PYTHON – WORKSHEET 1

Q1 to Q8 have only one correct answer. Choose the correct option to answer your question.

1. Which of the following operators is used to calculate remainder in a division?
   A) # B) &
   C) % D) $

Ans: C) %

2. In python 2//3 is equal to?
   A) 0.666 B) 0
   C) 1 D) 0.67

Ans: B) 0

3. In python, 6<<2 is equal to?
   A) 36 B) 10
   C) 24 D) 45

Ans: C) 24

4. In python, 6&2 will give which of the following as output?
   A) 2 B) True
   C) False D) 0

Ans: A) 2

5. In python, 6|2 will give which of the following as output?
   A) 2 B) 4
   C) 0 D) 6

Ans: D) 6

6. What does the finally keyword denotes in python?
   A) It is used to mark the end of the code
   B) It encloses the lines of code which will be executed if any error occurs while executing the lines of code in the try block.
   C) the finally block will be executed no matter if the try block raises an error or not.
   D) None of the above

Ans: C) the finally block will be executed no matter if the try block raises an error or not.

7. What does raise keyword is used for in python?
   A) It is used to raise an exception. B) It is used to define lambda function
   C) it's not a keyword in python. D) None of the above

Ans: A) It is used to raise an exception.

8. Which of the following is a common use case of yield keyword in python?
   A) in defining an iterator B) while defining a lambda function
   C) in defining a generator D) in for loop.

Ans: C) in defining a generator.

Q9 and Q10 have multiple correct answers. Choose all the correct options to answer your question.

9. Which of the following are the valid variable names?
   A) _abc B) 1abc
   C) abc2 D) None of the above

Ans: A) _abc C) abc2

10. Which of the following are the keywords in python?
    A) yield B) raise
    C) look-in D) all of the above

Ans: A) yield B) raise

Q11 to Q15 are programming questions. Answer them in Jupyter Notebook.

11. Write a python program to find the factorial of a number.

Ans:
```
def factorial(n):
    if n == 0:
        return 1
    else:
        return n * factorial(n-1)


# Input from the user
number = int(input("Enter a number: "))


# Check if the number is negative
if number < 0:
    print("Factorial does not exist for negative numbers")
else:
    print(f"The factorial of {number} is {factorial(number)}")
```

12. Write a python program to find whether a number is prime or composite.

Ans:
```
def is_prime(number):
    if number <= 1:
        return False
    if number <= 3:
        return True
    if number % 2 == 0 or number % 3 == 0:
        return False
    i = 5
    while i * i <= number:
        if number % i == 0 or number % (i + 2) == 0:
            return False
        i += 6
    return True

# Input from the user
num = int(input("Enter a number: "))

# Check if the number is prime or composite
if num <= 1:
    print(f"{num} is neither prime nor composite.")
elif is_prime(num):
    print(f"{num} is a prime number.")
else:
    print(f"{num} is a composite number.")
```

13. Write a python program to check whether a given string is palindrome or not.

Ans:
```
def is_palindrome(s):
    # Remove any spaces and convert the string to lowercase for uniformity
    s = s.replace(" ", "").lower()

    # Check if the string is equal to its reverse
    return s == s[::-1]
```

```
# Input from the user
input_string = input("Enter a string: ")

# Check if the string is a palindrome
if is_palindrome(input_string):
    print(f"'{input_string}' is a palindrome.")
else:
    print(f"'{input_string}' is not a palindrome.")
```

14. Write a Python program to get the third side of right-angled triangle from two given sides.

```
import math
```

Ans:

```
def find_third_side(a, b, is_hypotenuse=False):
    if is_hypotenuse:
        # a is the hypotenuse, b is one of the legs
        return math.sqrt(a**2 - b**2)
    else:
        # a and b are the legs
        return math.sqrt(a**2 + b**2)

# Input from the user
side1 = float(input("Enter the first side: "))
side2 = float(input("Enter the second side: "))
is_hypotenuse = input("Is the first side the hypotenuse? (yes/no): ").strip().lower() == 'yes'

# Find the third side
third_side = find_third_side(side1, side2, is_hypotenuse)

# Output the result
if is_hypotenuse:
    print(f"The other leg of the triangle is: {third_side:.2f}")
else:
    print(f"The hypotenuse of the triangle is: {third_side:.2f}")
```

15. Write a python program to print the frequency of each of the characters present in a given string.

Ans:

```
def character_frequency(s):
    # Create an empty dictionary to store the frequency of each character
    frequency_dict = {}

    # Iterate over each character in the string
    for char in s:
        # Update the frequency count for each character
        if char in frequency_dict:
            frequency_dict[char] += 1
        else:
            frequency_dict[char] = 1

    return frequency_dict

# Input from the user
input_string = input("Enter a string: ")

# Get the frequency of each character
frequency = character_frequency(input_string)

# Print the frequency of each character
print("Character frequencies:")
for char, freq in frequency.items():
    print(f"'{char}': {freq}")
```