INTRO TO PYTHON FOR DATA SCIENCE

Hello Python!

What you will learn

- Python
- Specifically for Data Science
- Store data
- Manipulate data
- Tools for data analysis

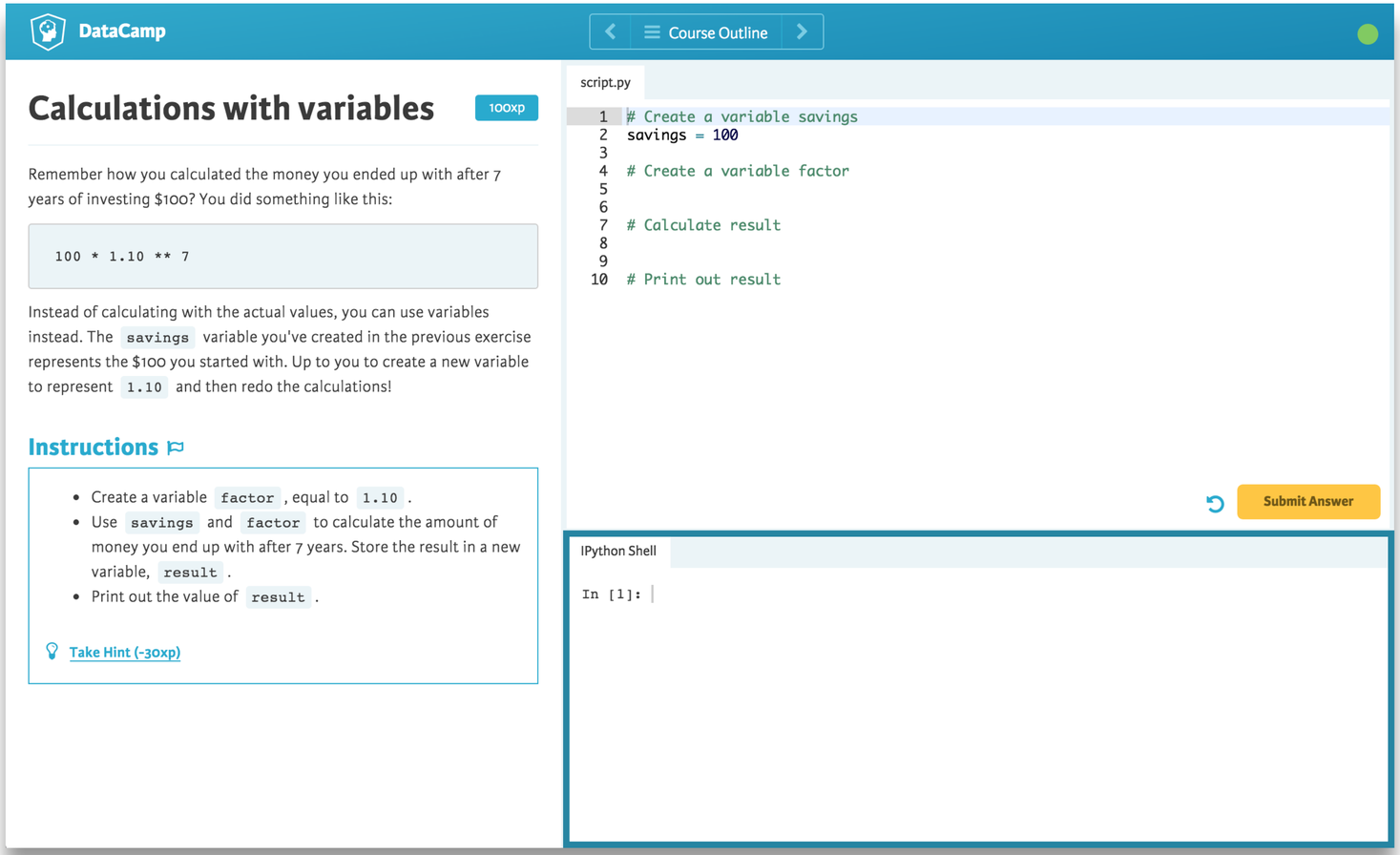
How you will learn

Python

- Guido Van Rossum
- General Purpose: build anything
- Open Source! Free!
- Python Packages, also for Data Science
  - Many applications and fields
- Version 3.x - https://www.python.org/downloads/

