16 Aug '24

(1) PyCharm — application — to do Python
(Community edition)
— Editor, File tree, Output, Console } programming

(2) Book: Learning Programming with Python 3.

(3) Basic expressions — integers, floats,
datatypes strings

HW: Finish last class HW
— 3. expressions file also

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Datatypes — integers, floats, strings

23, 42, -64   23·1, 43·0, -61·7   "this"

'ant'

Expressions — Simple calculations

→ 3 + 4 + 5   (int)

→ 42.6 + 53.2   (float)

→ 43 + 53.2   (float — int is converted to float)

→ 'this' + 'is'   (string)

→ '3 + 4 =' + str(3 + 4)

```
>>> type(32)      →  int      >>> type(vaptx)
>>> type(23.4)    →  float         → error
>>> type('vaptx') →  str           (no quotes)
>>> type("vaptx") →  str
```

Operators :

$+ \rightarrow$ addition $3+4 = 7$

$- \rightarrow$ subtraction $10-4 = 6$

$*$ (asterisk) $\rightarrow$ multiplication $20*4 = 80$

$/$ (slash) $\rightarrow$ division $20/4 = 5$

                          $21/4 = 5.25$

$// \longrightarrow$ int. division $21//4 = 5$ (quotient)

$\% \rightarrow$ modulo $21 \% 4 = 1$ (remainder)

$** \rightarrow$ power $4**6 = 4^6$

                            $= 4 \times 4 \times 4 \times 4 \times 4 \times 4$ (6 times)

$4*6 = 4 \times 6 = 4+4+4+4+4$

$4**6 = 4^6 = 4 \times 4 \times 4 \times 4 \times 4 \times 4$

Empty space:

Same $\rightarrow 3+4$, $3. + 4$, $3 \quad + \quad 4$

Type casting:

$int \rightarrow float$: $\underset{int}{30} + \underset{float}{42\cdot3} = \underset{float}{30\cdot0} + \underset{float}{42\cdot3} = 72\cdot3$

$float \rightarrow int$: $30 + int(42\cdot3) = 30 + 42 = 72$

$int \rightarrow str$: $\underset{str}{\text{"Result is"}} + str(\underset{int}{42*63})$

$\qquad\qquad = \text{"Result is'} + \text{'}2709\text{'}$

$\qquad\qquad = \text{Result is } 2709$

$str \rightarrow int$: $int('24') = 24$; $int('3c4k') \Longrightarrow error$

$str \rightarrow float$: $float('24\cdot3') = 24\cdot3$;

String operators:

$$3 * \text{'Pig'} = \text{'PigPigPig'}$$

$$\text{'Pig'} + \text{'Car'} = \text{'PigCar'}$$

HW: Ch.3 textbook

→ Create a program file

→ Type everything that is in boxes in the text book

→ Run

→ Play with operators, expressions, type casting

→ From Maths class HW +, -, *, / (10 for each) do all of these in python and verify (create a program called Math HW)