








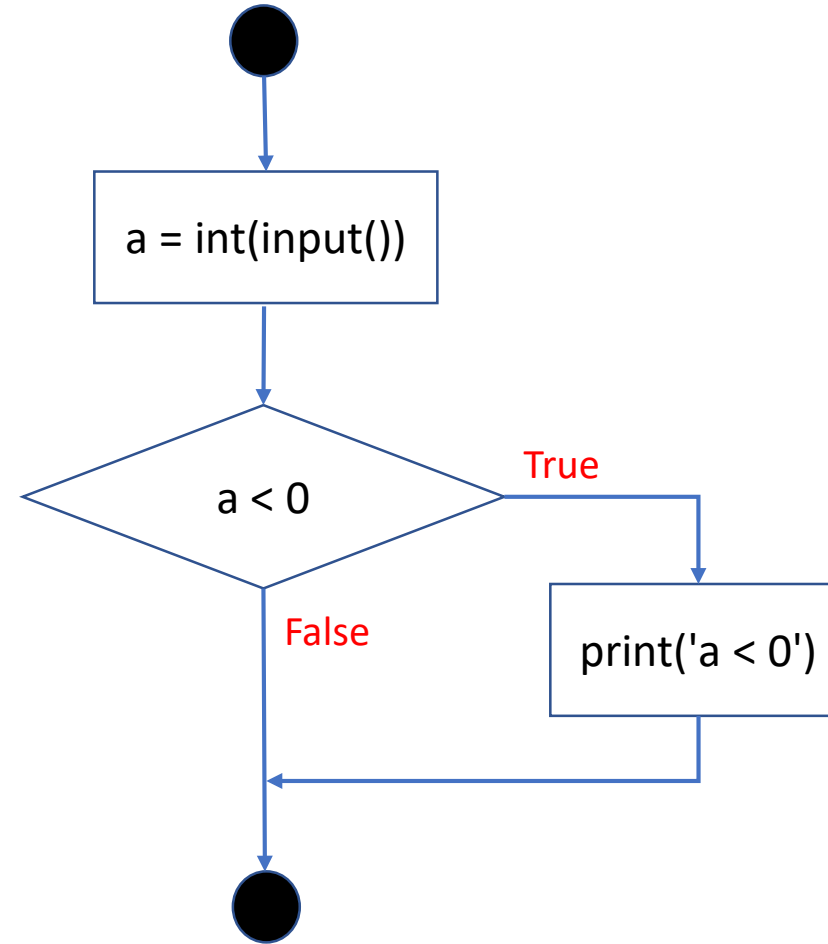
# Flowchart (流程圖)

# Flowchart symbols

Symbol	Symbol Name	Purpose
	Start/Stop	Used at the beginning and end of the algorithm to show start and end of the program.
	Process	Indicates processes like mathematical operations.
	Input/ Output	Used for denoting program inputs and outputs.
	Decision	Stands for decision statements in a program, where answer is usually Yes or No.
	Arrow	Shows relationships between different shapes.
	On-page Connector	Connects two or more parts of a flowchart, which are on the same page.
	Off-page Connector	Connects two parts of a flowchart which are spread over different pages.

