

## AI 102-L Lab 03 Tasks

**Problem-1:** Write a Python function that takes a list and returns a new list with unique elements of the first list.

**Exercise 1:**

Input:

```
[1,2,3,3,3,3,4,5]
```

Output:

```
[1, 2, 3, 4, 5]
```

In [ ]:

**Problem-2:** Write a Python function that accepts a hyphen-separated sequence of words as parameter and returns the words in a hyphen-separated and space-separated sequence after sorting them alphabetically.

**Example 1:**

Input:

```
green-red-yellow-black-white
```

Output:

```
black-green-red-white-yellow
```

```
black green red white yellow
```

In [ ]:

```
# Write code here
```

**Problem 3:** Write a Python function that accepts a string and calculate the number of upper case letters and lower case letters.

Sample String : 'Coursera task is For EnginEering studentS.'

Expected Output :

No. of Upper case characters :

No. of Lower case Characters :

In [ ]: *# Write code here*

**Problem 4:** Write a Python function to check whether a number is perfect or not.

A Perfect number is a number that is half the sum of all of its positive divisors (including itself).

Example :

The first perfect number is 6, because 1, 2, and 3 are its proper positive divisors, and  $1 + 2 + 3 = 6$ .

Equivalently, the number 6 is equal to half the sum of all its positive divisors:  $(1 + 2 + 3 + 6) / 2 = 6$ .

The next perfect number is  $28 = 1 + 2 + 4 + 7 + 14$ . This is followed by the perfect numbers 496 and 8128.

In [ ]: *# Write code here*

**Problem-5:** Write a Python function to concatenate any no of dictionaries to create a new one.

Sample Dictionary :

dic1={1:10, 2:20}

dic2={3:30, 4:40}

dic3={5:50,6:60}

Expected Result : {1: 10, 2: 20, 3: 30, 4: 40, 5: 50, 6: 60}

```
In [ ]: # Write code here
```

```
In [ ]: # Write code here
```

**Problem 6:** Write a Python program to add three given lists using Python map and lambda.

```
In [ ]: # Write code here
```

**Problem-7:** Write a Python program to create a list containing the power of said number in bases raised to the corresponding number in the index using Python map.

Input:

list1 = [1,2,3,4,5,6]

Output:

[1,2,9,64,625,-]

```
In [ ]: # Write code here
```

**Problem-8** Using filter() and list() functions and .lower() method filter all the vowels in a given string.

```
In [ ]: # Write code here
```

**Problem-9** : Use reduce to convert a 2D list to 1D

sample 2D list

```
two_d_list = [[1, 2, 3], [4, 5], [6, 7, 8]]
```

```
In [ ]: # Write code here
```

**Problem 10** A dictionary contains following information about 5 employees:

- First name
- Last name
- Age
- Grade(Skilled,Semi-skilled,Highly skilled)

Write a program using map/filter/reduce to a list of employees(first name + last name) who are highly skilled

```
In [1]: # Write code here
employees = [
    {
        'fname':'Ali',
        'lname':'Khan',
        'age' : 33,
        'grade':'skilled'
    },
    {
        'fname':'Raja',
        'lname':'Atif',
        'age' : 34,
```

```
        'grade': 'semi-skilled'
    },
    {
        'fname': 'John',
        'lname': 'Carter',
        'age' : 35,
        'grade': 'highly-skilled'
    },
    {
        'fname': 'Yoyo',
        'lname': 'Meo',
        'age' : 30,
        'grade': 'skilled'
    },
    {
        'fname': 'Ayesha',
        'lname': 'Khan',
        'age' : 37,
        'grade': 'highly-skilled'
    }
]
```

In [ ]:

In [ ]: