# IO & Variables

## Python Programming Workshop

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# Review

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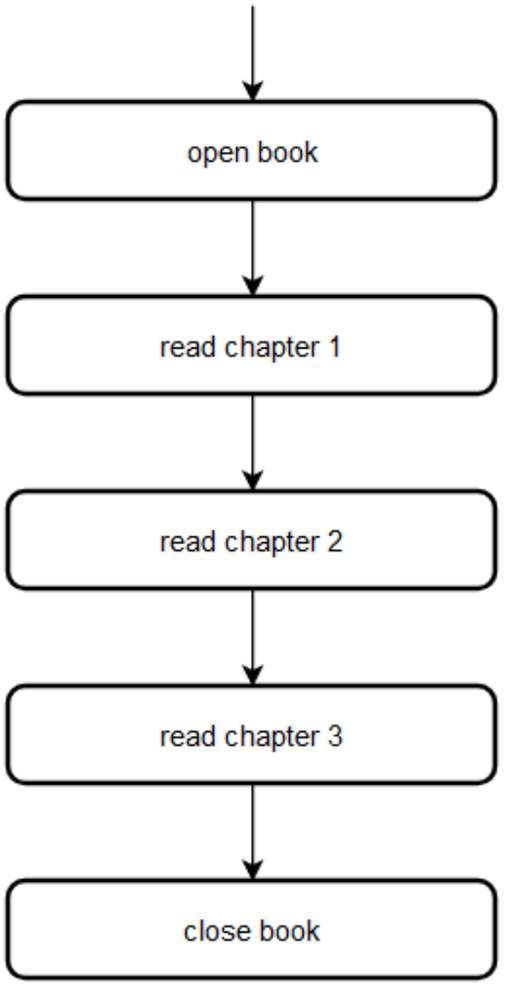
- 3 **logic structures** used to write programs
  - Sequence
  - Selection
  - Loop

# Review

- Sequence

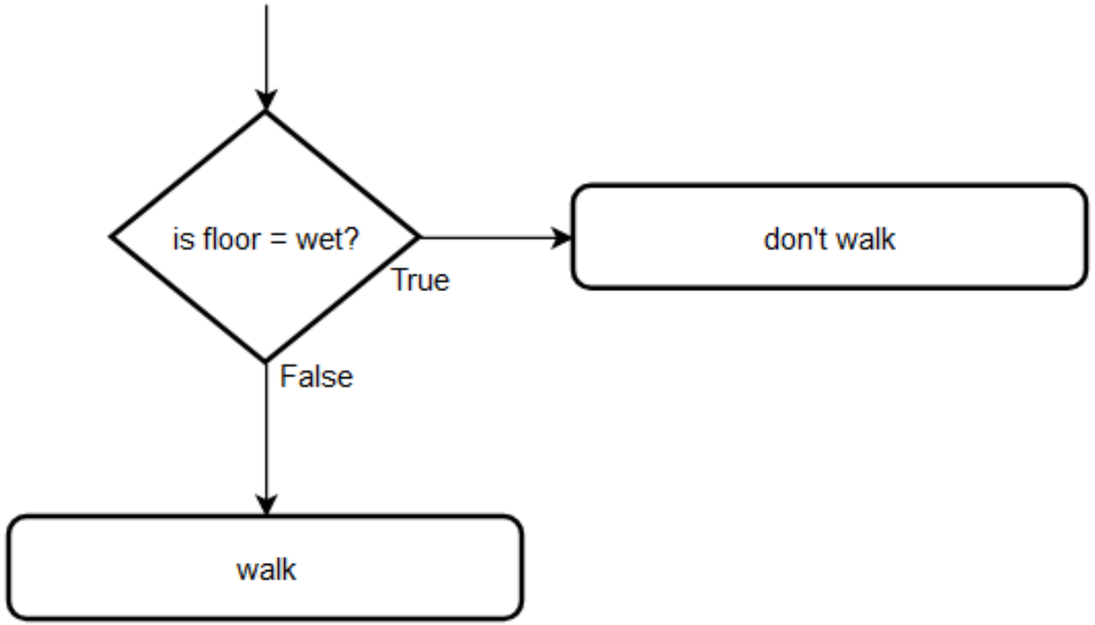
```
1 Open book
2 Read first chapter
3 Read second chapter
4 Read third chapter
5 Close book
```



