Developers Institute

Python Course

Week 1

Day 3

Exercises

Group Exercise – Favourite Fruits

1. Ask the user to type in his/her favourite fruits.
2. What's the best way to deal with multiple favourites?
3. We'll do it differently here – get input in one string, and ask the user to separate between fruits with a single space, eg. "apple mango cherry". We will also accept a single fruit as the input here.
4. Store the favourite fruit(s) in a list. (How can we 'convert' a string of words into a list of words?)
5. Now that we have a list of fruits, ask the user to type in the name of any fruit.
6. If the user inputs the name of a fruit that is one of his favourites, print, "You chose one of your favourite fruits! Enjoy!"
7. If the user inputs the name of a fruit that is **not** one of his favourites, print, "You chose a new fruit. I hope you enjoy it too!"
8. (Bonus: add the word "and" before the last fruit in the list – but only if there are more than 1 favourites!)

Exercise 1 – Retirement

You may be looking forward to your career, but some people have had enough already! :)

1. Retirement age in Israel is 67 for men, and 62 for women (born after April, 1947).
2. Create a function '**get_age**'.
    1. It should have three integer parameters: **year**, **month**, and **day**.
    2. **Hard-code** the current year and month in your code (there are better ways of doing this, but for now this will suffice.)
    3. After calculating the age, the function should return the age as an integer.
3. Create a function '**can_retire**'.
    1. It should take 2 arguments: **sex** and **date_of_birth**.
    2. It should **call** your **get_age** function (with what arguments?) and receive an age back.
    3. Now it has all the information it needs in order to determine if the person with the given sex and date of birth is able to retire or not.
    4. Calculate. You may need to do a little more hard-coding here.
    5. Return True if the person can retire, and False if he/she can't.
4. Ask for the user's sex as "m" or "f".
5. Ask for the user's date of birth in the form "yyyy/mm/dd", eg. "1993/09/21".
6. Call **can_retire** to get a definite value for whether the person can or can't retire.
7. Display a message to the user informing them whether they can retire or not.

8. As always, **test** your code to ensure it works.

Exercise 2 – Paragraph Analysis

1. Find an interesting paragraph of text online. (Please keep it appropriate to the social context of our class.)
2. Paste it into your code, and store it as a variable.
3. Let's analyze the paragraph. Print out a nicely formatted message saying:
    1. How many characters it contains (this one is easy...)
    2. How many sentences it contains
    3. How many words it contains
    4. How many unique words it contains
    5. (Bonus: How many **non-whitespace** characters it contains)
    6. (Bonus: The average amount of words per sentence in the paragraph)
    7. (Bonus: the amount of non-unique words in the paragraph)

Exercise 3 – Car Manufacturers

1. Here is a list of popular car manufacturers: https://pastebin.com/bkBRuvAZ
2. Paste it into your code, and store it in a variable.
3. Convert it into a list using Python (don't do it by hand!)
4. Print out a message saying how many manufacturers/companies are in the list
5. Print the list of manufacturers in reverse/descending order (Z-A)
6. Using loops or list comprehension:
    1. Find out how many manufacturers' names have the letter 'o' in them.
    2. Find out how many manufacturers' names **do not** have the letter 'i' in them
    3. Print the above information out with meaningful output messages.
7. (Bonus: There are a few duplicates in the list:
    1. Remove these programmatically. (Hint: you can use sets to help you)
    2. Print out the companies without duplicates, in a comma-separated list with no line-breaks (eg. "Acura, Alfa Romeo, Aston Martin, ..."), and also print out a message saying how many companies are now in the list).
8. (Bonus: print out the list of manufacturers in ascending order (A-Z), but reverse the letters of each manufacturer's name)