

Assignment 1: General Python

(60 Points Total, 4 Points for Each Task)

No data are required for this assignment.

Write Python code to perform the defined tasks. The tasks focus on the use of If...Else statements, for loops, and functions. Deliver your results in a Jupyter Notebook. Make sure all questions and answers are clearly labelled. The only module that is required for this assignment is the math module.

Your Tasks

T1: Create an **If...Else** statement that will test whether a number is divisible by three. "YOUR VALUE is divisible by 3" should be printed if the value is divisible by three. "YOUR VALUE is not divisible by three" should be printed if it is not divisible by three. Test the statement on a numeric variable. Upper case text in the print statement should be replaced with the tested number.

T2: Create an **If...Else** statement that will test whether a number is divisible by three and four. "YOUR VALUE is divisible by 3 and 4" should be printed if the value is divisible by three and four. "YOUR VALUE is not divisible by three and four" should be printed if it is not divisible by three and four. Test the statement on a numeric variable. Upper case text in the print statement should be replaced with the tested number.

T3: Create an **If...Else** statement that will test whether a type of fruit, represented as a text string, is in a list of acceptable fruits (apple, orange, pear, kiwi, or strawberry). If the fruit is in the list, the following should be printed: "YOUR FRUIT is acceptable." If not, then the following should be printed: "YOUR FRUIT is not acceptable." Upper case text in the print statement should be replaced with the tested fruit.

T4: Create an **If...Else** statement that will test whether a type of fruit, represented as a text string, is a citrus fruit (orange, grapefruit, mandarin, or lime), a tropical fruit (banana or mango), or a berry (strawberry, raspberry, blueberry, kiwi, or passionfruit). If the fruit is in one of these lists, a print statement should be returned that indicates the type of fruit. If it is not in any of these lists, the print statement should indicate that the fruit is not a citrus fruit, tropical fruit, or berry.

T5: Edit your code for T4 so that it is not sensitive to the letter case.

T6: Edit your result for T5 so that a **list** of fruits can be tested. This will require using both a **for loop** and an **If...Else** statement. You will need to create a list of fruits to test the code. There should be a separate print statement for each element in the list.

T7: Use **list comprehension** to create a new list that contains all of your fruits from your example list in T6 but converted to all upper case.

T8: Repeat T7 but only have upper case versions of the fruit names printed to the new list if the fruit is a berry. All other fruit types should not be returned to the list.

T9: Replicate T6 but use **f-strings** to define the print statements.

T10: Create a **list** of items. Have all odd indexed items print to a new list and all even indexed items print to a different list. Note that **enumerate()** will be useful here. The first item in the list should be treated as index 1 as opposed to 0 in the logic.

T11: Create a **function** that will accept two words and **concatenate** them to a single string with a space between the two words. Test the function on two string variables.

T12: Edit your **function** so that it will accept two or more words, **concatenate** them with spaces, and return the new, single string. You will need to use ***args**.

T13: Create a **function** that will calculate the length of the hypotenuse of a triangle if given the length of the other two sides (i.e., Pythagorean Theorem). The function should accept two arguments, the length of the two leg sides, and return a single value: the hypotenuse length. You can use functions from the **math module**.

T14: Write a **function** that will convert a Celsius temperature measurement to Fahrenheit or a Fahrenheit measurement to Celsius. It should accept the temperature and the unit of measurement as a string and return the new temperature. Use the unit variable to define the conditions.

T15: Expand your **function** above so that you can convert Fahrenheit, Celsius, or Kelvin to any of the two other scales. It should accept the temperature, the current units, and the desired units and return the new temperature. Use the unit variables to define the conditions.

Deliverables

- Jupyter Notebook