



4.1.1 Relational & Boolean Operations

Relational & Boolean operations are often used in IF statements to decide which code paths a branch should take or in loops to determine when the loops shown terminate.

Relational Operations

Equal To ==

```
print(10 == 5)
```

Output:

```
False
```

Not Equal To !=

```
print(10 != 5)
```

Output:

```
True
```

Less Than <

```
print(10 < 5)
```

Output:

```
False
```

Greater Than >

```
print(10 > 5)
```

Output:

```
True
```





Less Than Or Equal To <=

```
print(10 <= 5)
```

Output:

```
False
```

Greater Than Or Equal To >=

```
print(10 >= 5)
```

Output:

```
True
```

Boolean Operations

NOT

```
logged_in = False
if not logged_in:
    print("Please log in.")
```

Output:

```
Please log in
```

AND

```
age = 18
has_ticket = True
if age >= 18 and has_ticket:
    print("Entry allowed.")
```

Output:

```
Entry allowed
```





OR

```
is_teacher = False
is_student = True
if is_teacher or is_student:
    print("Access granted.")
```

Output:

```
Access granted.
```

XOR

```
door1 = True
door2 = False
if door1 ^ door2:
    print("Exactly one door is open.")
```

Output:

```
Exactly one door is open.
```

