



**ITM** SKILLS  
UNIVERSITY

**INSTITUTE OF TECHNOLOGY AND MANAGEMENT  
SKILLS UNIVERSITY,  
KHARGHAR, NAVI MUMBAI**

## **PYTHON PROGRAMMING LAB**



**Prepared by:**

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Roll No: \_25\_\_\_\_\_

Batch: 2023-27

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

exp. No	List of Experiment
	1.1 Write a program to compute Simple Interest.
	1.2 Write a program to perform arithmetic, Relational operators.
	1.3 Write a program to find whether a given no is even & odd.
	1.4 Write a program to print first n natural number & their sum.
	1.5 Write a program to determine whether the character entered is a Vowel or not .
	1.6 Write a program to find whether given number is an Armstrong Number.
	1.7 Write a program using for loop to calculate factorial of a No.
	1.8 Write a program to print the following pattern
	i) <pre> * * * * * * * * * * * * * * *</pre>
	ii) <pre> 1 2 2 3 3 3 4 4 4 4 5 5 5 5 5</pre>
	iii) <pre>       *     * * *   *</pre>

	2.1 Write a program that define the list of defines the list of define countries that are in BRICS.
	2.2 Write a program to traverse a list in reverse order. 1.By using Reverse method. 2.By using slicing
	2.3 Write a program that scans the email address and forms a tuple of username and domain.
	2.4 Write a program to create a list of tuples from given list having number and add its cube in tuple. i/p: c= [2,3,4,5,6,7,8,9]
	2.5 Write a program to compare two dictionaries in Python? (By using == operator)
	2.6 Write a program that creates dictionary of cube of odd numbers in the range.
	2.7 Write a program for various list slicing operation.  a= [10,20,30,40,50,60,70,80,90,100]  i. Print Complete list ii. Print 4th element of list iii. Print list from 0th to 4th index. iv. Print list -7th to 3rd element v. Appending an element to list. vi. Sorting the element of list. vii. Popping an element. viii. Removing Specified element. ix. Entering an element at specified index. x. Counting the occurrence of a specified element. xi. Extending list. xii. Reversing the list.
	3.1 Write a program to extend a list in python by using given approach. i. By using + operator. ii. By using Append ()

	iii. By using extend ()
	3.2 Write a program to add two matrices.
	3.3 Write a Python function that takes a list and returns a new list with distinct elements from the first list.
	3.4 Write a program to Check whether a number is perfect or not.
	3.5 Write a Python function that accepts a string and counts the number of upper- and lower-case letters. string_test= 'Today is My Best Day'
	4.1 Write a program to Create Employee Class & add methods to get employee details & print.
	4.2 Write a program to take input as name, email & age from user using combination of keywords argument and positional arguments (*args and **kwargs) using function,
	4.3 Write a program to admit the students in the different Departments(pgdm/btech) and count the students. (Class, Object and Constructor).
	4.4 Write a program that has a class store which keeps the record of code and price of product display the menu of all product and prompt to enter the quantity of each item required and finally generate the bill and display the total amount.
	4.5 Write a program to take input from user for addition of two numbers using (single inheritance).
	4.6 Write a program to create two base classes LU and ITM and one derived class. (Multiple inheritance).
	4.7 Write a program to implement Multilevel inheritance, Grandfather□Father-□Child to show property inheritance from grandfather to child.
	4.8 Write a program Design the Library catalogue system using inheritance take base class (library item) and derived class (Book, DVD & Journal) Each derived

	class should have unique attribute and methods and system should support Check in and check out the system. (Using Inheritance and Method overriding)
	5.1 Write a program to create my_module for addition of two numbers and import it in main script.
	5.2 Write a program to create the Bank Module to perform the operations such as Check the Balance, withdraw and deposit the money in bank account and import the module in main file.
	5.3 Write a program to create a package with name cars and add different modules (such as BMW, AUDI, NISSAN) having classes and functionality and import them in main file cars.
	6.1 Write a program to implement Multithreading. Printing “Hello” with one thread & printing “Hi” with another thread.
	7.1 Write a program to use ‘whether API’ and print temperature of any city, also print the sunrise and sunset times for the same humidity of that area.
	7.2 Write a program to use the ‘API’ of crypto currency.

**Name of Student:** Shikha singh

**Roll Number:** 25

**Experiment No: 3.1**

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**Title:**

3.1 Write a program to extend a list in python by using given approach.

- i. By using + operator.
- ii. By using Append ()
- iii. By using extend ()

## Theory:

### Using + Operator:

The + operator is used for concatenation of lists. When `original_list + [4, 5, 6]` is used, a new list is created by concatenating the elements of `original_list` and `[4, 5, 6]`.