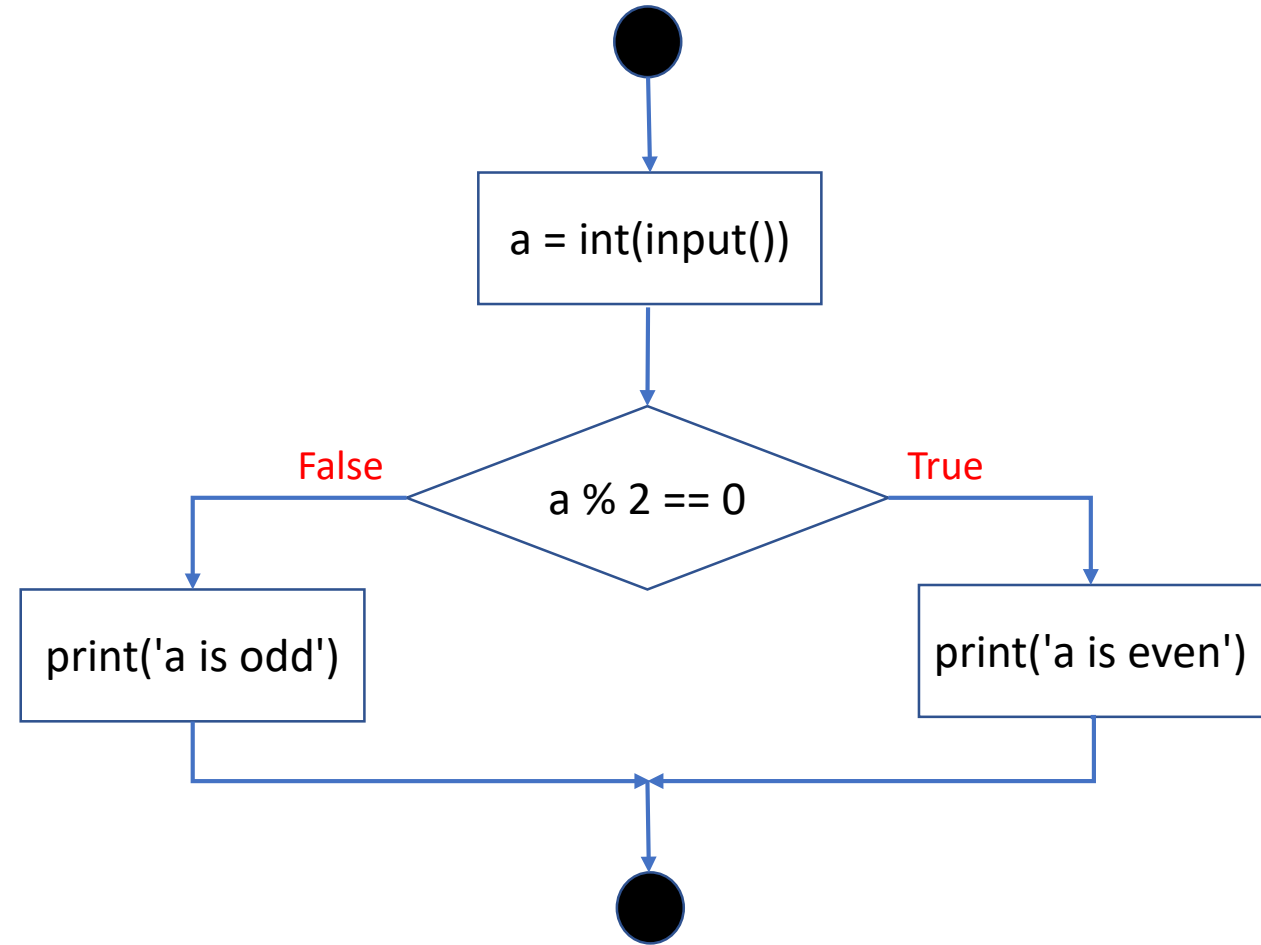
# if statement

```
a = int(input())  
if a < 0:  
    print('a < 0')
```



