

COP4521: Fall 2021

Homework 1

Total Points: 50
Due: Tuesday, September 7, 2021

1 Objective

The objective for this assignment is to make sure

- You have a working setup for Python outside linprog. Most of the homeworks and class examples for this class will involve libraries that are not installed on linprog.
- You can write small to medium level programs in Python, using certain built-in data structures (no libraries).
- You can handle console input and output.

Please name your files `Palindromes.py` and `Factors.py`. Turn them in through a single submission on Canvas. After attaching one file, please click Attach Another File and include the second one as well.

2 Program 1 – Palindromes – 25 points

Write a Python program to read in a number of strings from the user. Stop when the user enters Done. Then check if each of the strings is a palindrome (ignore case and spaces) and throw the palindromic strings into a dictionary, where the key is a counter and the value is the string. Finally, print the dictionary. You can assume that your strings will only contain lower and uppercase letters and spaces.

Sample Run:

```
Enter the strings:
taco Cat
sWAp paws
Who are you people
Wumbology
```

```
Rats live on no evil star
Done
The palindromes are:
{1: taco Cat, 2: sWAp paws, 3: Rats live on no evil star}
```

3 Program 2 – Factors – 25 points

Write a Python program to factor all integers less than a user-defined number into non-negative integers. For this program, you may not use the `numpy` library. Store the factors for each number in a dictionary that maps `ints` to `sets` of `ints`, and print the dictionary before termination.

Sample Run:

```
Enter max number: 6
{1: {1}, 2: {1, 2}, 3: {1, 3}, 4: {1, 2, 4}, 5: {1, 5}, 6: {1, 2, 3, 6}}
```

4 Generic Guidelines

- Add a comment with your name, FSUID, the due date and the line “The program in this file is the individual work of [your name]” on both files.
- If we have listed a specification and allocated point for it, you will lose points if that particular item is missing from your code, even if it is trivial.
- Your program should load and run without issues. Every interpretation error will result in a loss of 5 points.
- You are restricted to standard Python (it should run on linprog). No third party libraries.
- Testing your program thoroughly is a part of writing good code. We give you sample runs to make sure you match our output requirements and to get a general idea of how we would test your code.
- Only a file turned in through Canvas counts as a submission. A file on your computer, even if it has not been edited after the deadline, does not count.
- Please adhere to the Academic Honor Policy.
- The student is responsible for making sure they have turned in the right file(s). We will not accept any excuses about inadvertently modifying or deleting files, or turning in the wrong files.
- Program submissions should be done through the Canvas class page, under the assignments tab (if its not there yet Ill create it soon.) Do not

send program submissions through e-mail e-mail attachments will not be accepted as valid submissions.

- The ONLY files you will submit via Canvas are `Palindromes.py` and `Factors.py`.
- General Advice - always keep an untouched copy of your finished home-work files in your email. These files will have a time-stamp which will show when they were last worked on and will serve as a backup in case you ever have legitimate problems with submitting files through Canvas. Do this for ALL programs.