Python for Web Developers

Learning Journal

Pre-Work: Before You Start the Course

Reflection questions (to complete before your first mentor call)

1. What experiences have you had with coding and/or programming so far? What other experiences (programming-related or not) have you had that may help you as you progress through this course?

   I have completed the Full-Stack Web Development Immersion course at CareerFoundry. I also have a minor in Computer Science from the University of Nevada, Reno. Finally, I have a summer internship as a software engineer at a startup company.

2. What do you know about Python already? What do you want to know?

   I know that python is a very high-level language and that it is relatively easy to learn because the syntax is so simple. I want to know everything about Python.

3. What challenges do you think may come up while you take this course? What will help you face them? Think of specific spaces, people, and times of day of week that might be favorable to your facing challenges and growing. Plan for how to solve challenges that arise.

   I think managing this course while working, applying for jobs, and improving my resume, portfolio, etc. will be the biggest challenge of this course. Having encouragement and motivation from my mentor will be a big help. Also, scheduling a reasonable amount of time dedicated to working on this course every week will help me stay focused.

Remember, you can always refer to Exercise 1.4 of the Orientation course if you're not sure whom to reach out to for help and support.

Exercise 1.1: Getting Started with Python

Learning Goals

- Summarize the uses and benefits of Python for web development
- Prepare your developer environment for programming with Python

Reflection Questions

1. In your own words, what is the difference between frontend and backend web development? If you were hired to work on backend programming for a web application, what kinds of operations would you be working?

   Frontend web development is building the software that the user actually sees and interacts with. This would be the website or user interface of a program. On the other hand, backend development is building the software that controls the data flow and business logic behind the scene. This would be pulling data from the database, doing whatever calculations that need to be done and then serving it to the frontend.

2. Imagine you're working as a full-stack developer in the near future. Your team is asking for your advice on whether to use JavaScript or Python for a project, and you think Python would be the better choice. How would you explain the similarities and differences between the two languages to your team? Drawing from what you learned in this Exercise, what reasons would you give to convince your team that Python is the better option?

   Python and JavaScript are both high-leveling scripting languages, meaning they are read line by line as opposed to needing to be compiled before executed. Also, they both have dynamic typing, meaning the language infers the data type of variables by what you assigned to them, as opposed to static typing where you have explicitly state the data type of each variable. I would recommend using Python for this particular project because Python is very readable which makes it easy to get a project up and running. Also, Python has a great built-in package management system and many open-source and proprietary packages for the most common tasks.

3. Now that you've had an introduction to Python, write down 3 goals you have for yourself and your learning during this Achievement. You can reflect on the following questions if it helps you. What do you want to learn about python? What do you want to get out of this Achievement? Where or what do you see yourself working on after you complete this Achievement?

   I want to learn how to build a full backend with Python and Django for a project. I want to learn this skill in such a way as to be able to apply it to real-world projects. I hope that putting this project in my portfolio will help me get a job in software engineering.

Exercise 1.2: Data Types in Python

Learning Goals

- Explain variables and data types in Python
- Summarize the use of objects in Python

Reflection Questions

1. Imagine you're having a conversation with a future colleague about whether to use the iPython Shell instead of Python's default shell. What reasons would you give to explain the benefits of using the iPython Shell over the default one?

   iPython uses syntax highlighting which makes the scripts easier to read, it has automatic indentation for nested statements, as well as autocomplete commands. These features all make writing Python scripts much easier.

2. Python has a host of different data types that allow you to store and organize information. List 4 examples of data types that Python recognizes, briefly define them, and indicate whether they are scalar or non-scalar.

Data type	Definition	Scalar or Non-Scalar?
int	Used to store integers, positive and negative numbers	scalar
float	Used to store decimal numbers, positive and negative	scalar
bool	Used to store true or false values	scalar
string	Used to store an array of alphanumeric characters as well as symbols and are surrounded by either single or double quotes	scalar

3. A frequent question at job interviews for Python developers is: what is the difference between lists and tuples in Python? Write down how you would respond.

Tuples are immutable whereas lists are mutable meaning you can easily add, remove and modify items in lists but not with tuples. With tuples you have to remake your structure with any updates as opposed to modifying it directly.

4. In the task for this Exercise, you decided what you thought was the most suitable data structure for storing all the information for a recipe. Now, imagine you're creating a language-learning app that helps users memorize vocabulary through flashcards. Users can input vocabulary words, definitions, and their category (noun, verb, etc.) into the flashcards. They can then quiz themselves by flipping through the flashcards. Think about the necessary data types and what would be the most suitable data structure for this language-learning app. Between tuples, lists, and dictionaries, which would you choose? Think about their respective advantages and limitations, and where flexibility might be useful if you were to continue developing the language-learning app beyond vocabulary memorization.

