UNIVERSITI SAINS MALAYSIA

SCHOOL OF COMPUTER SCIENCES
Semester 2, 2022/2023

CPC152: Foundations and Programming for Data Analytics
Tutorial Week 3

1. Fill the table showing the values of the variables in this program *after* each statement is executed.

```
Python
# Command        # Value of x    # Value of y        # Value of swap
x = 1.0          # 1.0           # not defined(ND)   # ND
y = 3.0          # 1.0           #    3.0            #  ND
swap = x         # 1.0           #    3.0            #   1.0
x = y            # 3.0           #    3.0            #   1.0
y = swap         # 3.0           #    1.0            #   1.0
```

Solution:

```
Output
# Command        # Value of x    # Value of y    # Value of swap
x = 1.0          #               #               #
y = 3.0          #               #               #
swap = x         #               #               #
x = y            #               #               #
y = swap         #               #               #
```

2. What is the final value of position in the program below? (Try to predict the value without running the program, then check your prediction.)

Python

```
initial = 'left'
position = initial
initial = 'right'
```

Solution: left

3. If you assign a = 123, what happens if you try to get the second digit of a via a[1]?

Solution:

'int' object not subscriptable

**convert to string to use subscript

4. Which is a better variable name, m, min, or minutes? Why? Hint: think about which code you would rather inherit from someone who is leaving the lab:

   1. ts = m * 60 + s
   2. tot_sec = min * 60 + sec
   3. total_seconds = minutes * 60 + seconds

   Solution:

   3 , easier to understand

5. What does the following program print?

   Python

   ```
   atom_name = 'carbon'
   print('atom_name[1:3] is:', atom_name[1:3])
   ```

   Solution:

   atom_name[1:3]is: ar

6. Given the following string:

   Python

   ```
                                10 12 14
   species_name = "Acacia buxifolia"
                   0  1 2 34567 8 9 11 13 15
   ```

   What would these expressions return?

   1. species_name[2:8] acia b
   2. species_name[11:] (without a value after the colon) folia
   3. species_name[:4] (without a value before the colon) Acac
   4. species_name[:] (just a colon) Acacia buxifolia
   5. species_name[11:-3] fo
   6. species_name[-5:-3] fo
   7. What happens when you choose a stop value which is out of range? (i.e., try species_name[0:20] or species_name[:103])

   Acacia buxifolia

Solution:

1.
2.
3.
4.
5.
6.
7.