# Review

- Selection

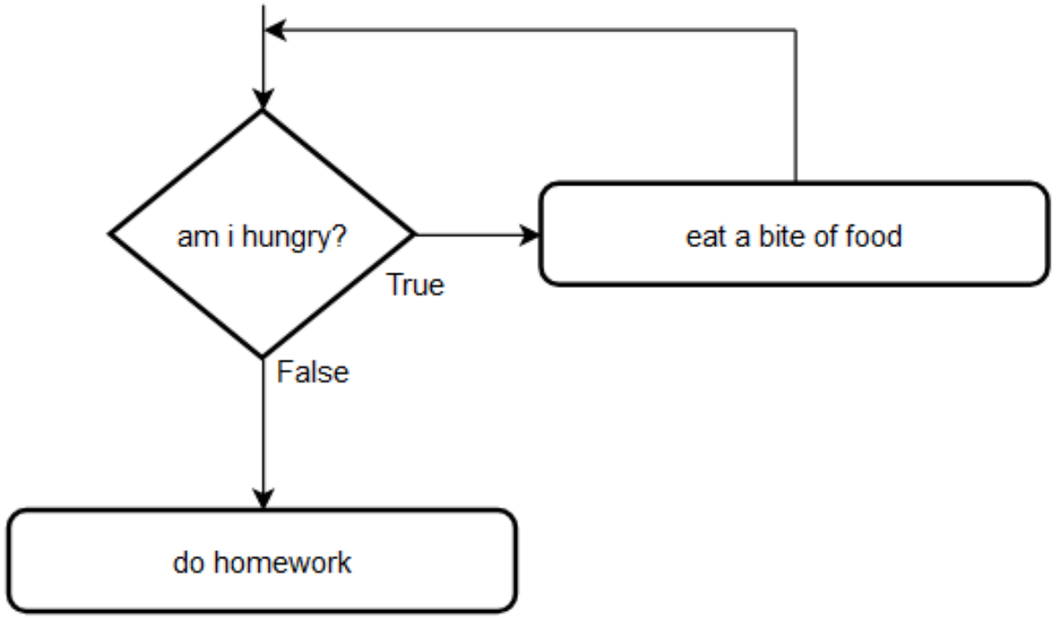
```
1  if floor is wet then
2      Don't Walk
3  else
4      walk
```