   I would also use a dictionary to represent the flashcard because you can name the keys to represent the data being stored. This makes your code much more readable and easier to work with than just using the indices of the list for example.

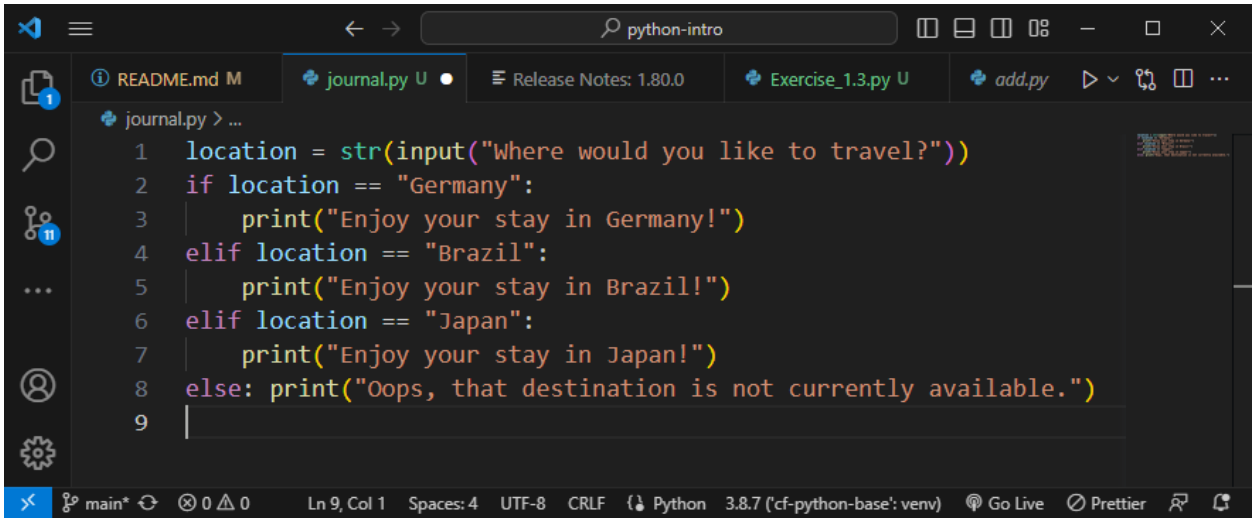
Exercise 1.3: Functions and Other Operations in Python

Learning Goals

- Implement conditional statements in Python to determine program flow
- Use loops to reduce time and effort in Python programming
- Write functions to organize Python code

Reflection Questions

1. In this Exercise, you learned how to use if-elif-else statements to run different tasks based on conditions that you define. Now practice that skill by writing a script for a simple travel app using an if-elif-else statement for the following situation:
   - The script should ask the user where they want to travel.
   - The user's input should be checked for 3 different travel destinations that you define.
   - If the user's input is one of those 3 destinations, the following statement should be printed: "Enjoy your stay in _____!"
   - If the user's input is something other than the defined destinations, the following statements should be printed: "Oops, that destination is not currently available."



2. Imagine you're at a job interview for a Python developer role. The interviewer says "Explain logical operators in Python".

   Logical operators are what connect logical statements to form more complex logical statements, such as 'and', 'or', and 'not'. The syntax in Python is very straightforward; you simply use the keywords like plain English, except the 'not' operator you put in front of the statement with parentheses.

3. What are functions in Python? When and why are they useful?

   There are many built-in functions in Python that accomplish the most common tasks for you but sometimes you need to do something that is specific to your own code. That is when you have to define a custom function. You should use a custom function when you want to perform the same task multiple times. So instead of writing the same code multiple times you modularize it by writing a function and then can just call that function multiple times instead. This makes your code easier to read, understand, and debug.

4. In the section for Exercise 1 in this Learning Journal, you were asked in question 3 to set some goals for yourself while you complete this course. In preparation for your next mentor call, make some notes on how you've progressed towards your goals so far.

   I feel like I haven't learned much in this course so far. Just the basics which I have already learned in Javascript, just with slightly different syntax. I don't think the code I've worked on so far is realistic to the problems I'll see in industry, and I don't think I have anything to put on a portfolio. Feels like most of this course so far is busy work, not actually coding. I have spent way more time formatting the readme file or writing in the journal than actually coding. I feel like the best way to learn is to solve problems with code, not just talk about it–but I'll trust the process.