

**1. Write a code snippet to reverse a string.**

```
str1 = "Analytics Vidhya"
str2 = ""
for i in str1:
    str2 = i + str2
print("The original string is: ", str1)
print("The reversed string is: ", str2)
```

**2. Reversing a String using an Extended Slicing Technique**

```
string = "Python Programming"
print(string[::-1])
```

**3. Write a code snippet to reverse an array.**

Answer1:

```
import numpy as np
arr1 = np.array([1, 2, 3, 4])
arr2 = np.flip(arr1)
print(arr2)
```

Answer2:

```
import numpy as np
arr1 = np.array([1, 2, 3, 4])
arr2 = arr1[::-1]
print(arr2)
```

**4. Write a code snippet to generate the square of every element of a list.**

```
lst = [1, 2, 3, 4]
lst_final = []
for x in lst:
    lst_final.append(x * x)
print(lst_final)
```

## 5. Counting Vowels in a Given Word

```
vowel = ['a', 'e', 'i', 'o', 'u']
word = "programming"
count = 0
for character in word:
    if character in vowel:
        count += 1
print(count)
```

## 6. Counting the Number of Occurances of a Character in a String

```
word = "python"
character = "p"
count = 0
for letter in word:
    if letter == character:
        count += 1
print(count)
```

## 7. Writing Fibonacci Series

```
fib = [0,1]
# Range starts from 0 by default
for i in range(5):
    fib.append(fib[-1] + fib[-2])

# Converting the list of integers to string
print(', '.join(str(e) for e in fib))
```

## 8. Finding the Maximum Number in a List

```
numberList = [15, 85, 35, 89, 125]
```

```
maxNum = numberList[0]
for num in numberList:
    if maxNum < num:
        maxNum = num
print(maxNum)
```

## 9. Finding the Minimum Number in a List

```
numberList = [15, 85, 35, 89, 125, 2]

minNum = numberList[0]
for num in numberList:
    if minNum > num:
        minNum = num
print(minNum)
```

## 10. Finding the Middle Element in a List

```
numList = [1, 2, 3, 4, 5]
midElement = int((len(numList)/2))

print(numList[midElement])
```

## 11. Adding Two List Elements Together

```
lst1 = [1, 2, 3]
lst2 = [4, 5, 6]

res_lst = []
for i in range(0, len(lst1)):
    res_lst.append(lst1[i] + lst2[i])
print(res_lst)
```

## 12. Comparing Two Strings for Anagrams

```
str1 = "Listen"
str2 = "Silent"

str1 = list(str1.upper())
str2 = list(str2.upper())
str1.sort(), str2.sort()

if(str1 == str2):
    print("True")
else:
    print("False")
```

## 13. Counting the White Spaces in a String

```
string = "P r ogramm in g "
print(string.count(' '))
```

## 14. Building a Pyramid in Python

```
floors = 3
h = 2*floors-1
for i in range(1, 2*floors, 2):
    print('{:^{}}'.format('*'*i, h))
```

## 15. Counting Vowels in a Given Word

```
vowel = ['a', 'e', 'i', 'o', 'u']
word = "programming"
count = 0
for character in word:
    if character in vowel:
        count += 1
print(count)
```

## 16. Counting Consonants in a Given Word

```
vowel = ['a', 'e', 'i', 'o', 'u']
word = "programming"
count = 0
for character in word:
    if character not in vowel:
        count += 1
print(count)
```

## 17. Write a Python program to find the largest element in a list.

```
def find_largest(numbers):
    largest = numbers[0]
    for num in numbers:
        if num > largest:
            largest = num
    return largest

# Test the function
nums = [10, 5, 8, 20, 3]
largest_num = find_largest(nums)
print(f"The largest number is {largest_num}")
```

## 18. Write a program to print the following pattern.

```
*
* *
* * *
* * * *
* * * * *
```

```
def myfunc(n):
    for i in range(0, n):
        for j in range(0, i+1):
            print("* ",end="")
        print("\r")
n = 5
```

```
myfunc(n)
```

19. Write a program to print the following pattern.

```

      *
    * *
  * * *
* * * *
* * * * *
```

```
def myfunc(n):
    k = n - 1
    for i in range(0, n):
        for j in range(0, k):
            print(end=" ")
            k = k - 1
        for j in range(0, i+1):
            print("* ", end="")
        print("\r")
n = 5
myfunc(n)
```

20. Write a Python program to check if a string is a palindrome.

```
def is_palindrome(string):
    reversed_string = string[::-1]
    return string == reversed_string

# Test the function
word = "madam"
if is_palindrome(word):
    print(f"{word} is a palindrome")
else:
    print(f"{word} is not a palindrome")
```

21. Write a Python program to find the factorial of a number.

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

# Test the function
number = 5
result = factorial(number)
print(f"The factorial of {number} is {result}")
```

**22. Write a Python program to count the frequency of each element in a list.**

```
def count_frequency(numbers):
    frequency = {}
    for num in numbers:
        if num in frequency:
            frequency[num] += 1
        else:
            frequency[num] = 1
    return frequency

# Test the function
nums = [1, 2, 3, 2, 1, 3, 2, 4, 5, 4]
frequency_count = count_frequency(nums)
print(frequency_count)
```

**23. Write a Python program to check if a number is prime.**

```
def is_prime(number):
    if number < 2:
        return False
    for i in range(2, int(number**0.5) + 1):
        if number % i == 0:
            return False
    return True

# Test the function
```

```
num = 17
if is_prime(num):
    print(f"{num} is a prime number")
else:
    print(f"{num} is not a prime number")
```

**24. Write a Python program to find the common elements between two lists.**

```
def find_common_elements(list1, list2):
    common_elements = []
    for item in list1:
        if item in list2:
            common_elements.append(item)
    return common_elements

# Test the function
list_a = [1, 2, 3, 4, 5]
list_b = [4, 5, 6, 7, 8]
common = find_common_elements(list_a, list_b)
print(common)
```

**25. Write a Python program to find the second largest number in a list.**

```
def find_second_largest(numbers):
    largest = float('-inf')
    second_largest = float('-inf')
    for num in numbers:
        if num > largest:
            second_largest = largest
            largest = num
        elif num > second_largest and num != largest:
            second_largest = num
    return second_largest

# Test the function
nums = [10, 5, 8, 20, 3]
second_largest_num = find_second_largest(nums)
print(f"The second largest number is {second_largest_num}")
```



**26. Write a Python program to remove duplicates from a list.**

```
def remove_duplicates(numbers):
    unique_numbers = []
    for num in numbers:
        if num not in unique_numbers:
            unique_numbers.append(num)
    return unique_numbers

# Test the function
nums = [1, 2, 3, 2, 1, 3, 2, 4, 5, 4]
unique_nums = remove_duplicates(nums)
print(unique_nums)
```

**27. Write a Python program that executes an operation on a list and handles an IndexError exception if the index is out of range.**

```
def test_index(data, index):
    try:
        print("Result:", result)
    except IndexError:
        print("Error: Index out of range.")

nums = [1, 2, 3, 4, 5, 6, 7]
index = int(input("Input the index: "))
test_index(nums, index)
```