IPython Shell

Execute Python commands



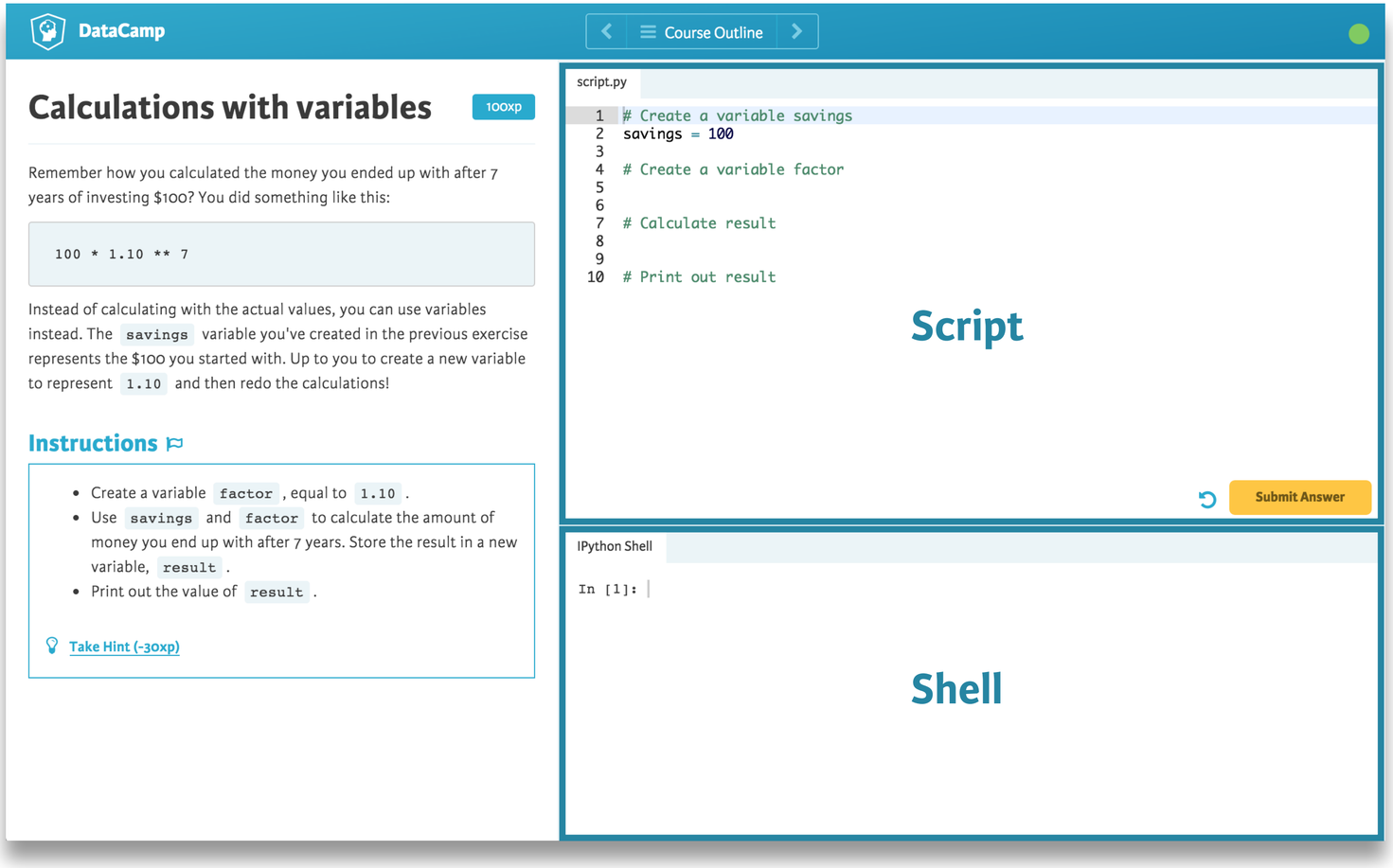
IPython Shell

Python Script

- Text Files - .py
- List of Python Commands
- Similar to typing in IPython Shell

Python Script

DataCamp Interface



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Let’s practice!

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Variables and Types

Variable

- Specific, case-sensitive name
- Call up value through variable name
- 1.79 m - 68.7 kg

```
In [1]: height = 1.79

In [2]: weight = 68.7

In [3]: height
Out[3]: 1.79
```

Calculate BMI

```
In [1]: height = 1.79

In [2]: weight = 68.7

In [3]: height
Out[3]: 1.79

In [4]: 68.7 / 1.79 ** 2
Out[4]: 21.4413

In [5]: weight / height ** 2
Out[5]: 21.4413

In [6]: bmi = weight / height ** 2

In [7]: bmi
Out[7]: 21.4413
```

$$\text{BMI} = \frac{\text{weight}}{\text{height}^2}$$

Reproducibility

my_script.py

```
height = 1.79
weight = 68.7
bmi = weight / height ** 2
print(bmi)
```

```
Output:
21.4413
```

Reproducibility

my_script.py

```
height = 1.79
weight = 74.2
bmi = weight / height ** 2
print(bmi)
```

Output:

```
23.1578
```

Python Types

```
In [8]: type(bmi)
Out[8]: float

In [9]: day_of_week = 5

In [10]: type(day_of_week)
Out[10]: int
```

Python Types (2)

```
In [11]: x = "body mass index"

In [12]: y = 'this works too'

In [13]: type(y)
Out[13]: str

In [14]: z = True

In [15]: type(z)
Out[15]: bool
```

Python Types (3)

```
In [16]: 2 + 3
Out[16]: 5

In [17]: 'ab' + 'cd'
Out[17]: 'abcd'
```

Different type = different behavior!

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Let’s practice!