Bangladesh Army International University of Science and Technology

Department Of Computer Science & Engineering

Assignment

Assignment No : 02

CourseTitle :Machine Learning Sessional

Course Code : CSE 412

SubmittedTo

Mousumi Hasan Mukti

Assistant Professor

Dept.of CSE, BAIUST

SubmittedBy

Susmita Paul

ID:0822210205101017

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Introduction:

This document acts as an essential primer for individuals starting their exploration into Python programming. It is a part of the Python Crash Course offered by Pierian Data, and includes a variety of applied exercises intended to strengthen fundamental concepts like math operations**,** text processing**,** and variable management. These tasks are crafted to boost the learner's confidence in writing Python scripts by practicing syntax and grasping logical structure. As one of the most prominent and adaptable programming languages, Python is extensively applied in areas like data analytics, website creation**, task** automation, and AI development. This introductory course serves as a gateway into those specialized domains.

Objective:

The core goal of this notebook is to offer a practical way to grasp foundational Python programming topics. It strives to introduce learners to the essential syntax, procedures, and strategies necessary for crafting operational and efficient scripts. Through structured activities such as power computation, string splitting, and variable interaction, students enhance their analytical thinking and logical reasoning abilities. This practice-driven method supports academic learning by putting theory into action. The exercises are suited for novices and establish a robust base, setting them up for more complex topics in Python and eventual work in data science and software engineering.

Theory

Python is a high-level, interpreted programming language known for its simplicity and readability. It supports multiple programming paradigms including procedural, object-oriented, and functional programming. Key theoretical concepts in this notebook include operators (such as arithmetic and assignment operators), data types (like integers and strings), and basic data structures (like lists). The exercises exemplify how Python handles expressions and variables, which are fundamental to all programming logic. Understanding these basics allows a learner to build on more complexfunctionalities. The theory underpinning these exercises is critical as it forms the mental model for how Python executes instructions and handles data.

Task1.Whatis7tothepowerof4? Code &

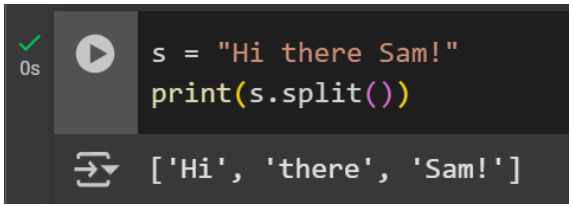
Output:

```
print(7**4)
```

```
2401
```

Task2.Splitthisstring:s="HithereSam!"intoa list.

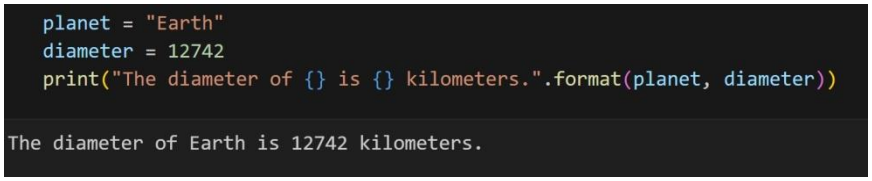
Code &Output:



Task3.Giventhevariables:planet="Earth"diameter=12742Use.format()toprintthefollowing string:

The diameter of Earth is 12742 kilometers.

Code &Output:



Task4.Giventhisnestedlist,use indexing to grab the word"hello" Code &

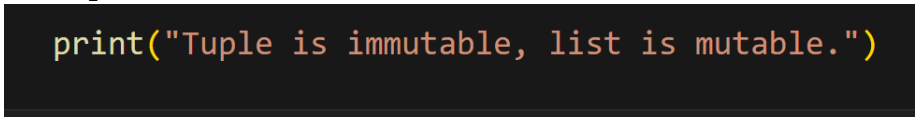
Output:

Task5.Given this nested dictionary grab the word"hello".Beprepared,this will be annoying/tricky

Code &Output:

Task6.What is the main difference between a tuple and alist? Code

& Output:



Task 7. Create a function that grabs the email website domain from a string in the form:

user@domain.com.Soforexample,passing"user@domain.com"wouldreturn:domain.com

Code &Output:

```
Trae: Explain | Doc | Test | Explore IDE | ×
def domainGet(email):
    return email.split('@')[1]

print(domainGet('user@domain.com'))
```

```
'domain.com'
```

Task 7.Create a basic function that returns True if the word 'dog' is contained in the input string. Don't worry about edge cases like a punctuation being attached to the word dog , but doaccount for capitalization.

Code &Output:

```
Trae: Explain | Doc | Test | Explore IDE | ×
def findDog(s):
    return 'dog' in s.lower()

print(findDog('Is there a dog here?'))
```

```
True
```

Task 8:Create a function that counts how many times the word "dog" appears in a given string. Ignore edge cases such as punctuation or case sensitivity.

Code &Output:

```
Trae: Explain | Doc | Test | Explore IDE | ×
def countDog(s):
    return s.lower().split().count('dog')

print(countDog('This dog runs faster than the other dog dude!'))
```

```
2
```

Task 9: Use **lambda expressions** and the filter() function to filter out words from a list that **don't start with a specific letter**.

seq=['soup','dog','salad','cat','great']should be filtered downto:['soup','salad'] Code

& Output:

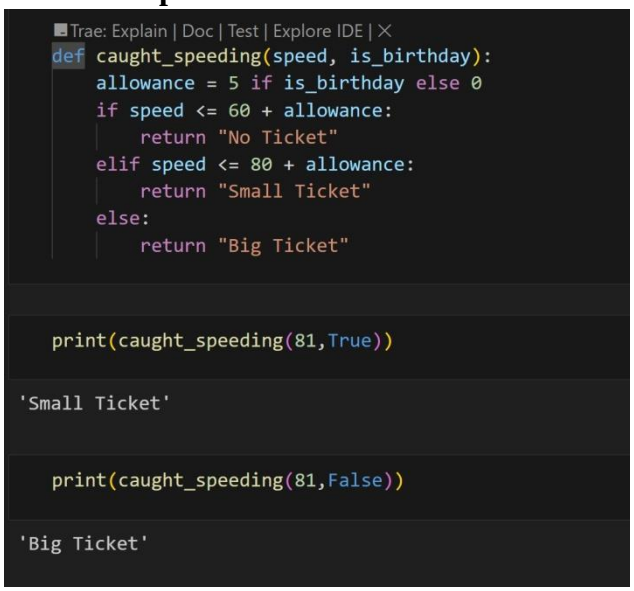
```
seq = ['soup','dog','salad','cat','great']

print(list(filter(lambda word: word[0].lower() == 's', seq)))
```

```
['soup', 'salad']
```

Task 10. You are driving a little too fast, and a police officer stops you. Write a functionto return oneof3possibleresults: "No ticket", "Small ticket", or "Big Ticket". If your speed is 60 or less, the result is "No Ticket". If speed is between 61 and 80 inclusive, the result is "Small Ticket". If speed is 81 or more, the result is "BigTicket". Unless it is your birthday (encoded as a boolean value in the parameters of the function) -- on your birthday, your speed can be 5 higher in all cases.

Code &Output:



Discussion

The notebook offers an intuitive and beginner-friendly introduction to Python, focusing on clarity and simplicity. Exercises such as calculating "7 to the power of 4" or splitting a string into a list may seem trivial at first glance, but they are instrumental in building a solid understanding of Python syntax and execution flow. Such foundational exercises help identify common mistakes early, such as improper syntax or misunderstanding of operations. This hands-on approach, combined with immediate feedback from running code, enhances the learning experience. Moreover,thepracticalexposureprepareslearners for more advanced topics such as loops, conditionals, and data analysis with libraries.

Reference

https://www.geeksforgeeks.org/python/