# Review

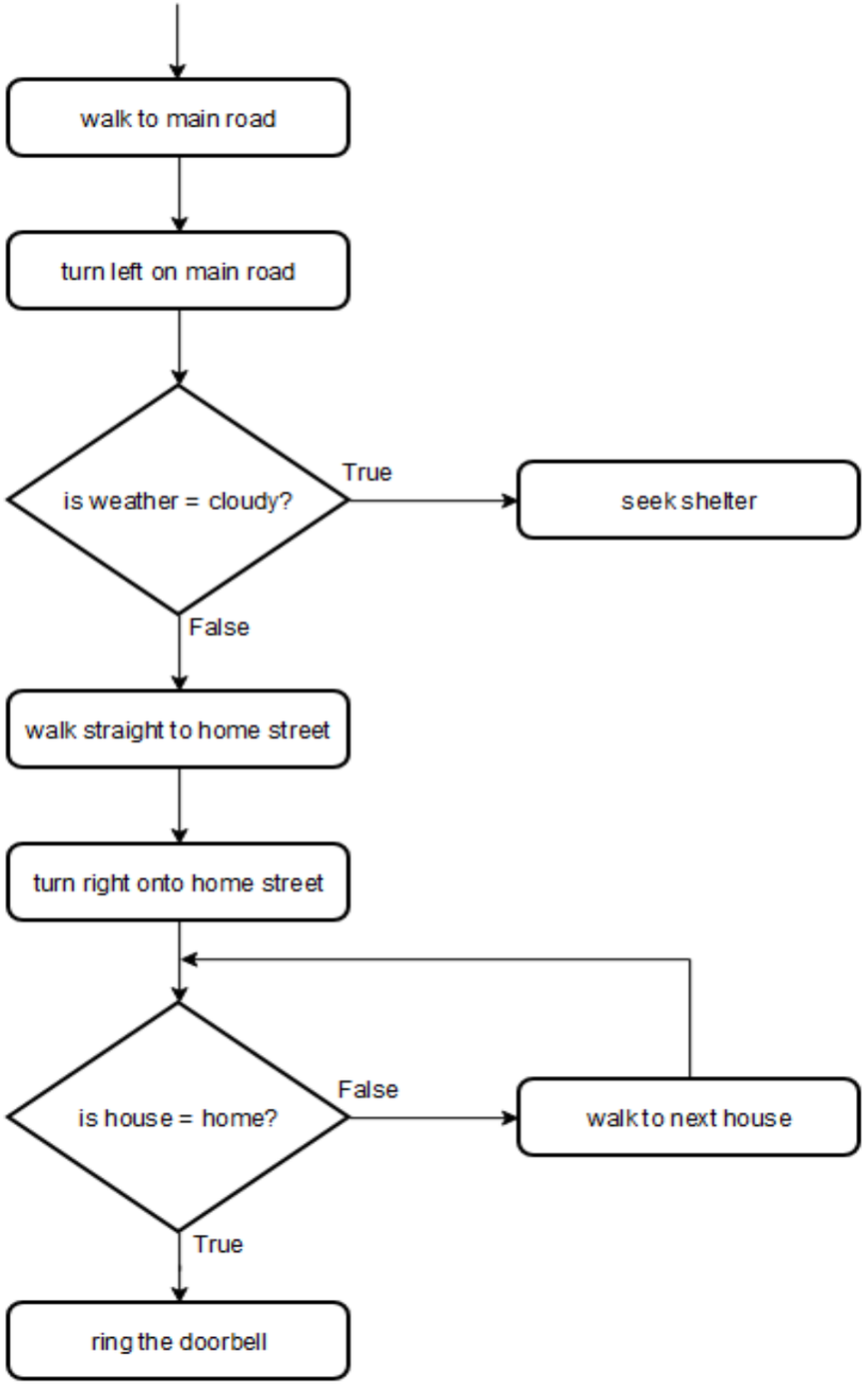
- Loop

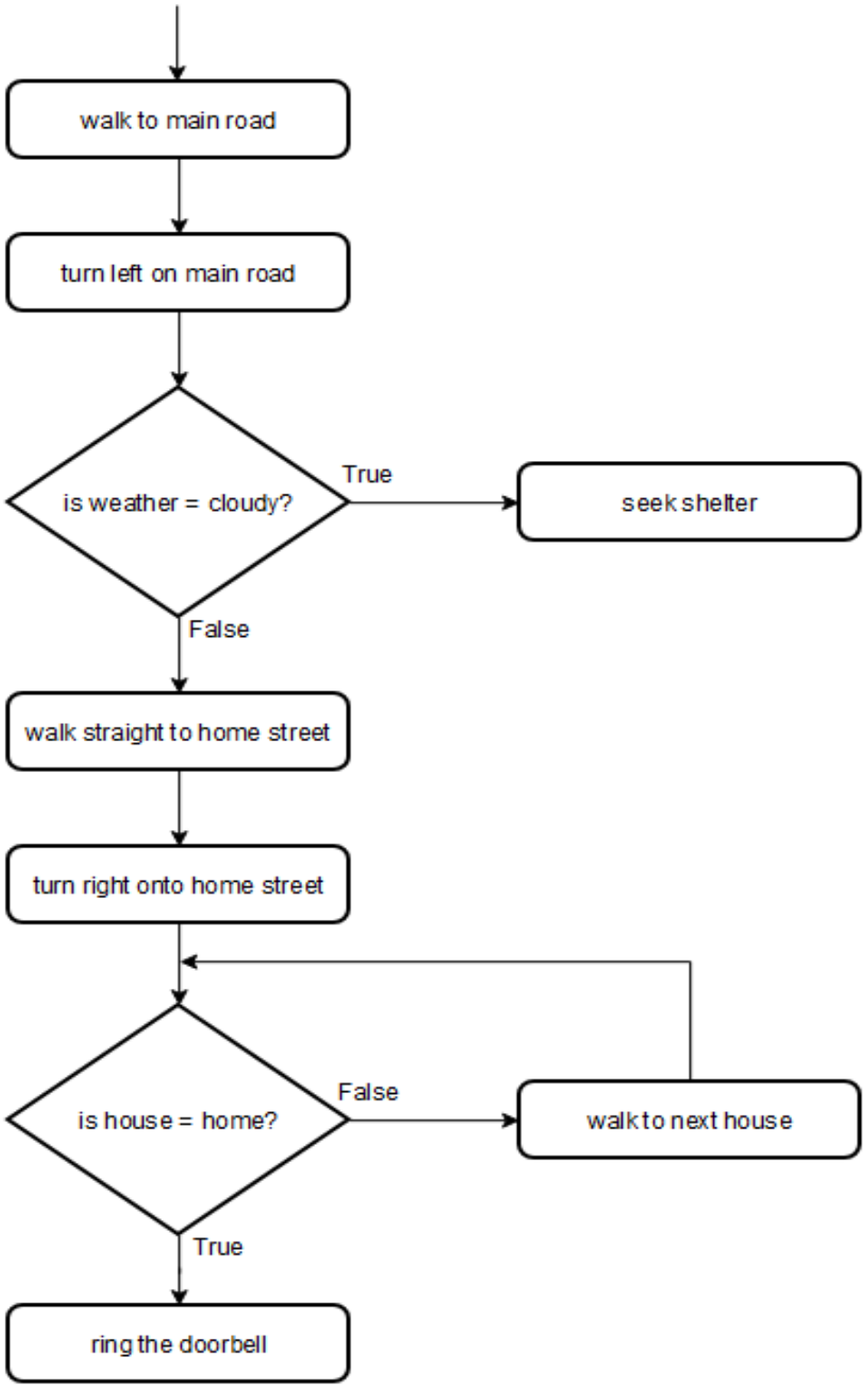
```
1 while you continue to be hungry
2     Eat a bite of food
3 Do homework
```

