Introduction to Programming

Unit 3: Conditionals

Making decisions.

Conditional statements allow your programs to execute parts of its code depending on the values of variables or user input.

"Take your cake out of the oven when it has baked for 35 minutes."

"When your cake has baked for 35 minutes, take it cake out of the oven."

"If your cake has baked for 35 minutes, take it cake out of the oven."

The act of conditionally executing parts of your program is called "branching".

Python has different ways to of doing this, but we'll talk about `if` statements today.

`if` statements

```
if condition:
    code
    code
```

`if` statements

```
code
code

if condition:
    code
    code

code
code
```

Notice the indentation in this code

```
code
code

if condition:
····code
····code

code
code
```

Whitespace in Python

Python cares about when, where, and how many spaces you use in your code.

Whitespace in Python

Python is referred to as being "whitespace sensitive".

Statements and expressions

We're using the word *statement*, but what does it mean?

We can have two branches with `if` and `else`

```python
if condition1:
    # code
else:
    # code
```

We can have many more with `elif`

```python
if condition1:
    # code
elif condition2:
    # code
elif condition3:
    # code
elif condition4:
    # code
else:
    # code
```

Number guessing game

Let's program another game.

Number guessing game

For humans, the game is simple: we first think of a number between 1 and 10, and ask our friend to guess the number. If they're correct, we tell them, otherwise we tell them if they guessed too high or too low.

Number guessing game

For computers, the game is similar: our program has to first generate a random number between 1 and 10, then it asks the user to input their guess. If they're correct, it prints a message telling them, otherwise it prints a message tell them if they guessed too high or too low.

Generating random numbers in Python

We first import the `randint` function from the `random` module:

```python
from random import randint
```

Then we can use `randint` in our program:

```python
randint(1, 10)
```

Let's write the pseudocode for our number guessing program.

Let's turn our pseudocode into Python.