Junior Knights Python I - Week 3

Relational Operators & If-Statements

Review

Boolean

Boolean Review

- Boolean (bool) is a data type that represents two values: **True** and **False**
- Think of it as a light switch:

  💡 ON (True)

  🔘 OFF (False)

- Can be directly assigned:

```
is_warm = True
```

- Can come from comparisons made by relational operators:

```
temp = 75
is_warm = temp > 70

print(is_warm) # Output: True
```

If Statements

Relational Operators

Logical Operators

If, Else, and Elif

Relational Operators

- Relational or Conditional Operators are how Python compares variables to one another. a = 5, b = 10:

Operation	Description	Example	Outcome
==	Equals	a == b	False
!=	Not equals	a != b	True
<	Less than	a < b	True
<=	Less than or equal to	a <= b	True
>	Greater than	a > b	False
>=	Greater than or equal to	a >= b	False

Logical Operators

- Logical operators can be used to combine conditional statements.
  Imagine a = 5:

Operation	Description	Example	Outcome
and	Returns True if both statements are true	(a < 10) and (a >= 5)	True
or	Returns True if one of the statements is true	(a == 10) or (a == 100)	False
not	Reverse the result, returns False if the result is true	not (a < 10 and a >= 5)	False

If Statements

- If statements check if a condition is True. If so, the code inside runs.
  - *If a condition is True, then do something*

Syntax:

```
if <condition>:
    stmt1
    stmt2
    ...
    stmtn
```

Example:

```
hungry = True

if hungry:
    print("Have a snack!")
```

- Note: Python relies on indentation to define the scope in the code. Everything indented under the statement will execute if True. If False, it will not execute.

Elif Statements

- Elif, which stands for Else If, is Python's way of saying "if the previous conditions were not true, then try this condition"
  - *If the first condition isn't true, then check another condition*
- There can be as many elif statements as needed
- There is no need to use an else statement after an elif statement

Syntax:

```
if <condition>:
    stmt
elif <condition>:
    stmt
```

Example:

```
hunger_level = "a little"

if hunger_level == "very hungry":
    print("Eat two snacks!")
elif hunger_level == "a little":
    print("Eat one snack.")
```

Else Statements

- Catches anything which isn't caught by the preceding conditions
- There can only be one else statement in an if-else block

Syntax:

```
if <condition>:
     stmt
elif <condition>:
     stmt
else:
     stmt
```

Example:

```
hunger_level = "a little"

if hunger_level == "very hungry":
    print("Eat two snacks!")
elif hunger_level == "a little":
    print("Eat one snack.")
else:
     print(“Save your snack for later.”)
```

Live Coding