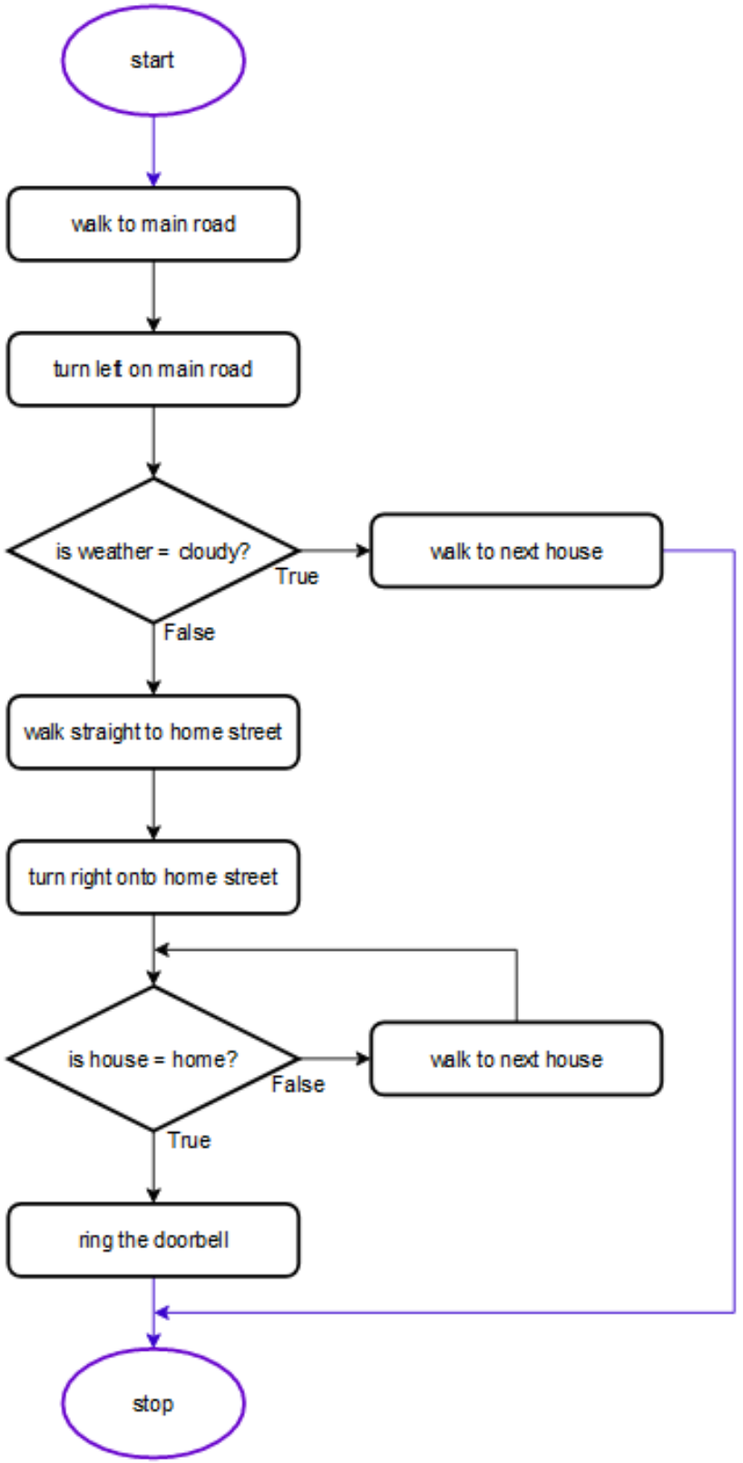


# Review

```
1. Walk straight from school until you reach the main road.
2. Turn left on the main road.
3. If weather is "cloudy" then
4.     Seek shelter
5. else
6.     Continue straight until you see your street
7.     turn right onto your street
8.     While house is not your house
9.         Walk to the next house on the street
10.    Ring the doorbell
```

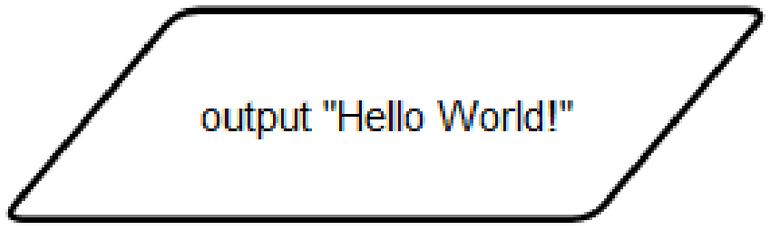



walk to main road
turn left on main road
is weather = cloudy?
True
seek shelter
False
walk straight to home street
turn right onto home street
is house = home?
False
walk to next house
True
ring the doorbell


start
walk to main road
turn left on main road
is weather = cloudy?
True
walk to next house
False
walk straight to home street
turn right onto home street
is house = home?
False
walk to next house
True
ring the doorbell
stop

