**Assignment:**

Python Fundamentals: Data Handling and Functions

**Objective:**

The goal of this assignment is to assess your understanding and application of Python basics, including Python syntax, variables, data structures (lists, tuples, dictionaries), operators, and functions (no parameter, single parameter, no argument, single argument, multiple parameters and arguments). This assignment does not require concepts not yet taught, such as if-else statements, loops, and object-oriented programming.

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**Assignment Description:**

You are tasked with creating a simple Python program that demonstrates your understanding of the following concepts:

**1. Python Syntax, Basic Programming, and Variables (Week 2):**

* Create a Python script that greets the user and asks for their name.
* Store the name in a variable and then display a personalized greeting using that variable.

**2. Lists, Tuples, and Dictionaries (Week 3):**

* Create a **list** of your favorite fruits, a **tuple** of your favorite colors, and a **dictionary** *mapping* the fruits to the colors.
* Print the contents of each data structure, also indicate the data-type to prove that the data structure is a list, tuple or dictionary.

**3. Operators, Methods, and Booleans (Week 4):**

* Implement a simple calculator that can add and subtract two numbers.
* Use the Boolean operators 'and', 'or', 'not' to create a conditional statement that checks if the result is greater than 10 and less than 20, printing the result accordingly.

**4. Functions (Week 5):**

* Write a Python function that shows the colour of your fruit when fruit name is mentioned
  + Name this function "fruit\_color"
  + The function should accept **one parameter**, the fruit.
  + The function should have a default value defined for the parameter, but you need to demonstrate that the function works by sending your own argument (fruit), at least once, and getting a result of the colour that references your dictionary.
* Write a Python function that calculates the area of a rectangle.
  + Name this function "area"
  + The function should take **two parameters**, the length and width, and return the area.
  + The function should have default value defined for the parameters, but you need to demonstrate that the function works by sending your own arguments (length/width), at least once, and getting a result.

**Assignment Requirements:**

* Code **documentation** is crucial. Ensure you provide comments explaining your code and how it works.

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**Rubric (out of 30 marks):**

* Python Syntax and Basic Programming (Week 2): 5 marks
* Lists, Tuples, and Dictionaries (Week 3): 5 marks
* Operators, Methods, and Booleans (Week 4): 5 marks
* Functions (Week 5): 10 marks
* Code Documentation (Comments): 5 marks

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**Submission Guidelines:**

* Create a Python script (.py file) containing your code.
* Ensure your script is well-documented with comments explaining the code. It has to have your name in the comments (include student# - if there is one).
* Submit your Python script file (.py) on DC-CONNECT, following the guidelines provided by your instructor.