

22ITPC406 – Python Programming

UNIT – II (Assignment – 4)

Due by 1.04.2024

Instructions

- Write the questions and answers.
- Run the programs and write the results for your data.
- Copying is strictly not acceptable.

1. Write a lambda function to multiply two inputs.
2. Create a list and filter all the odd numbers in the list using lambda expression.
3. Use the third argument of the range() function to make a list of the even numbers from 1 to 100. Use a for loop to print each number.
4. Write a Python program using map() to print each item and its corresponding type from the following list.

Sample List :

```
mylist = [1452, 11.23, 1+2j, True, 'Welcome', (0, -1), [5, 12], {"class": 'IT',  
"semester": 'IV'}]
```

5. Write Python scripts to generate the given output in the table using map() function for the given input.

S.No.	Input	Generate the given Output using map()
1.	my_str = "welcome to my class!"	convert the string to uppercase
2.	my_list = [2,3,4,5,6,7,8,9]	multiply each number in the list by 10
3.	my_tuple = ('php','java','python','c++','c')	Convert each item to a title case
4.	my_set = {2,3,4,5,6,7,8,9}	Find the cube of each item
5.	my_list = ['a','b', 'b', 'd', 'e'] my_tuple = ('PHP','Java','Python','C++','C')	Join each item with an underscore(_) ['a_PHP', 'b_Java', 'b_Python', 'd_C++', 'e_C']

6. Write a Python script to find the cube of even numbers in the following using suitable built-in functions.

```
my_list = [2,3,4,5,6,7,8,9]
```

7. Use a variable to represent a person's name and include some whitespace characters at the beginning and end of the name. Print the name once with whitespaces. Then print the name using three different stripping functions.
8. You have a tuple of circle areas all in five decimal places. You need to create a new tuple by rounding each element based on its position in the tuple, meaning that you must round up the first element in the tuple to one decimal place, the second element to two decimal places, the third element to three decimal places, etc.

Write a Python script for this with suitable built-in functions.

9. Write a Python function that takes two lists and returns True if they have at least one common member.
10. Create a function to generate a Pascal triangle by getting the number of rows in the triangle as a parameter.
11. Write a menu-driven Python program to perform the following string operations using user-defined functions:

- a. String length
- b. String reverse
- c. String concatenation
- d. String comparison

12. What is the output of this code, and why?

```
def func(a, b, c=5):  
    print(a, b, c)
```

```
func(1, c=3, b=2)
```

13. What is the output of the following code, and why?

```
def func(a, b=4, c=5):  
    print(a, b, c)
```

```
func(1, 2)
```

14. What is the output of this code, and why?

```
def func(a, b, c=5):  
    print(a, b, c)
```

```
func(1, c=3, b=2)
```

15. How about this code: what is its output, and why?

```
def func(a, *pargs):  
    print(a, pargs)
```

```
func(1, 2, 3)
```

16. What does this code print, and why?

```
def func(a, **kargs):  
    print(a, kargs)  
  
func(a=1, c=3, b=2)
```

17. One last time: what is the output of this code, and why?

```
def func(a, b, c=3, d=4):  
    print(a, b, c, d)
```

```
func(1, *(5,6))
```

18. Write functions to produce star triangles as given below for the number of levels given by the user (5 levels are given below). Write menu menu-driven program to print the triangle as per the user's choice.

<pre> * * * * * * * * * * * * * * *</pre>	<pre> * * * * * * * * * * * * * * * * * * * *</pre>	<pre> * * * * * * * * * * * * * * *</pre>	<pre>* * * * * * * * * * * * * * *</pre>
Left Triangle	Triangle	Right - inverted triangle	Inverted triangle

19. Write functions to produce a pyramid of numbers as given below for the number of levels given by the user. Write menu menu-driven program to print the pyramid as per the user's choice.

1	1	1 2 3 4 5	5 6 7 8 9 8 7 6 5
1 2	2 3 2	1 2 3 4	4 5 6 7 6 5 4
1 2 3	3 4 5 4 3	1 2 3	3 4 5 4 3
1 2 3 4	4 5 6 7 6 5 4	1 2	2 3 2
1 2 3 4 5	5 6 7 8 9 8 7 6 5	1	1

20. Build a function called **hms_to_secs()** that takes three values—for hours, minutes, and seconds—as arguments, and returns the equivalent time in seconds. Create a program that exercises this function by repeatedly obtaining a time value in hours, minutes, and seconds from the user, calling the function, and displaying the value of seconds it returns. Call the function repeatedly to demonstrate the positional, keyword, and default arguments.
21. Write a function called **make_shirt()** that accepts the size and the text of a message that should be printed on the shirt. The function should print a sentence summarizing the size of the shirt and the message printed on it.
Call the function once using positional arguments to make a shirt. Call the function a second time using keyword arguments.
22. Write a function called **favorite_book()** that accepts one parameter, title. If the given title is 'Ponniyin Selvan', the function should print a message, such as One of my favorite books is Ponniyin Selvan. Call the function three times, making sure to include a book title as an argument in the function call.
23. Do the following to create a program that simulates how websites ensure that everyone has a unique username.
- Make a list of five or more usernames called **current_users**.
 - Make another list of five usernames called **new_users**. Make sure one or two of the new usernames are also in the **current_users** list.
 - Write a function to loop through the **new_users** list to see if each new username has already been used. If it has, print a message that the person will need to enter a new

username. If a username has not been used, print a message saying that the username is available.

Make sure your comparison is case-insensitive. For example, if 'Kavi' has been used, 'KAVI' should not be accepted.

24. Generate a random password using a Python program with the following conditions.

- i) The password should contain a minimum of 8 and a maximum of 12 characters.
- ii) The characters should not be repeated.
- iii) It should include both upper and lower cases, numbers, and special characters.