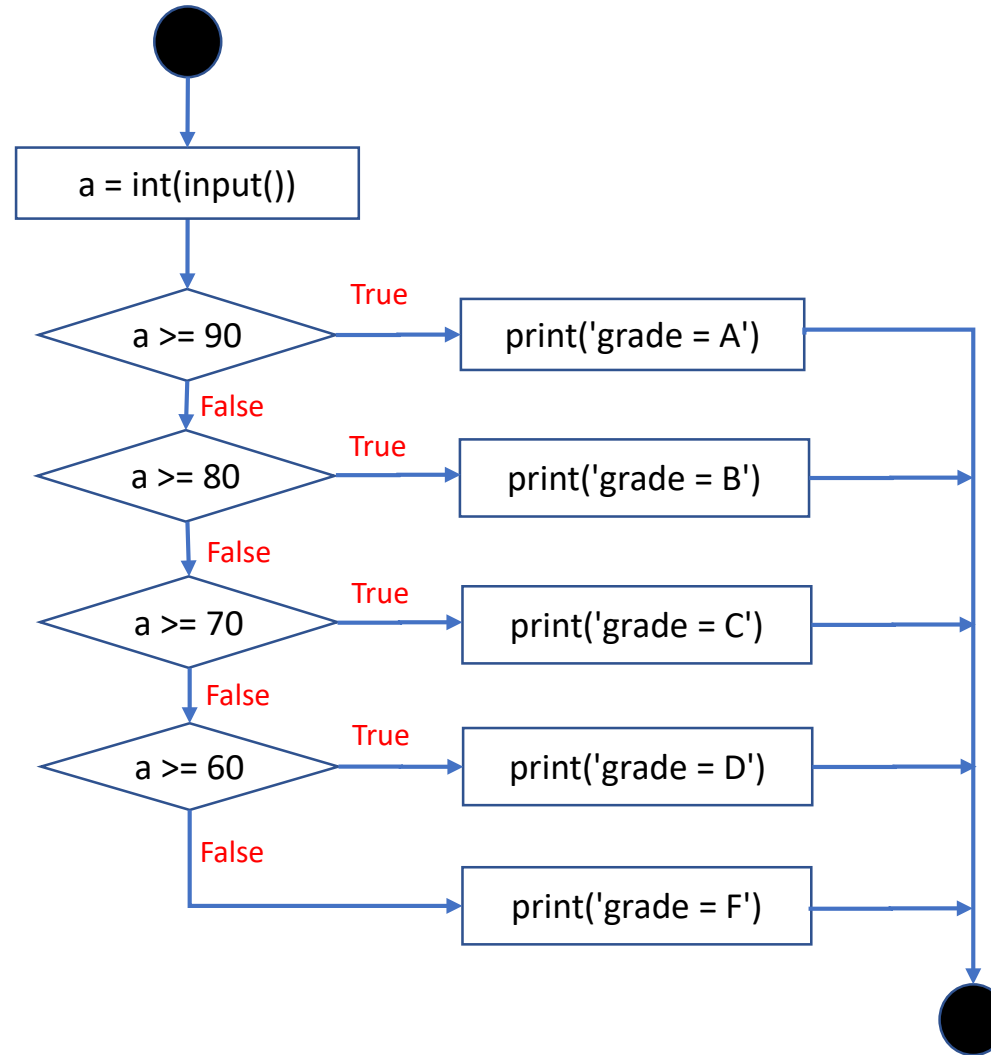
# if statement

```
a = int(input())  
if a % 2 == 0:  
    print('a is even')  
else:  
    print('a is odd')
```



# if statement

```
a = int(input())  
if a >= 90:  
    print('grade = A')  
elif a >= 80:  
    print('grade = B')  
elif a >= 70:  
    print('grade = C')  
elif a >= 60:  
    print('grade = D')  
else:  
    print('grade = F')
```



# range() function

The screenshot shows a web browser window with the URL `w3schools.com/python/ref_func_range.asp`. The browser's address bar and tabs are visible at the top. Below the browser window, the page content is displayed. On the left, there is a sidebar with a list of Python topics. The main content area has a dark navigation bar with 'PYTHON' highlighted. Below this, the page title 'Definition and Usage' is followed by a paragraph explaining the `range()` function. The 'Syntax' section shows the function signature `range(start, stop, step)`. The 'Parameter Values' section contains a table with three rows: `start`, `stop`, and `step`, each with a description of its role and default value.

Python Tutorial

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## Definition and Usage

The `range()` function returns a sequence of numbers, starting from 0 by default, and increments by 1 (by default), and stops before a specified number.

