**Lesson 2:** Dealing with reality; Manipulating data

**Estimated Time**: 8 hours

**Guiding Question:** How to control and organize data? What can we do with data?

**Concepts:** Control flow statements; modules; methods; sequences; loops; reading and writing files

**Lesson Description**: Students are introduced to boolean variables (True or False), control flow statements (if, elif, else), string methods, and sequences (lists, sets, tuples, and dictionaries). The lesson introduces the ways to organize functions in modules, to loop through data, and to read and write files.

| **Materials and Resources** | **Learning Goals** |
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| 1. Lesson slides 2. Projector and computer for teacher (if in-person) | * Learn core data manipulation in Python. |

| **Time** | **Lesson Content** | **Instructor Notes** |
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| 9:00-10:30 | 1. Go over Assignment 1 2. True or False and Control Flow statements 3. Modules 4. String methods | Ensure the students grasped the basics of functions design |
| 10:30-11:00  10 min break  11:10-12:10 | 1. Lists, Sets, Tuples 2. Dictionaries |  |
| 12:10-13:10 | LUNCH |  |
| 13:10-16:10  10 min break | 1. Loops 2. Reading and writing files |  |
| 40 min | **Assessment**  Assignment 2  Design four Python functions according to the Function Design Recipe:   1. A function with if, elif, and else. 2. A function with a for loop. 3. A function with a while loop. 4. A function with lists and/or dictionaries. | Allow 20 min for individual work.    Attend students' questions. |