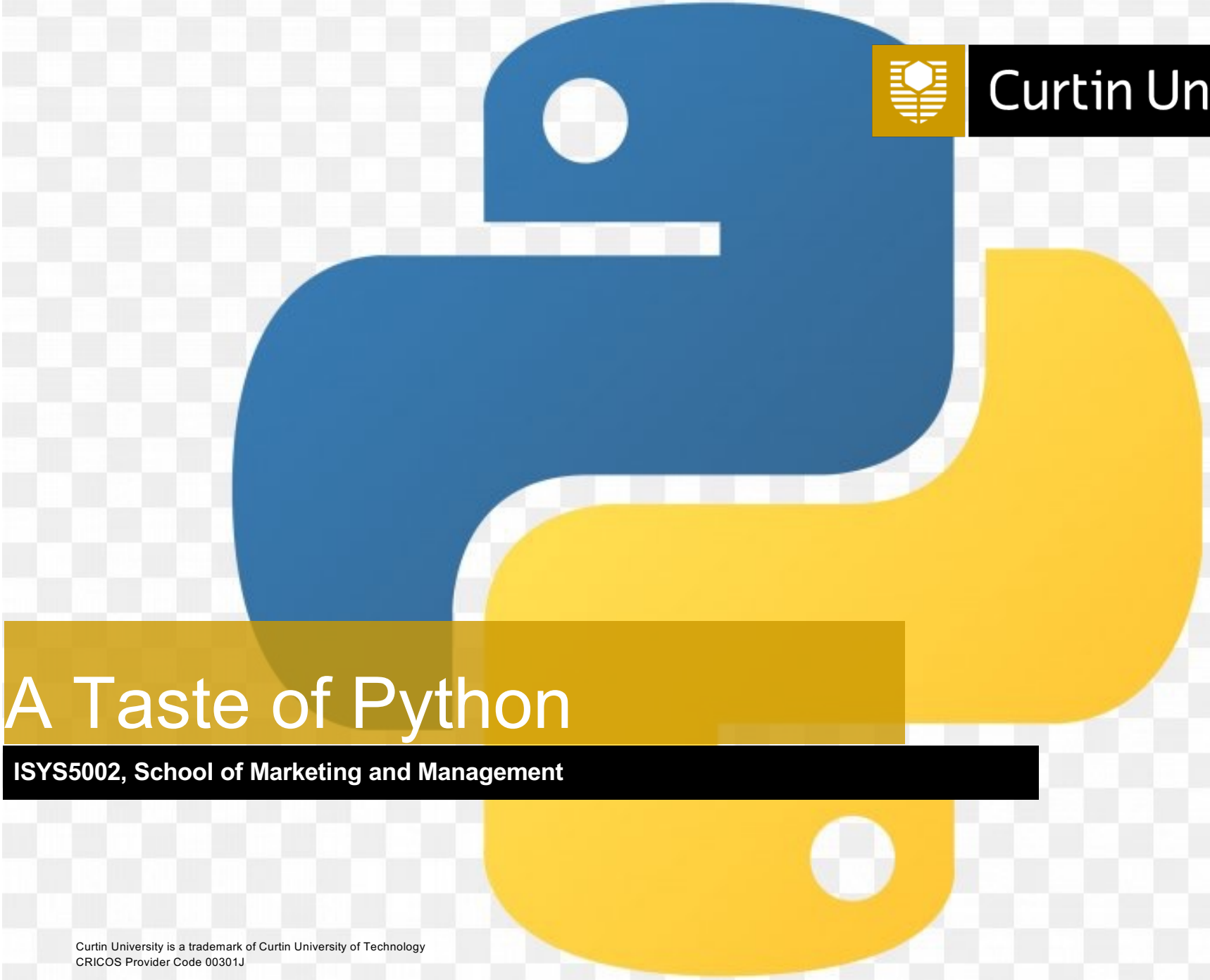

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A Taste of Python

ISYS5002, School of Marketing and Management

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I acknowledge the traditional custodians of the land on which I work and live, and recognise their continuing connection to land, water and community. I pay respect to elders past, present and emerging.

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Computer do two things

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Store Values

Perform Operations

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What are values?

- Single Value
  - Integer
  - Float
  - Character
  - Boolean
- Data Structure
  - Lists
  - Strings
  - Files

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Data Type	Python Expressions	Description	Example
integer	int	A whole numeber	143267
decimal	float	A floating point number	3.13159
string	str	Set of characters in quotes	"Hello"
boolean	bool	anything evaluates true/false	True
List	list	An ordered list of values	[1,4,5]

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A ***variable*** is the name given to a part of the computers memory, designed to store a particular data item.

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Variable Names

- Rules
  - Only letters, numbers, and the underscore character (_)
  - No spaces
  - No quotes
  - Can’t start with a number
  - Can't be a keyword import
- Conventions
  - variable names should be meaningful
  - separate words with underscores (snake_case)

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Perform Operations

Receive Information

Output Information

Perform Arithmetic

Assign a value to a variable

Compare to variables

Repeat a group of actions.

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input(“What is your name?”)

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```
print("Hello, world")
```


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Operation	Description	Example	Result
`+`	Addition	`3 + 2.2`	`5.2`
`-`	Subtraction	`5 - 2`	`3`
`*`	Multiplication	`3 * 8`	`24`
`**`	Raise to the power of	`3 ** 2`	`9`
`/`	Division	`5/2`	`2.5`
`//`	Integer Division	`5/2`	`2`
`%`	Modulo	`5%2`	`1`

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```
name = input("What is your name?")
```


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```
if first_number > second_number:
    print(first_number)
else:
    print(second_number)
```


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Operation	Description	Example	Result
`<`	Less than	`3 < 2`	`False`
`>`	Greater than	`3 > 2`	`True`
`<=`	Less than or equal	`3 <= 2`	`False`
`>=`	greater than or equal	`3 >= 2`	`True`
`==`	equal to	`3 == 2`	`False`
`!=`	not equal to	`3 != 2`	`True`
`not`	not	`not(3 == 2)`	`True`

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```
for number in [10,9,8,7,6,5,4,3,2,1]:
    print(number)
print("Blast Off!")
```


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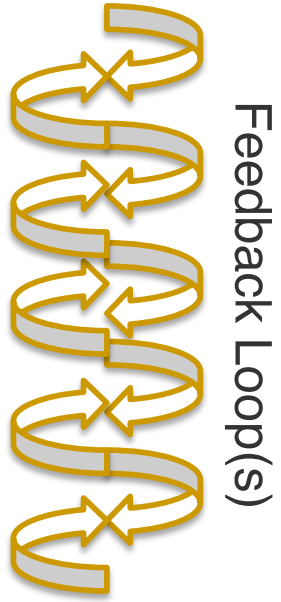
Problem Solving Methodology

- State the problem clearly
- Describe the input and output
- Work a simple example by hand
- Develop and algorithm (and convert to Python)
- Test solution with a variety of data



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Make your words and phrases in the pseudocode which are in line with computer operations, then translating from pseudocode to a programming language becomes simple.

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Quick Review

- Break a problems down into simple actions
- Actions carry out simple tasks
- A set of actions is called an algorithm
- Algorithms expressed as Pseudocode
- Coding is translating an algorithm to a program
- Six operations a computer can do

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