### Exercise 1.2: Data Types in Python

#### Learning Goals

* Explain variables and data types in Python
* Summarize the use of objects in Python
* Create a data structure for your Recipe app

#### 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 is an enhanced interactive Python shell that provides several features beyond what the default Python shell offers.

It provides syntax highlighting and improved formatting,it has a ta completion feature that helps you complete variable names, functions, and module names.

1. 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.

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| **Data type** | **Definition** | **Scalar or Non-Scalar?** |
| Tuples | “Immutable, ordered collections in Python, used to store multiple items, defined by parentheses, with elements accessed by indexing.” | Non-scalar |
| Dictionaries | “Mutable, unordered data structures in Python, using key-value pairs enclosed in curly braces for efficient data retrieval.” | Non-scalar |
| list | “mutable, ordered collections in Python, holding diverse data, defined by square brackets, with elements accessed by indexing.” | Non-scalar |
| strings | “Strings are immutable sequences of characters in Python, defined using quotes, allowing text manipulation and various operations and methods.” | Non-scalar |

1. 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.

Lists are mutable, defined with squared brackets and used for a collection of items that may need to be modified

Tuples are immutable, defined with () and store immutable collections of items.

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 use dictionaries for each word-card and a list to store all the cards