

# Unit 1 - Python Control Structures - Study Guide

## Booleans & Their Operators

- What are the possible values for a `boolean` type variable?
- What is the full list of **Logical Operators**?
  - What kinds of values do **Logical Operators** work with?
  - What kinds of values do **Logical Operators** produce?
  - How do the different **Logical Operators** work together?
- What is the full list of **Comparison Operators**?
  - What kinds of values do **Comparison Operators** work with?
  - What kinds of values do **Comparison Operators** produce?
- If you're presented with a combination of **Logical** and **Comparison** operators, you'll be expected to find the result.
  - When you use a `not` with an `and` or an `or`, what happens?

## If Statements

- What is the basic structure for an `if` statement?
- When does the **body** of an `if` statement run?
- When can an `else` statement be used in a program?
- When does the **body** of an `else` statement run?
- How can an `elif` statement be added to a program?
- When does the **body** of an `elif` statement run?
- Can the code in the **body** of an `if` statement and its corresponding `else` statement both be run during one execution of a program?

## For Loops

- In what situations is a `for` loop most useful?
- What are the 3 ways in which the `range()` function can be called?
  - When a starting value is included in the `range()` function, is it ever included in the list of values produced?
  - When an ending value is included in the `range()` function, is it ever included in the list of values produced?
- How can a running total be calculated using a `for` loop?
- What happens when a `for` loop is **nested** inside another `for` loop?

## Random Number Generation

- What must be done to allow functions from the `random` module to be used in a program?
- What does each of the 3 functions from the `random` module we learned about do?
  - `random.randint()`
    - What information does this function need to work correctly?
  - `random.choice()`
    - What information does this function need to work correctly?
  - `random.random`
    - What information does this function need to work correctly?

## While Loops

- In what situations is a `while` loop most useful?
- When is the `condition` for a `while` loop checked?
- When does a `while` loop stop looping?
- If a `while` loop's `condition` becomes `False` in the middle of its **body**, will it skip the rest of the **body** and exit the loop?

## break and continue

- When a `break` command is run in a loop, what happens?
- When a `continue` command is run in a loop, what happens?