

# Boolean + Conditionals

## Chained Conditionals (elif)

```
if x > 0:
    print("positive")
elif x == 0:
    print("Zero")
else:
    print("Negative")
```

## Boolean Function:

↳ returns T or F.

Ex:

```
def is_even(n):
    return n % 2 == 0
```

you can unit test using

```
print(is_even(2))
print(is_even(3))
```

## Nested Conditionals:

Nesting = placing one program inside another  
an if within a larger if and else

```
x = 15
if x > 0:
    if x % 2 == 0:
        print(x, "is Positive and even")
    else:
        print(x, "is Positive and odd")
```

## Conditional Execution if and else

Ex:

```
if x > 0:
    print("Positive")
else:
    print("Non positive")
```

## Boolean Values Expressions

a way of selection:

• A boolean value:  $\begin{cases} \rightarrow \text{TRUE} \\ \rightarrow \text{FALSE} \end{cases}$

• A boolean expression: evaluates to a boolean value (T or F)  
↳ ex  $5 < 3$

• comparison operators:  $(=, !=, >, <, >=, <=)$

## Logical Operator:

combines boolean expression to form complex conditions.

↳ and ( $\wedge$ ): T when both are T

↳ or ( $\vee$ ): T when at least 1 is T

↳ not:  $T \rightarrow F, F \rightarrow T$

ex:  $\text{not}(x > 10) \Rightarrow x \leq 10$   
 $\text{not}(x == y) \Rightarrow x != y$