## Syntax

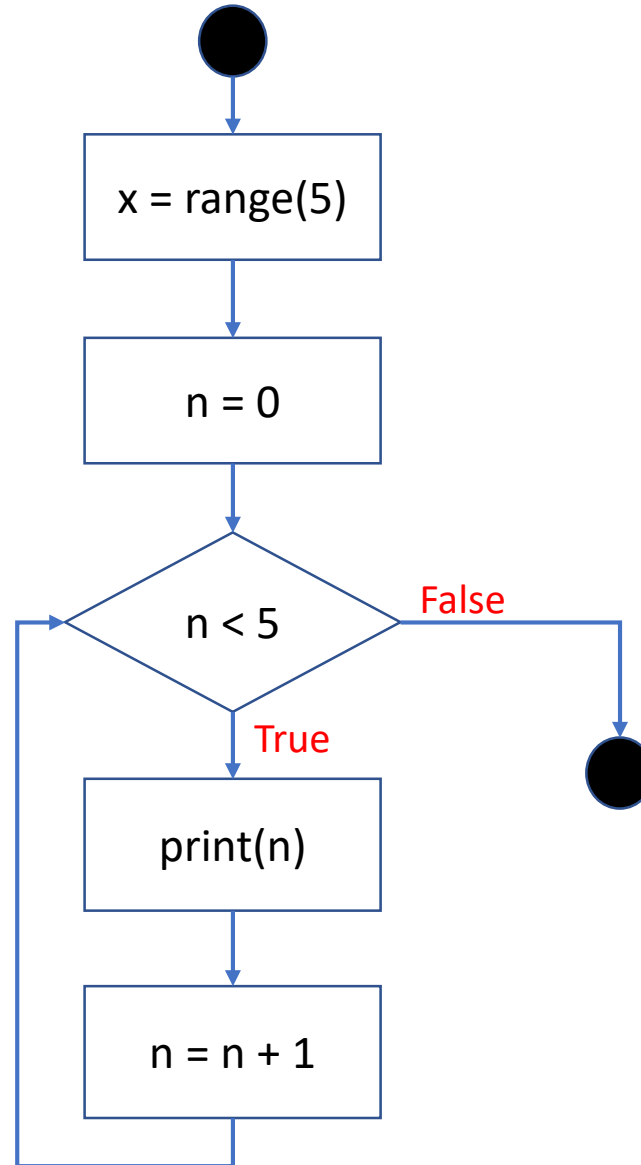
```
range(start, stop, step)
```

## Parameter Values

Parameter	Description
<code>start</code>	Optional. An integer number specifying at which position to start. Default is 0
<code>stop</code>	Required. An integer number specifying at which position to stop (not included).
<code>step</code>	Optional. An integer number specifying the incrementation. Default is 1

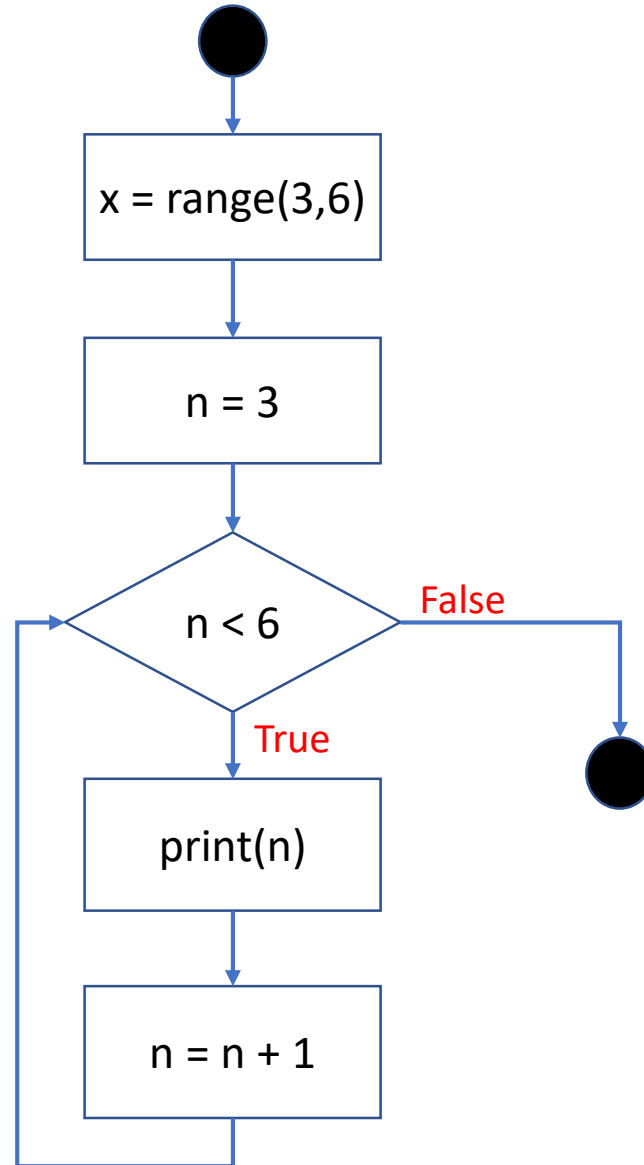
# for loop

```
x = range(5)
for n in x:
    print(n)
```



