Python Assignment 01-Upskill KP

Python Basics Instructions:

1. Complete the following tasks based on the concepts covered in the "Python Basics" session. Write your Python code in a .py file or use a Jupyter Notebook to solve the problems.
2. Ensure that your code is well-commented, and variable names are descriptive.
3. If any task requires output, print the result to the console.
4. Submit the completed .py file or Jupyter Notebook.

Task 1: Variables and Data Types

a) Create three variables: one for storing your age (integer), one for your name (string), and one to check if you are a student (Boolean). Print the variables.
b) Perform the following operations and print the results: - Add 25 to your age variable. - Concatenate your name with the string "Smith." - Negate the Boolean variable (if True, make it False, and vice versa).

Task 2: String Manipulation

a) Create a string variable called "sentence" containing the sentence "Python is a powerful programming language." Print the sentence.
b) Count the number of characters in the "sentence" and print the result.
c) Check if the word "Python" is present in the "sentence" and print the result (True/False).
d) Replace the word "powerful" with "versatile" in the "sentence" and print the updated sentence.
e) Split the "sentence" into a list of words and print the list.

Task 3: Expressions and Operators

a) A rectangle has a width of 5.5 units and a height of 3.25 units. Store width and height in variables. Create a new variable called area and write an expression to calculate the area. Print the area in the output.
b) Create a temperature variable in Celsius. Convert it to Fahrenheit using the formula: F = (C * 9/5) + 32. Store this temperature in a variable called Fahrenheit and print this variable. a) Create a variable called radius and give it a value of 5. Calculate the area of a circle with this radius and store it in a variable called area. Print area at the end of your code. (Use the formula: area = π * radius^2, where π (pi) is approximately 3.14159).

Task 4: Introduction to Data Structures

List

a) Create a list called "fruits" containing the following fruits: "apple," "banana," "orange," "grape," and "kiwi." Print the list.
b) Create another list called "vegetables" containing the following vegetables: "carrot," "lettuce," "tomato," "broccoli," and "spinach." Print the list.

c) Concatenate the "fruits" list with the "vegetables" list and store the result in a new list called "groceries". Print the "groceries" list.
d) Sort the "groceries" list in alphabetical order and print it.
e) Remove the "banana" from the "fruits" list and print the updated "fruits" list.

Tuple

a) Create a tuple named "colors" with the names of three colors of your choice. Print the tuple.
b) Access the second element of the "colors" tuple and print it.
c) Concatenate the "months" tuple with the "colors" tuple and store the result in a new tuple called "combined_tuple". Print the "combined_tuple".