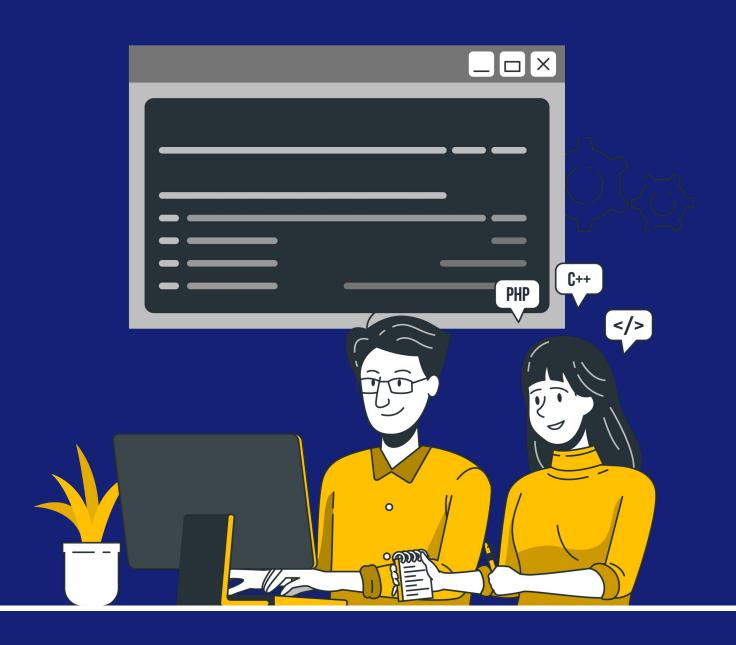


Assignment

Functions





Theory Questions:

Note: For each theory Question, give at least one example.

- 1. What is the difference between a function and a method in Python?
- 2. Explain the concept of function arguments and parameters in Python.
- 3. What are the different ways to define and call a function in Python?
- 4. What is the purpose of the `return` statement in a Python function?
- 5. What are iterators in Python and how do they differ from iterables?
- 6. Explain the concept of generators in Python and how they are defined.
- 7. What are the advantages of using generators over regular functions?
- 8. What is a lambda function in Python and when is it typically used?
- 9. Explain the purpose and usage of the `map()` function in Python.
- 10. What is the difference between `map()`, `reduce()`, and `filter()` functions in Python?
- 11. Using pen & Paper write the internal mechanism for sum operation using reduce function on this given list:[47,11,42,13];

(Attach paper image for this answer) in doc or colab notebook.



Practical Questions:

- 1. Write a Python function that takes a list of numbers as input and returns the sum of all even numbers in the list.
- 2. Create a Python function that accepts a string and returns the reverse of that string.
- 3. Implement a Python function that takes a list of integers and returns a new list containing the squares of each number.
- 4. Write a Python function that checks if a given number is prime or not from 1 to 200.
- 5. Create an iterator class in Python that generates the Fibonacci sequence up to a specified number of terms.
- 6. Write a generator function in Python that yields the powers of 2 up to a given exponent.
- 7. Implement a generator function that reads a file line by line and yields each line as a string.
- 8. Use a lambda function in Python to sort a list of tuples based on the second element of each tuple.
- 9. Write a Python program that uses `map()` to convert a list of temperatures from Celsius to Fahrenheit.
- 10. Create a Python program that uses `filter()` to remove all the vowels from a given string.
- 11) Imagine an accounting routine used in a book shop. It works on a list with sublists, which look like this:

Order Number	Book Title and Author	Quantity	Price per Item
34587	Learning Python, Mark Lutz	4	40.95
98762	Programming Python, Mark Lutz	5	56.80
77226	Head First Python, Paul Barry	3	32.95
88112	Einführung in Python3, Bernd Klein	3	24.99

Write a Python program, which returns a list with 2-tuples. Each tuple consists of the order number and the product of the price per item and the quantity. The product should be increased by 10,- € if the value of the order is smaller than 100,00 €.

Write a Python program using lambda and map.