# for loop

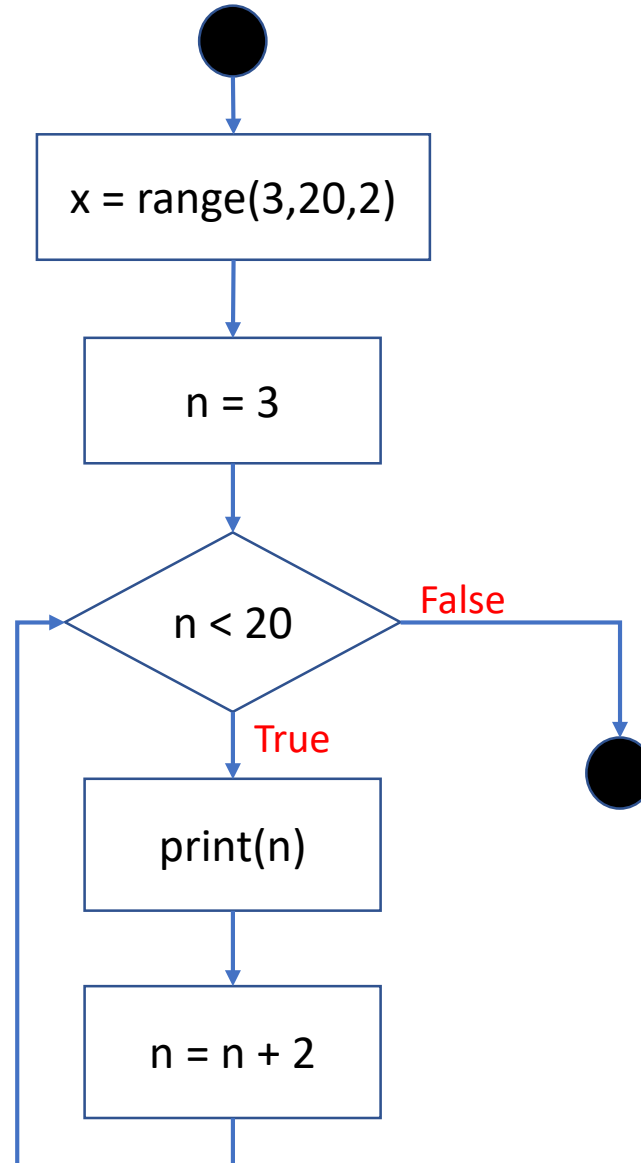
```
x = range(3, 6)
for n in x:
    print(n)
```



