

# **AI LAB #01**

## Practice task:

input output of 2 numbers

```
[3] num1 = input("enter the first number")
    num2= input("enter the second number")
    print (num1)
    print (num2)
```

```
enter the first number5
enter the second number3
5
3
```

## Task #01

The Fibonacci sequence is a sequence of numbers where the number is the sum of two previous numbers. Write the Fibonacci sequence through recursion of 10.

```
def fibonacci_series(n):
    if n <= 1:
        return num
    else:
        return(fibonacci_series(n-1) + fibonacci_series(n-2))

num= 10
print("num")
print("Fibonacci sequence:")
for i in range(num):
    print(fibonacci_series(i))
```

```
num
Fibonacci sequence:
10
10
20
30
50
80
130
210
340
550
```

## Task #02

lst = [1,2,[3,4],[5,[100,200,['hello']],23,11],1,7]. Given the nested list, extract the word "hello"

```
✓ [15] lst = [1,2,[3,4],[5,[100,200,['hello']],23,11],1,7]
0s      extract_word=lst[3][1][2][0]
      print(extract_word)
```

hello

## Task#03

d={'k1':[1,2,3,{ 'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}. Given the nested dictionary, extract the word hello

```
✓ [17] d={'k1':[1,2,3,{ 'tricky':['oh','man','inception',{'target':[1,2,3,'hello']}]}]}
0s      extract_word=d['k1'][3]['tricky'][3]['target'][3]
      print(extract_word)
```

hello

## Task#04

You are in a hurry and the traffic officer stops you. Write a function to return one of 3 possible results: "No fine", "Less Fine", or "Car seize". If your speed is 70 or less, the result is "No fine". If speed is between 71 and 80 inclusive, the result is "Less Fine". If speed is 81 or more, the result is "Car seize". Unless it is your anniversary (encoded as a Boolean value in the parameters of the function) – on your anniversary, your speed can be 10 higher in all cases

```
✓ [25] def speeding(speed, anniversary):
0s      if anniversary:
          speed_allowed=80
      else:
          speed_allowed=70
          if speed <= speed_allowed:
              return "no fine"
          elif speed<=speed_allowed+10:
              return "less fine"
          else:
              return "car seize"

      speed =75
      anniversary=False
      result=speeding(speed,anniversary)
      print(result)
```

less fine

## TASK#05

Determine whether your data contains any duplicate element in a given array of integers. Return true if any value appears twice in the array and return false if every element is distinct. Also, remove the duplicates.

```
def has_duplicates_and_remove(arr):
    arr.sort()
    for i in range(1, len(arr)):
        if arr[i] == arr[i - 1]:
            arr.pop(i)
            return True

    return False

my_array = [1, 2, 3, 4, 5, 2]
result = has_duplicates_and_remove(my_array)
print(result)
print(my_array)
```

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

## TASK#06

Write a Python program to read a given CSV file as a list.

```
import csv

def read_csv_file(file_path):
    data_list = []
    try:
        with open(file_path, 'r', encoding='utf-8', errors='ignore') as csvfile:
            csvreader = csv.reader(csvfile)
            for row in csvreader:
                data_list.append(row)
    except FileNotFoundError:
        print(f"File '{file_path}' not found.")
    except Exception as e:
        print(f"An error occurred: {e}")
    return data_list

file_path = '/content/Sample.csv'
csv_data = read_csv_file(file_path)
if csv_data:
    print(f"Contents of '{file_path}':")
    for row in csv_data:
        print(row)
else:
    print("No data was read from the CSV file.")
```

Contents of '/content/sample.csv':

```
[1, 'Eldon Base for stackable storage shelf, platinum', 'Muhammed MacIntyre', '3', '-213.25', '38.94', '35', 'Nunavut', 'Storage & Organization', '0.8']  
[2, '1.7 Cubic Foot Compact "Cube" Office Refrigerators', 'Barry French', '293', '457.81', '208.16', '68.02', 'Nunavut', 'Appliances', '0.58']  
[3, 'Cardinal Slant-D Ring Binder, Heavy Gauge Vinyl', 'Barry French', '293', '46.71', '8.69', '2.99', 'Nunavut', 'Binders and Binder Accessories', '0.39']  
[4, 'R380', 'Clay Rozendal', '483', '1198.97', '195.99', '3.99', 'Nunavut', 'Telephones and Communication', '0.58']  
[5, 'Holmes HEPA Air Purifier', 'Carlos Soltero', '515', '30.94', '21.78', '5.94', 'Nunavut', 'Appliances', '0.5']  
[6, 'G.E. Longer-Life Indoor Recessed Floodlight Bulbs', 'Carlos Soltero', '515', '4.43', '6.64', '4.95', 'Nunavut', 'Office Furnishings', '0.37']  
[7, 'Angle-D Binders with Locking Rings, Label Holders', 'Carl Jackson', '613', '-54.04', '7.3', '7.72', 'Nunavut', 'Binders and Binder Accessories', '0.38']  
[8, 'SAFCO Mobile Desk Side File, Wire Frame', 'Carl Jackson', '613', '127.70', '42.76', '6.22', 'Nunavut', 'Storage & Organization', '']  
[9, 'SAFCO Commercial Wire Shelving, Black', 'Monica Federle', '643', '-695.26', '138.14', '35', 'Nunavut', 'Storage & Organization', '']  
[10, 'Xerox 198', 'Dorothy Badders', '678', '-226.36', '4.98', '8.33', 'Nunavut', 'Paper', '0.38']
```

## TASK#07

A user enters any string containing letters and digits both. Calculate the number of letters and digits entered by a user.

```
▶ user_input = input("Enter a string: ")  
  
letters_count = sum(c.isalpha() for c in user_input)  
digits_count = sum(c.isdigit() for c in user_input)  
  
print(f"Number of letters: {letters_count}")  
print(f"Number of digits: {digits_count}")
```

```
Enter a string: 22k-4120(BS-AI-4C)  
Number of letters: 6  
Number of digits: 7
```