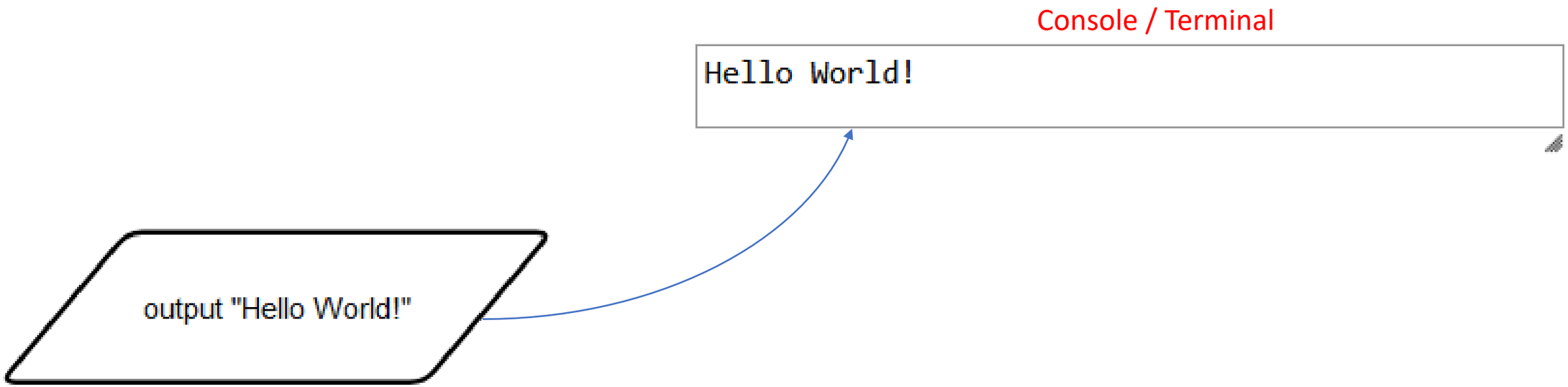
# Input & Output

- Computers process data and produce output



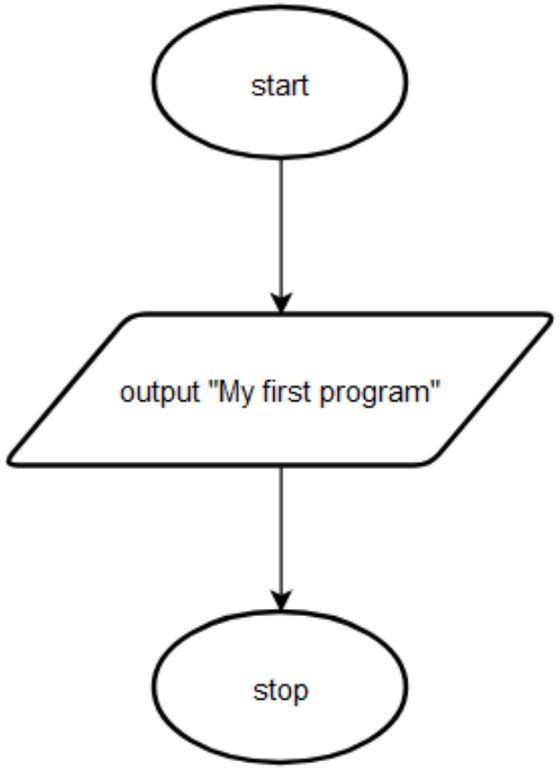
# Input & Output

- Computers process data and produce output



# Input & Output

- **Task:** Output “My first program” to the console




**Pseudocode**

```
1  start
2  output "My first program"
3  stop
```

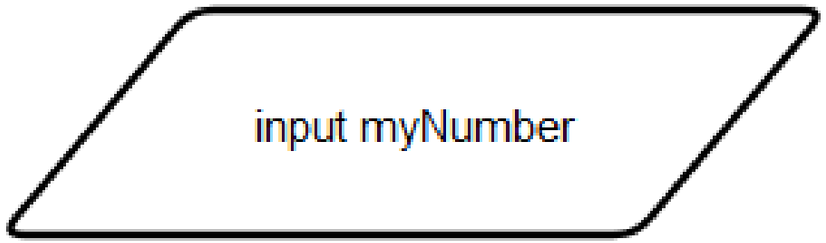
**Program Code**

```
1  print("My first program")
```