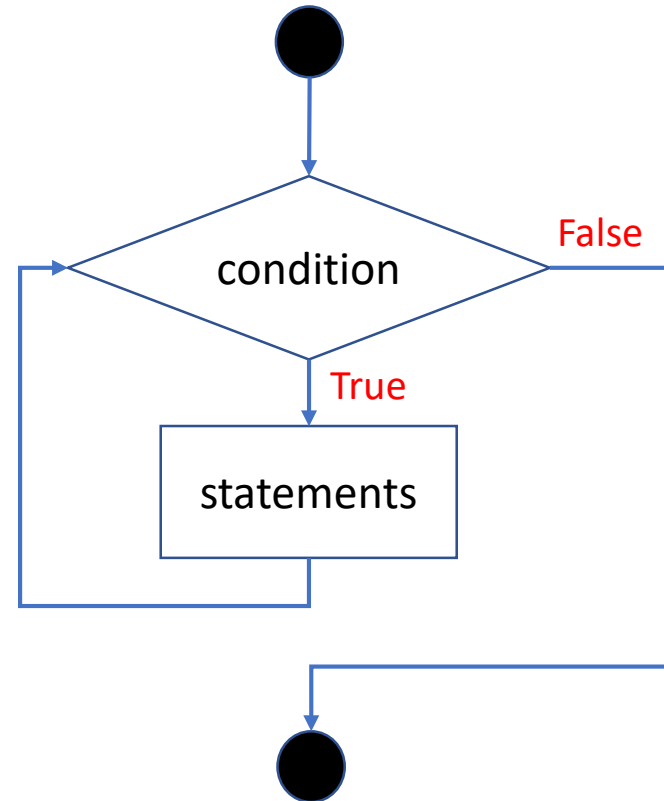


# for loop

```
x = range(3, 20, 2)
for n in x:
    print(n)
```

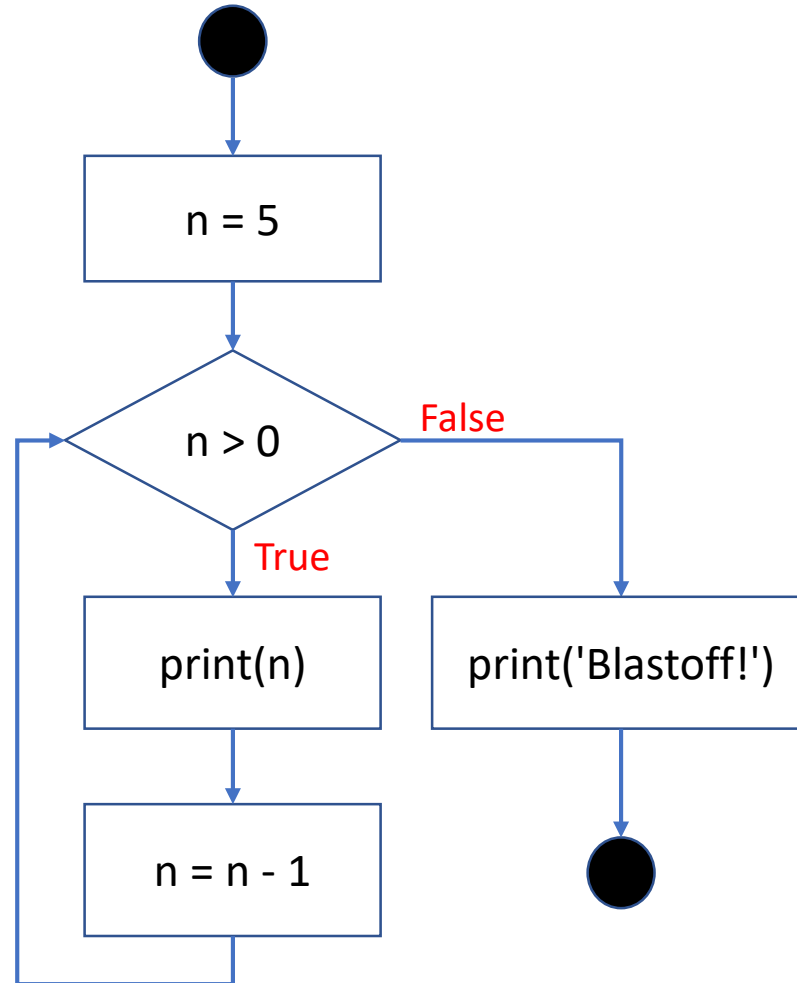


# while loop



# while loop

```
n = 5
while n > 0:
    print(n)
    n = n - 1
