

Challenge 23

October 9, 2023

1 Programming Using Python

By completing these challenges, you'll demonstrate that you understand key programming concepts.

Download the **Challenge 23.ipynb** file and upload it into your own *Project* on Deepnote by dragging the **Challenge 23.ipynb** file onto the Notebooks tab on the left-hand side. This will give you a file to organize your answers and show some code to support your answers. Once you are finished, you can download your notebook and embed it within your portfolio for safe keeping.

For example, if the question is: *What does the * operator do?* Your answer should combine an answer in full sentence form (using a Markdown cell) as well as some code to support your answer (using a code cell):

The * operator is used for multiplication in Python.

```
[1]: 6 * 3
```

```
[1]: 18
```

Whenever you are experimenting with a new feature, you should try to make mistakes. This kind of experiment helps you remember what you read; it also helps when you are programming, because you get to know what the error messages mean. It is better to make mistakes now and on purpose than later and accidentally.

1. In a print statement, what happens if you leave out one of the parentheses, or both?

```
[ ]:
```

2. If you are trying to print a string, what happens if you leave out one of the quotation marks, or both?

```
[ ]:
```

3. You can use a minus sign to make a negative number like -2. What happens if you type 2+-2 into a code cell?

```
[ ]:
```

4. What happens if you put a plus sign before a number as in 2-+2 or 2++2?

```
[ ]:
```

5. In math notation, leading zeros are okay, as in 02. What happens if you try this in Python?

[]:

6. What happens if you have two values with no operator between them? (ex: 55 32)

[]:

For the next few questions, use a Python cell as a calculator.

7. How many seconds are there in 42 minutes 42 seconds?

[]:

8. How many miles are there in 10 kilometers? (Hint: there are 1.61 km in a mile)

[]:

9. Using a notebook like this has many advantages; as you've seen, combining Markdown and code makes it easy to format your work nicely. Another little trick is using the `?` symbol, which makes it easy to learn about new functions (or ones you have forgotten about). Try using the following code in a code cell:

```
print?
```

Can you explain in your own words what putting `?` at the end of a function accomplishes? Using what you have now learned about the `print` function, try using it in a new way that has not been discussed in the first lesson. Feel free to experiment!

[]:

[]:

Bonus: 10. If you run a 10-kilometer race in 42 minutes 42 seconds, what is your average pace (time per mile in minutes and seconds)? What is your average speed in miles per hour?

[]:

[]:

When you've finished this challenge, call me over to look at your portfolio and sign off on it.