

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?
C) %
2. In python $2//3$ is equal to?
B) 0
3. In python, $6<<2$ is equal to?
A) 36
4. In python, $6\&2$ will give which of the following as output?
B) True
5. In python, $6|2$ will give which of the following as output?
C) 0
6. What does the finally keyword denote in python?
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.
8. Which of the following is a common use case of yield keyword in python?
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
10. Which of the following are the keywords in python?
A) yield
B) raise

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

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

A-11) Factorial is a non-negative integer. It is the product of all positive integers less than or equal to that number you ask for factorial. It is denoted by an exclamation sign (!).

Example:

$$n! = n * (n-1) * (n-2) * \dots * 1$$

$$4! = 4 \times 3 \times 2 \times 1 = 24$$

The factorial value of 4 is 24.

```
num = int(input("Enter a number: "))  
factorial = 1  
if num < 0:
```

```

    print(" Factorial does not exist for negative numbers")
elif num == 0:
    print("The factorial of 0 is 1")
else:
    for i in range(1,num + 1):
        factorial = factorial*i
    print("The factorial of",num,"is",factorial)

```

Output:

Enter a number: 10

The factorial of 10 is 3628800

In the above example, we have declared a **num** variable that takes an integer as an input from the user. We declared a variable factorial and assigned 1. Then, we checked if the user enters the number less than one, then it returns the factorial does not exist for a negative number. If it returns false, then we check num is equal to zero, it returns false the control transfers to the else statement and prints the factorial of a given number.

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

A-12) This python program for Prime and composite number allows the user to enter any integer value and checks whether the given number is a Prime number or composite number using if-else Loop.

```

#Input a number and check if the number is prime or composite number
n= int(input("Enter any number:"))
if(n ==0 or n == 1):
    print(n,"Number is neither prime nor composite")
elif n>1 :
    for i in range(2,n):
        if(n%i == 0):
            print(n,"is not prime but composite number")
            break
    else:
        print(n,"number is prime but not composite number")
else :
    print("Please enter positive number only ")

```

Enter any number: 3

3 number is prime but not composite number

Enter any number: 8

8 is not prime but composite number

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

A-13) A palindrome is a string that is the same read forward or backward.

For example, "DAD" is the same in forward or reverse direction. Another example is "aibohphobia", which literally means, an irritable fear of palindromes.

```
my_str = 'albohPhoBiA'

#make it suitable for caseless comparison
my_str = my_str.casefold()

#reverse the string
rev_str = reversed(my_str)

#check if the string is equal to its reverse
if list(my_str) == list(rev_str):
    print("The string is a palindrome.")
else:
    print("The string is not a palindrome.")
```

Output :

The string is a palindrome

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

A-14)

```
def pythagoras(opposite_side, adjacent_side, hypotenuse):
    if opposite_side == str("x"):
        return ("Opposite =" + str(((hypotenuse**2) - (adjacent_side**2))**0.5))
    elif adjacent_side == str("x"):
        return("Adjacent =" + str(((hypotenuse**2) - (opposite_side**2))**0.5))
    elif hypotenuse == str("x"):
        return("Hypotenuse=" + str(((opposite_side**2) + (adjacent_side**2))**0.5))
    else:
        return "You know the answer!"
```

```
print (pythagoras(3,4,'x'))
print (pythagoras(3,'x',5))
print (pythagoras('x',4,5))
print (pythagoras(3,4,5))
```

Output:

Hypotenuse = 5.0

Adjacent = 4.0

Opposite = 3.0

You know the answer!

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

A-15 Using a dictionary to store the char frequency in string

```
input_string = "Data Science"

frequencies = {}

for char in input_string:

    if char in frequencies:

        frequencies[char] += 1

    else:

        frequencies[char] = 1
```

Show Output

```
print ("Per char frequency in '{}' is :\n {}".format(input_string,
str(frequencies)))
```

Per char frequency in 'Data Science' is :

```
{'D': 1, 'a': 2, 't': 1, ' ': 1, 'S': 1, 'c': 2, 'i': 1, 'e': 2, 'n': 1}
```
