💡 Conditionals

👋 Heads Up! This content is intended to be used in a facilitated session with mentors. Feel free to browse the materials here, but be aware that if you choose to work through this material in advance, you will still be expected to start from scratch and follow along with the rest of the class.

Booleans

Learning Objectives:

- Understand the boolean data type.

Boolean Values

Demonstrate:

1. The boolean variable type.

Create a new file: `conditionals_playground.py`

Walk through (and have the students follow along on their own computers) an example to demonstrate the ideas listed above, for example:

```
is_raining = False
is_cold = True

print(type(is_raining))
print(type(is_cold))
```

Comparisons

Learning Objectives:

- Understand how to compare different variable types.
- Understand that comparing variables results in a boolean value.

With Booleans

Demonstrate:

1. The various comparisons we can do with boolean values, and how the result of these comparisons are True or False themselves.

Walk through (and have the students follow along on their own computers) an example to demonstrate the ideas listed above, for example:

```
print(is_raining)
print(not is_raining)
print(is_raining and is_cold)
```

```
print(is_raining and not is_cold)
```

Set a small challenge similar to the example you walked through, some ideas:

- What is the result of the following comparisons when both `is_raining` and `is_cold` are True:
  - `is_raining`
  - `not is_raining`
  - `is_raining or is_cold`
  - `is_raining and not is_cold`
  - `is_raining or not is_cold`
  - `not is_raining and not is_cold`

With Other Data Types

Demonstrate:

1. The various comparisons we can do with other data types, and how the result of these comparisons are True or False themselves.

Walk through (and have the students follow along on their own computers) an example to demonstrate the ideas listed above, for example:

```
temperature = 16
print(temperature < 18)
wind_chill = 3
print(wind_chill > 4)
print(temperature - wind_chill < 16)

name = "Hayley"
print(name == "Hayley")
print(name != "Hayley")
```

Set a small challenge similar to the example you walked through, some ideas:

- Change the values for the variables to get the reverse outcome for each comparison (e.g. change the name variable from “Hayley” to “Holly”).

If Statements

Learning Objectives:

- Understand how to perform comparisons to determine if something is true or false.
- Understand how to use if and else statements to control what code is executed.

If Statements

Demonstrate:

1. Using if and else statements for various kinds of comparisons and data types.
2. Using if and else statements to control what code is executed.

Walk through (and have the students follow along on their own computers) an example to demonstrate the ideas listed above, for example:

```
## if statements
is_raining = False

# if
if is_raining:
      print("Take an umbrella.")

# if and else
if is_raining:
      print("Take an umbrella.")
else:
      print("Do not take an umbrella.")


# if, elif, else
if temperature - wind_chill < 16:
      print("Take a jumper.")
elif temperature - wind_chill > 30:
      print("Euck, it's hot today, stay home.")
else:
      print("Wow, what a lovely day!")


# nested if statements
if temperature - wind_chill < 16 and is_raining:
      print("Just stay home.")
else:
      if is_raining:
            print("You'll need an umbrella today.")
      if temperature - wind_chill < 16:
            print("You'll need a jumper today.")
```