Run Code

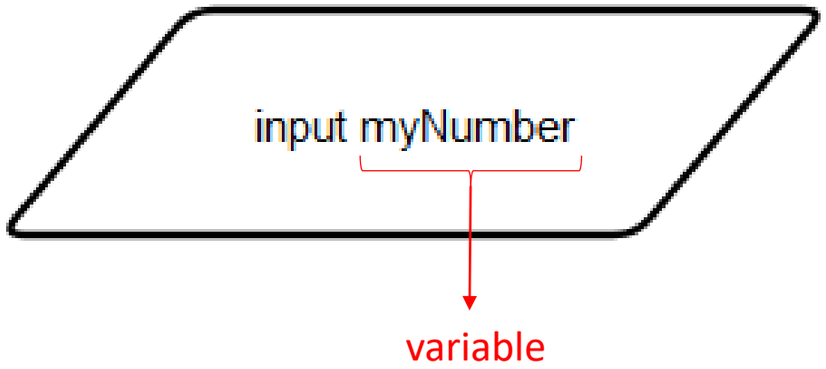
# Input & Output

- Computers take input data



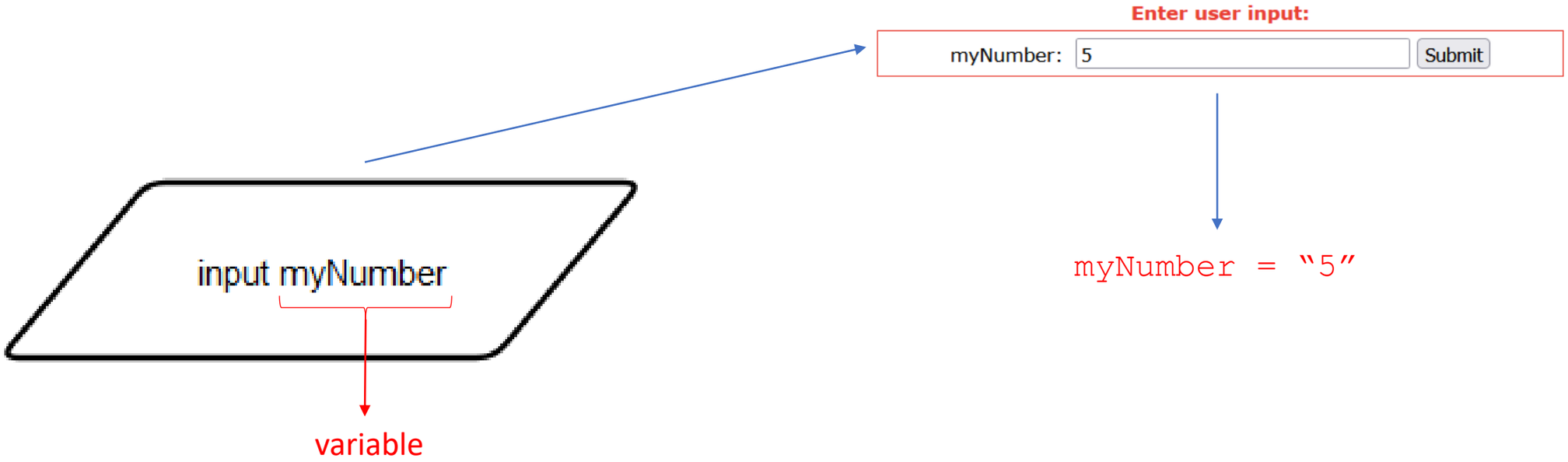
# Input & Output

- Computers take input data



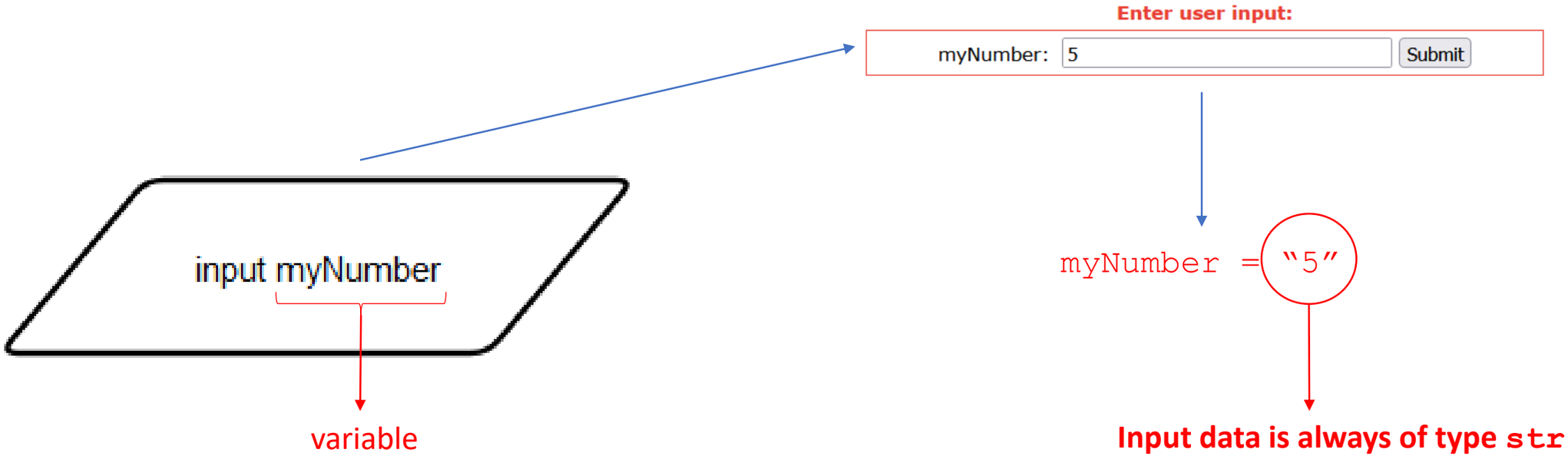
# Input & Output

- Computers take input data



# Input & Output

- Computers take input data

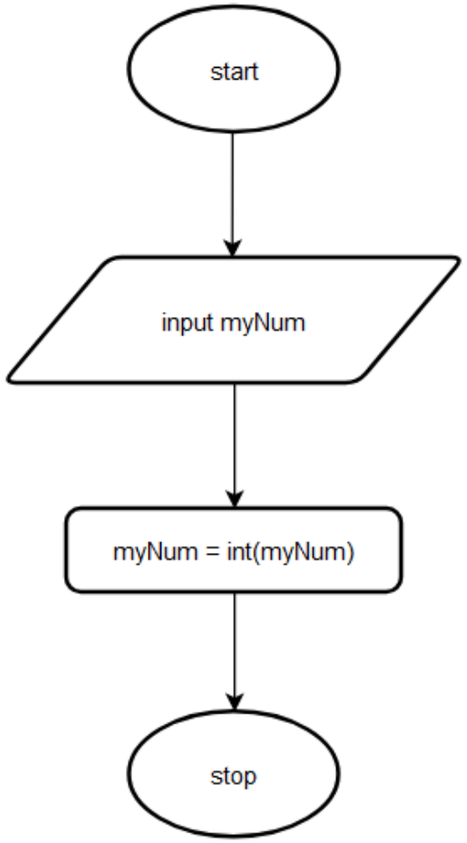


# Input & Output

- Computers take input data
  - Data types
    - `str : “this is a string #$12345%”`
    - `int : 2, 5, 10, 300, 0`
    - `float: 3.5, 1.2, 10.19`
    - `bool: True, False`
- To take input data as a different data type, you have to perform **type conversion**.

# Input & Output

- **Task:** Take `int` input from user and store it in a variable called `myNum`