print('Blastoff!')
```

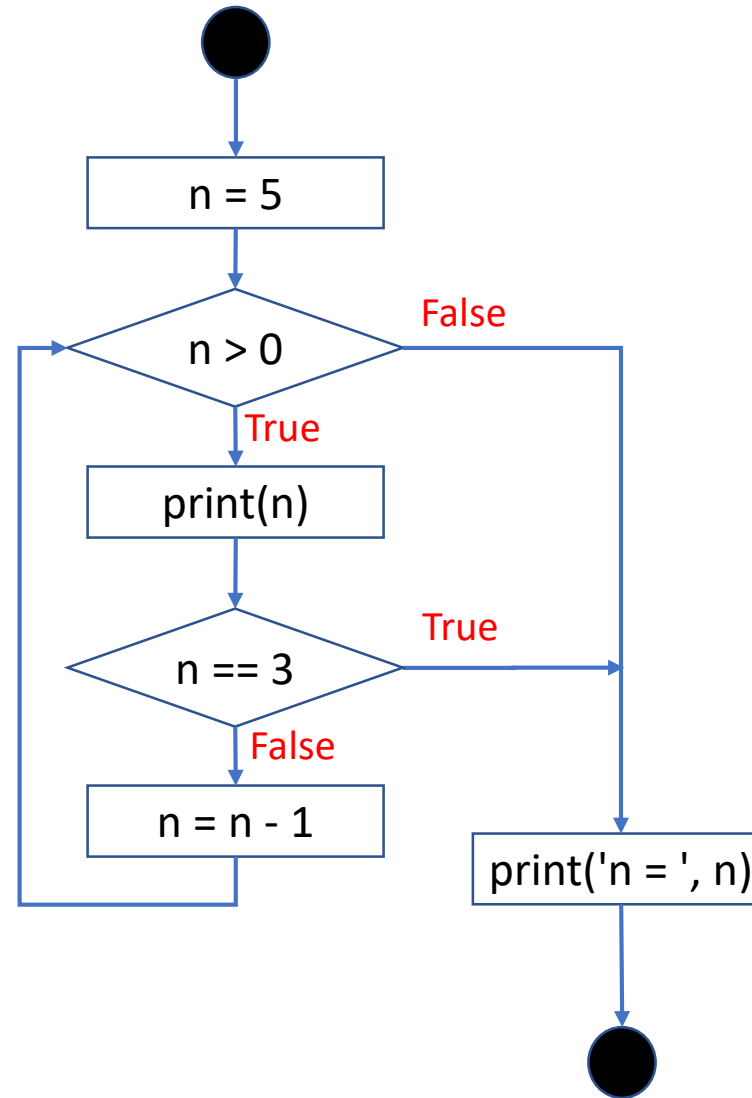


# while loop

## break

```
n = 5
while n > 0:
    print(n)
    if n == 3:
        break
    n = n - 1

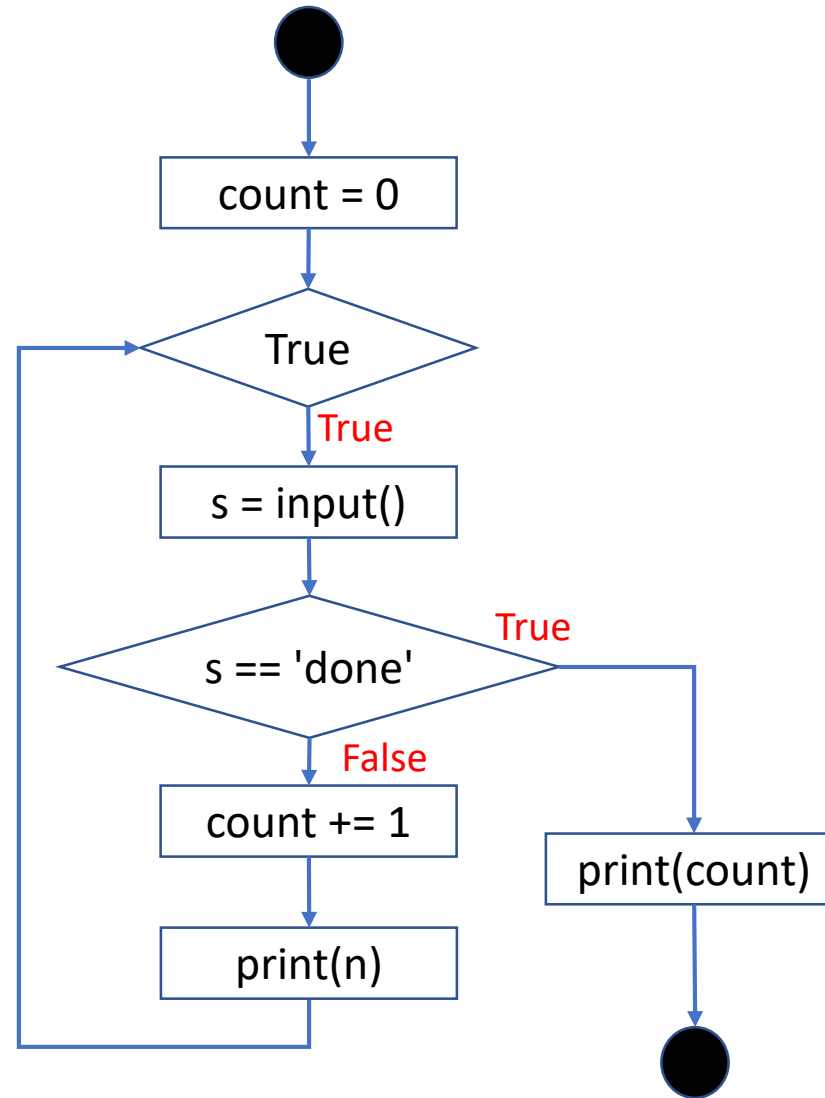
print('n = ', n)
```



