# Exercise 1.2: Data Types in Python

## Learning Goals

- Explain variables and data types in Python
- Summarise 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?

Some reasons I would give to a colleague  is that Ipython is easier to read and has auto indentation which helps us developers a lot.

2. Python has a host of different data types that allow you to store and organise 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? |
|---|---|---|
| Tuples | An array that is able to store multiple values | Non-scalar |
| Lists | An array that can store multiple values but can be changed or rearranged | Non-scalar |
| Strings | Immutable characters which does not allow for numbers as INT | Non-scalar |
| Dictionaries | Key-value pairs are used to store values | Non-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.

I would say that lists and tuples are very similar but the difference between the two is that with lists we can be able to add a name to the list with the append function where as with tuples we would need to create a new variable in general.

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 memorise 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.

The best option I would use in this scenario would be dictionaries as you are able to store values based on key value pairs. With the various amount of categories, you would be able to query these categories by key to make it a simple process to update and keep everything organized.