```

---

# Assignment Operators

Shorthand updates:

```
x = 5
x += 2 # 7
x -= 1 # 6
x *= 3 # 18
x /= 2 # 9.0
```

Used often in loops and accumulations.

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# Type Casting (Conversion)

Convert between types:

```
int("10")      # 10
float("3.14")   # 3.14
str(123)        # "123"
bool("hi")      # True
bool("")        # False
```

Used for:

- numeric input
  - formatting
  - arithmetic
-

## Example

```
1 name = input("Enter your name: ")
2 age = int(input("Enter your age: "))
3
4 next_age = age + 1
5 is_adult = age >= 18
6 message = f"{name}, next year you will be {next_age}."
7
8 print(message)
9 print("Adult status:", is_adult)
```

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## Mini Task

Create a script that:

1. Asks for two numbers
2. Converts them to integers
3. Calculates:
  - sum
  - difference
  - product
4. Prints results