# while loop

## break

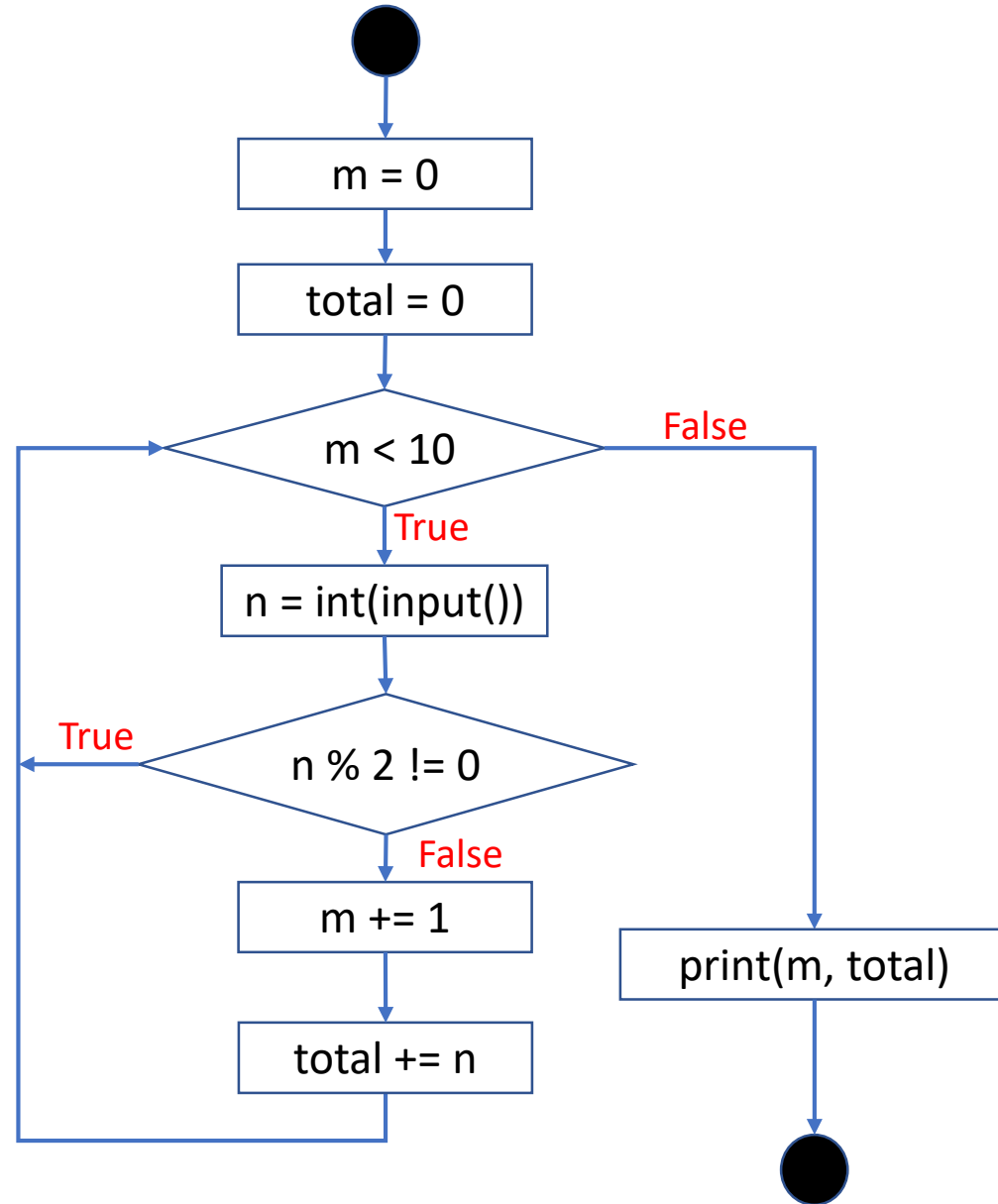
```
count = 0
while True:
    s = input()
    if s == 'done':
        break
    count += 1
    print(s)
print(count)
```



# while loop

## continue

```
m = 0
total = 0
while m < 10:
    n = int(input())
    if n % 2 != 0:
        continue
    m += 1
    total += n
print(m, total)
```



# 參考資料

- [https://www.tutorialspoint.com/programming\\_methodologies/programming\\_methodologies\\_flowchart\\_elements.htm](https://www.tutorialspoint.com/programming_methodologies/programming_methodologies_flowchart_elements.htm)
- <https://online.visual-paradigm.com/diagrams/tutorials/flowchart-tutorial/>
- <https://www.youtube.com/watch?v=GsfZD4oU7l0>
- <https://www.youtube.com/watch?v=Jh1BkgewvyU>
- [https://www.youtube.com/watch?v=ID5lV\\_zn48I](https://www.youtube.com/watch?v=ID5lV_zn48I)