

Exercise Sheet 1

Introduction to Scientific Programming with Python

24.02.2020

Exercise 1

- (i) Predict the output of following expressions.
(ii) Type them on Python shell and compare with your predictions.

Expression	Prediction	Output	Type
(a) 7-2
(b) 4*1.5
(c) 6/3
(d) 6/-3
(e) 6// -3
(f) 6%3
(g) 6.0%3
(h) 6%3.0
(i) -6%3
(j) 6/-3.0
(k) 2+4*3
(l) (2+4)*3
(m) 'a'+'b'
(n) 'a'+'3'
(o) 0 or 1
(p) 0 and 1
(r) 2 or not 2

Exercise 2

In an assignment statement, python evaluates the right-hand side first, before doing the actual setting of variables. Before typing following lines on shell, write your prediction in the dotted areas.

```
>>> x, y = 1, 2
```

```
>>> x = y
>>> y = x + y
```

Prediction for x = ..., y = ...

Output for x = ..., y = ...

```
>>> x, y = 1, 2
>>> x, y = y, x + y
```

Prediction for x=..., y=...

Output for x=..., y=...

Exercise 3

- (i) Type the following lines on shell.

```
>>> first = 'world'
>>> last = 'hello'
>>> print(last + ', ' + first)
```

- (ii) Modify the last line as

```
>>> print(last, ', ', first)
```

What is the difference with the Output of part (i)?

- (iii) Modify the last line, so that the Output becomes

```
"hello", world
```

Hint: in (iii) use the string method **format**.

Exercise 4

Create a file with .py extension (for example ex2.py). Translate following steps into code and save & run your code.

- (i) Create two variables receiving inputs of string type.

- (ii) Add the two strings from part (i) and save as a new string.

(iii) Print the new string.

(iv) Print the old two strings together by calling print function only once.

Exercise 5

Create a new file with .py extension. Assign the values 7 and 24 to the variables x and y, respectively. Assign the strings "One", "week", "day", "hours" and "has" to different variables. Print the following messages by calling the

print function. Use only the saved variables, without extra text.

(i) One week has 7 days.

(ii) One day has 24 hours.

(iii) One week has 7*24 hours.

(iv) One week has 168 hours.