# Lab: Syntax Rules, Conditions and Loops

Set 4 – Strings and Lists

**Note:** Parts of this lab are adapted from S. Linge and H. P. Langtangen (2020). Licensed under the terms of the [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/deed.en) (https://creativecommons.org/licenses/by/4.0/deed.en).

## Background

Syntax refers to the rules that define the structure of a programming language, including the structure of its symbols, punctuation and words. Without syntax, it would be impossible for programmers to understand one another’s code and programs.

## Instructions

Use Python IDE to create a solution for the scenario presented in each question.

Lab questions are designed to assess your comprehension of the course materials covered in this unit, therefore questions should be solved using **only** the information provided in the course materials to the end of Unit 2-4a. Use of materials outside of this will result in 0 on the lab question.

#### Initial Extractor

Use string slicing & methods to solve the following problem. **Do not use loops** to solve this problem.

Write a program that reads in a full name all at once consisting of a first, middle and last name separated by a space. The program should extract the first initial from each name and print the initials in uppercase as illustrated in the sample runs below.  
Assume the user always enters exactly 3 names.

Hint: Search for a space to find where the next word begins.

**Sample runs:** (inputs in bold underline)  
Run your program 2 times to produce the following output.

Enter name: **isa good programmer**  
I.G.P.

Enter name: **frederick codes ALOT**  
F.C.A.

#### Average Temperatures

Write a program that reads in temperatures and puts them in a list. Stop inputting when a temperature of 999 is entered. Calculate the average temperature. Iterate through the list you created and count how many of the temperatures are above average. Print out the results as specified in the sample run below.

**Sample run:** (inputs in bold underline)  
Run your program 1 time to produce the following output.

Enter Temperature: **5.4**  
Enter Temperature: **3.7**  
Enter Temperature: **0**  
Enter Temperature: **999**  
2 temperatures were above the average temperature of 3.0

**Submission**

For each question, submit your Python source code (.py file) and your test results (.txt file containing output from the Terminal Window after running your Python program) to the Brightspace submission folder for this lab assignment.

# Reference

Linge, S. and Langtangen, H. P. (2020). Programming for computations – Python: A gentle introduction to numerical simulations with Python 3.6. (2nd ed.). Springer Open. ([CC BY-SA 4.0](https://creativecommons.org/licenses/by/4.0/deed.en)). Retrieved from https://library.oapen.org/viewer/web/viewer.html?file=/bitstream/handle/20.500.12657/23103/1007055.pdf