**Pseudocode**

```
start
input myNum
myNum = int(myNum)
```

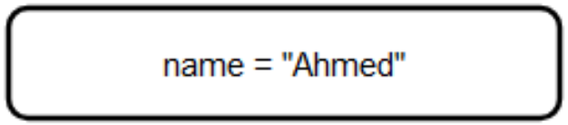
**Python Code**

```
myNum = input()
myNum = int(myNum)
```

Run Code

# Variable Assignment

- You can assign data of any data type to variables




**Pseudocode**

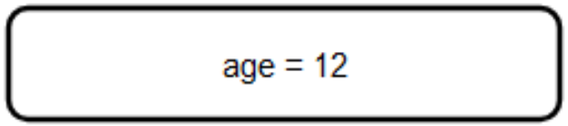
```
1  name = "Ahmed"
```

**Python Code**

```
1  name="Ahmed"
```

# Variable Assignment

- You can assign data of any data type to variables




**Pseudocode**

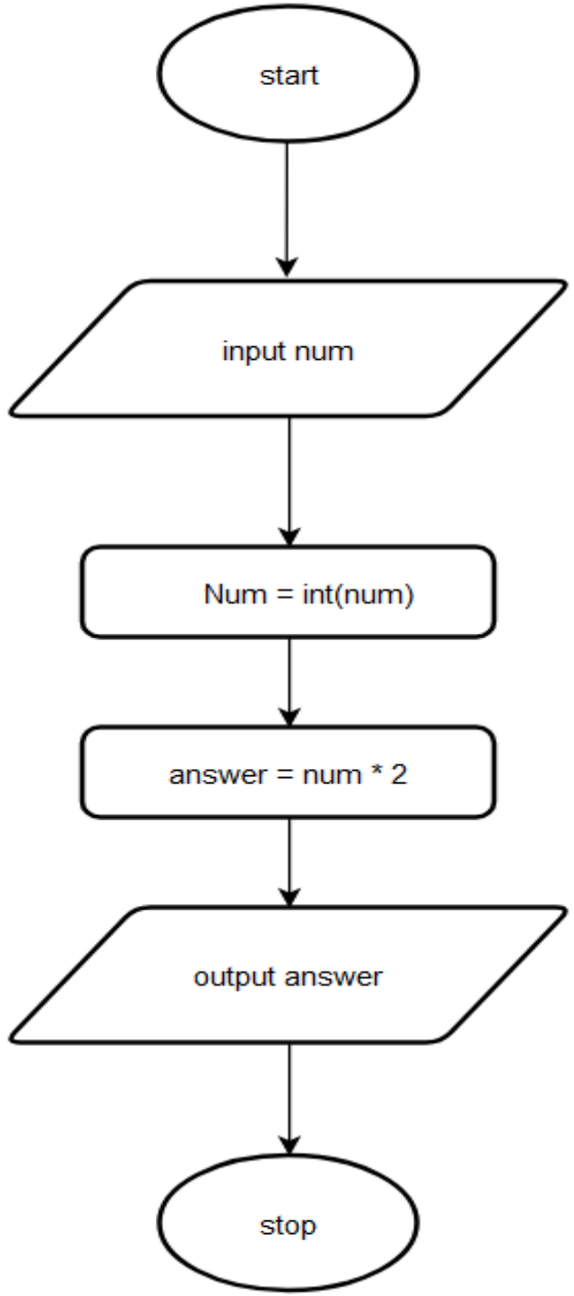
```
1 age=12
```

**Python Code**

```
1 age=12
```

# “multiply by 2” Program

- **Task:** Write a program that takes an `int` input and outputs the value after multiplying it by 2.



