IF ELSE Statements

Programming and Algorithms

Lecture by

Dr Daniil Osudin

```python
n = 3
for i in range(1,n+1):
    print("Hello World!")
```

```
Hello World!
Hello World!
Hello World!
```

What will we Cover?

- IF ELSE statements

- Using IF statements and the Boolean data type

IF ELSE Statements

- If a condition is satisfied, take some action
- If it is not satisfied, take a different action

Examples

- If you turned left you will arrive at town A, otherwise you will arrive at town B
- If it is a Sunday, the bank branch is open 10:00-14:00, otherwise it is open 09:00-17:00
- If it is raining Jane will take the bus, otherwise she will walk
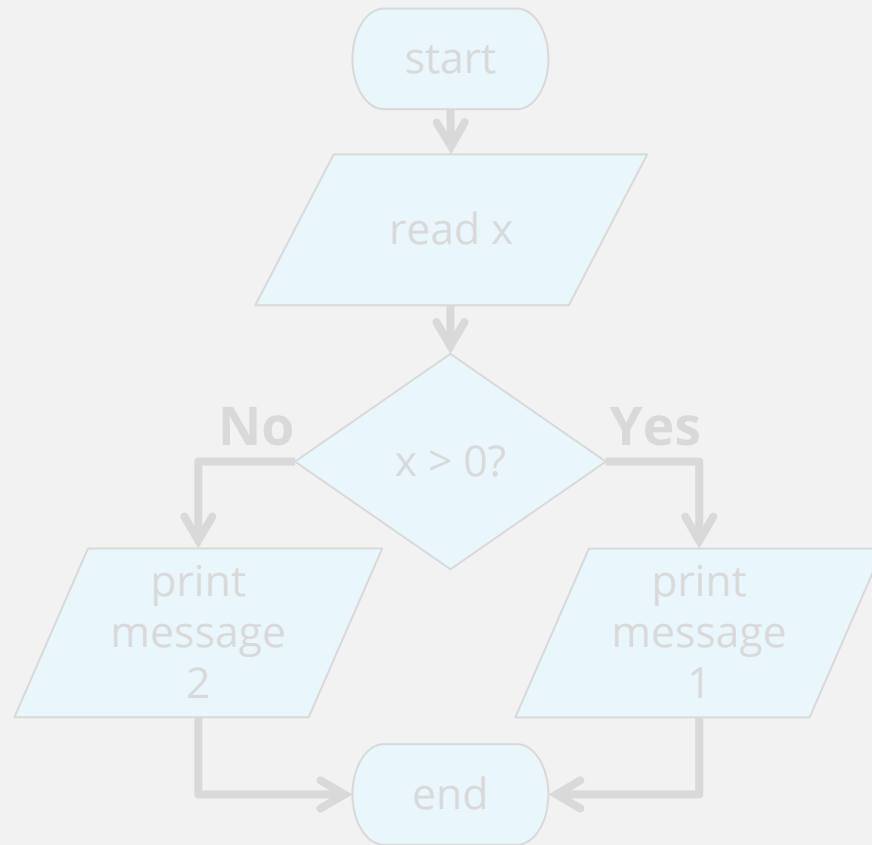
IF ELSE Statements in Python

Body 1 is executed if the condition evaluates to `True`

Body 2 is executed if the condition evaluates to `False`

```
if <condition>:
body 1
else:
body 2
```

One or multiple statements in each body.
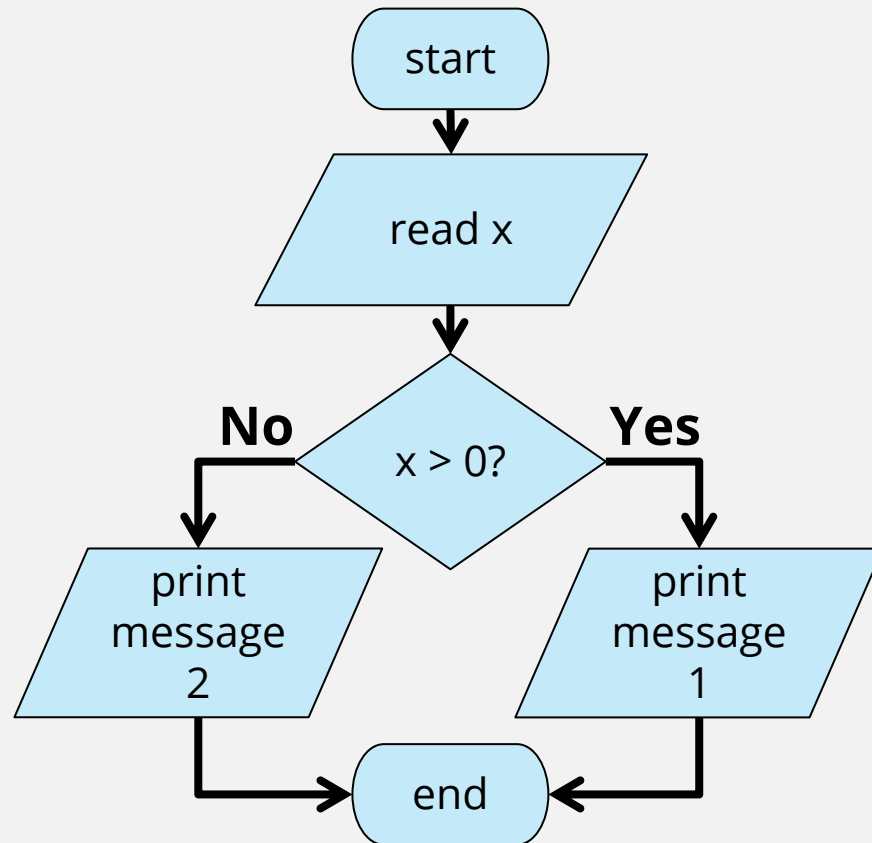
IF ELSE Statements Flow Chart

```python
x = int(input())
if(x > 0):
  print(x, "is positive")
else:
  print(x, "is not positive")
```

Condition

Executed when condition is `True`

Executed when condition is `True`

start

read x

No   x > 0?   Yes

print message 2

print message 1

end

IF ELSE Statements Flow Chart

start

read x

No ← x > 0? → Yes

print message 2

print message 1

end

Condition

```
x = int(input())
if(x > 0):
    print(x, "is positive")
else:
    print(x, "is not positive")
```

Executed when condition is `True`

Executed when condition is `False`

CITY
UNIVERSITY OF LONDON
EST 1894

Examples I

Condition

```python
George = 30   #George's age
Jack = 41     #Jack's age

if(George > Jack):
    print("George is older than Jack")
else:
    print("George is not older than Jack")
```

Body 1

Body 2

```
George is not older than Jack
```

Examples II

Condition

```
answer = input("What programming language are we using? ")
if(answer == "Python"):
    print("Correct!")          Body 1
else:
    print("Incorrect")          Body 2
```

```
What programming language are we using? Python
Correct!
```

Try It Yourself

Enter and run the following statements in the python environment:

```python
x = int(input("enter a whole number: "))
y = 6
if(x < y):
 print("your number is smaller than", y)
else:
 print("your number is", y, "or greater")
```