

# COMP10001 Foundations of Computing

## Semester 1, 2019

### Tutorial Questions: Week 4

— VERSION: 1490, DATE: MARCH 25, 2019 —

## Discussion

1. What is “Boolean”? What values does it store? Can other types be converted to it?
2. For each of the following, identify whether it is: (a) a Boolean value; (b) a relational operator; or (c) a logical operator.

<code>==</code>		<code>&gt;</code>		<code>False</code>	
<code>!=</code>		<code>and</code>		<code>&lt;=</code>	
<code>or</code>		<code>&gt;=</code>		<code>not</code>	
<code>True</code>		<code>&lt;</code>			

3. How do we use an if statement? What are the variants? How do we know what is contained inside it and what is after?

**Now try Exercises 1 - 4**

4. What is a “Sequence”? What sequences have we seen so far?
5. What is indexing? How can you do it?
6. What is slicing? How can you do it?
7. **Bonus question:** How do you change the “step size” of a slice?

**Now try Exercises 5 & 6**

## Exercises

1. Evaluate the following truth expressions:

- |                                 |  |
|---------------------------------|--|
| (a) <code>True or False</code>  | (c) <code>False and not False or True</code>   |
| (b) <code>True and False</code> | (d) <code>False and (not False or True)</code> |

2. For each of the following if statements, give an example of a value for `var` which will trigger it and one which will not.

- (a) `if 10 > var >= 5:`
- (b) `if var in ("VIC", "NSW", "ACT"):`
- (c) `if var[0] == "A" and var[-1] == "e":`
- (d) `if var:`

3. What's wrong with this code? How can you fix it?

```
letter = input("Enter_a_letter:_")
if letter == 'a' or 'e' or 'i' or 'o' or 'u':
    print("vowel")
else:
    print("consonant")
```

4. What's wrong with this code? How can you fix it?

```
eggs == 3
if eggs = 5:
    print("spam")
else:
    print("not_spam")
```

5. Evaluate the following given the assignment `s = "pythonisation"`

- |                                  |                           |                          |
|----------------------------------|---------------------------|--------------------------|
| (a) <code>s[1]</code>            | (d) <code>s[25]</code>    | (g) <code>s[:-3]</code>  |
| (b) <code>s[-1]</code>           | (e) <code>s[25:]</code>   | (h) <code>s[:2]</code>   |
| (c) <code>s[2:4] + s[6:8]</code> | (f) <code>s[-7:-3]</code> | (i) <code>s[::-1]</code> |

6. Evaluate the following given the assignment `lst = [4, ("green", "eggs", "ham"), False]`

- |                         |                            |                                |
|-------------------------|----------------------------|--------------------------------|
| (a) <code>lst[2]</code> | (b) <code>lst[1][1]</code> | (c) <code>lst[1][1][:3]</code> |
|-------------------------|----------------------------|--------------------------------|

## Problems

1. Write a program which asks the user for two numbers and an operator out of +, -, / and \* and performs that operation on the two numbers, printing the result.
2. Write a program which asks the user for their name and prints a shortened version consisting of the first three letters and then every second letter in the rest of the word.
3. Write a program which asks the user to write a sentence and checks whether the first letter is capitalised and the last character is a full stop to decide whether it's a correct sentence.