# “multiply by 2” Program

- **Task:** Write a program that takes an `int` input and outputs the value after multiplying it by 2.

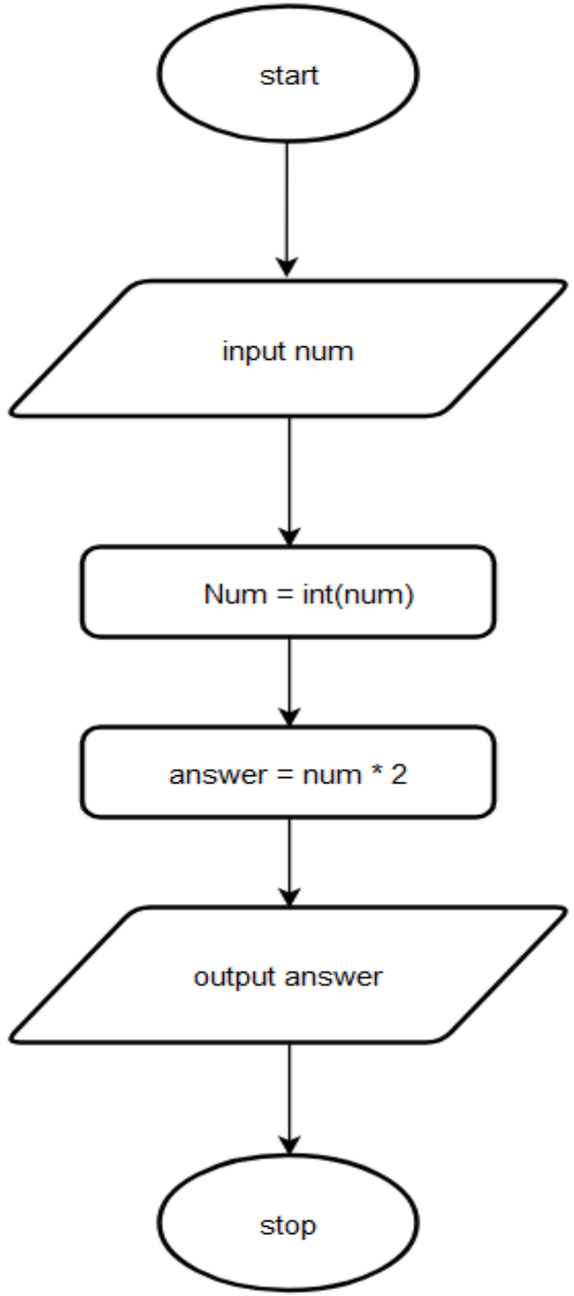
**Pseudocode**

```
start
input num
num = int(num)
answer = num * 2
output answer
stop
```

**Python Code**

```
num = input()
num = int(num)
answer = num * 2
print(answer)
```

Run Code



# LAB 01 – Question 1

- **Task:** Write a program that outputs `Hello World!` to the console.

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```
1  print("Hello World!")
```

Run Code

# LAB 01 – Question 2

- **Task:** Write a program that outputs `My program!` and `from Korangi Academy` to the console.

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- **Task:** Write a program that outputs `My program!` and `from Korangi Academy` to the console.

```
1 print("My program!")
2 print("from Korangi Academy")
```

Run Code

# LAB 01 – Question 3

- **Task:** Write a program that takes a `str` input and outputs it the console.

# LAB 01 – Question 3

- **Task:** Write a program that takes a `str` input and outputs it the console.

```
1 inp = input()
2 print(inp)
```

Run Code

# LAB 01 – Question 4

- **Task:** Write a program that takes a `int` input and outputs it the console.

# LAB 01 – Question 4

- **Task:** Write a program that takes a `int` input and outputs it the console.

```
1 num = input()
2 num = int(num)
3 print(num)
```

Run Code

# LAB 01 – Question 5

- **Task:** Write a program that takes a `int` input, multiplies it by 5 and outputs the result to the console.

# LAB 01 – Question 5

- **Task:** Write a program that takes a `int` input, multiplies it by 5 and outputs the result to the console.

```
num = input()
num = int(num)
result = num * 5
print(result)
```

Run Code

# LAB 01 – Question 6

- **Task:** Write a program that takes two `float` inputs, add them together and outputs the result.

# LAB 01 – Question 6

- **Task:** Write a program that takes two `float` inputs, add them together and outputs the result.

```
num1 = input()
num1 = float(num1)
num2 = input()
num2 = float(num2)
result = num1 + num2
print(result)
```

Run Code

# LAB 01 – Question 7

- **Task:** Write a program that asks the user to enter their name, age, and school. Output this information to the console.

# LAB 01 – Question 7

- **Task:** Write a program that asks the user to enter their name, age, and school. Output this information to the console.

```
1  name = input()
2
3  age = input()
4  age = int(age)
5
6  school = input()
7
8  print("Name:",name)
9  print("Age:",age)
10 print("School:", school)
```

Run Code

# CLOSING