Workshop

**Python Programming for Linguists**

**Exercises**

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There are multiple ways you can approach these exercises. However, it is best if you actually try to write some code! You can do this on ***Google Colab*** (in any notebook or in an empty one, e.g., “playground”) or in your **own development environment** (see Video “*Setting Up Your Development Environment”).* If you do not have the time or resources, I want to encourage you to think about these problems, even without writing out some code.

Please be aware that some of these exercises are very challenging for beginners. Please do **not feel disheartened** by them! You can always look at the **provided solutions** and use them as a starting point for your own exploration.

### The Pizza Problem

### Exercise 4 – Adding More Pizzas

*In order to work on this problem, I would recommend modifying the notebook for the Pizza Problem video.*

Add one or two additional pizzas to the mix.

If you want to challenge yourself, add a third shape option: *triangle-shaped pizzas*.

### Exercise 5 – Just the Right Combination of Pizzas *(Challenging)*

For this exercise you do not need to modify the existing code. To make this exercise less complex, ignore the PTER.

Try to develop a function that, given a set of pizza options, determines the combination of pizzas for a desired amount of pizza that requires the least number of pizzas. The goal is to order as little pizzas as possible while still getting enough pizza.

*Example:*

Let’s assume there are two pizzas:

**Small (20cm, A=1,257)** and **Large (30cm, A=2,827)**

We want to have 6,000 of pizza. While we could order about **five small pizzas** (A=6,285), the solution to this exercise would be **two large ones and a small one** (A=6,911).

*Task:*

To make things easier, we will use a modified data structure that only contains the required information:

pizzas = [

['small', 531],

['large', 707],

['party', 1518]

]

Try to find the ideal combination for a desired area of 3,800 of pizza.

*Ps. If you are interested, this is a variation of the* [*Change-Making Problem*](Change-making%20problem)*.*