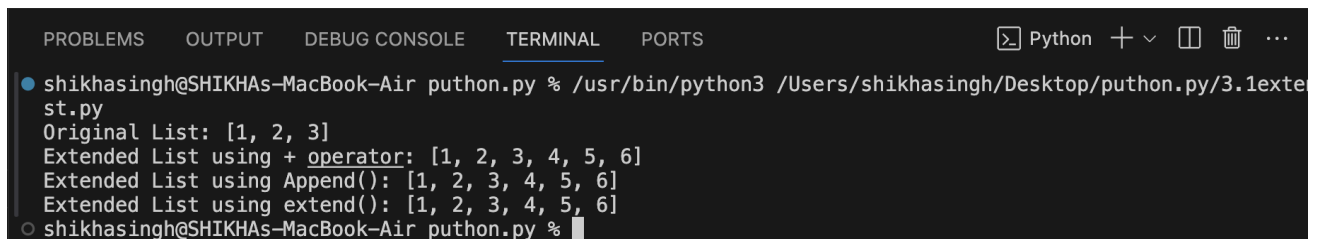
Using `Append()`: The `append()` method is used to add a single element to the end of the list. In this case, `new_list2.append(4)` adds the element 4 to the end of the `new_list2`, and the same process is repeated for 5 and 6.

Using `extend()`: The `extend()` method is used to add the elements of an iterable (e.g., a list) to the end of the list. `new_list3.extend([4, 5, 6])` adds the elements 4, 5, and 6 to the end of `new_list3`.

## Code:

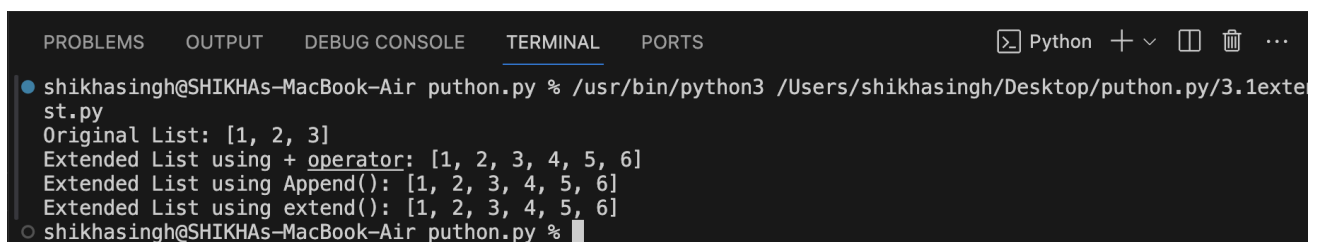
```
original_list = [1, 2, 3]
# i. By using + operator
new_list1 = original_list + [4, 5, 6]
# ii. By using Append()
new_list2 = original_list.copy()
new_list2.append(4)
new_list2.append(5)
new_list2.append(6)
# iii. By using extend()
new_list3 = original_list.copy()
new_list3.extend([4, 5, 6])
# Displaying the results
print("Original List:", original_list)
print("Extended List using + operator:", new_list1)
print("Extended List using Append():", new_list2)
print("Extended List using extend():", new_list3)
```

## Output: (screenshot)

A screenshot of a terminal window with a dark background. The terminal shows the execution of a Python script named 'puthon.py'. The output displays the original list [1, 2, 3] and three different ways to extend it to [1, 2, 3, 4, 5, 6]: using the '+' operator, the 'append()' method, and the 'extend()' method. The terminal interface includes tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL (which is active), and PORTS. The prompt indicates the user is shikhasingh@SHIKHAS-MacBook-Air.

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS Python + - [ ] [ ] ...
shikhasingh@SHIKHAS-MacBook-Air puthon.py % /usr/bin/python3 /Users/shikhasingh/Desktop/puthon.py/3.1exte
st.py
Original List: [1, 2, 3]
Extended List using + operator: [1, 2, 3, 4, 5, 6]
Extended List using Append(): [1, 2, 3, 4, 5, 6]
Extended List using extend(): [1, 2, 3, 4, 5, 6]
shikhasingh@SHIKHAS-MacBook-Air puthon.py %
```

## Test Case: Any two (screenshot)

A screenshot of a terminal window, identical to the one above, showing the same Python script execution and output. It demonstrates the original list and the three methods to extend it: using the '+' operator, 'append()', and 'extend()'. The terminal interface and prompt are the same.

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS Python + - [ ] [ ] ...
shikhasingh@SHIKHAS-MacBook-Air puthon.py % /usr/bin/python3 /Users/shikhasingh/Desktop/puthon.py/3.1exte
st.py
Original List: [1, 2, 3]
Extended List using + operator: [1, 2, 3, 4, 5, 6]
Extended List using Append(): [1, 2, 3, 4, 5, 6]
Extended List using extend(): [1, 2, 3, 4, 5, 6]
shikhasingh@SHIKHAS-MacBook-Air puthon.py %
```

## Conclusion:

- The + operator creates a new list by concatenating the original list and the additional elements.
- The append() method adds one element at a time to the end of the list.
- The extend() method is useful when you want to add multiple elements from an iterable to the end of the list.
- Understanding these methods provides flexibility in manipulating lists in Python based on specific requirements.