Machine Learning Lab

(Assignment – 1)

Submitted By:-

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- CSE 1

Github Link: https://github.com/fateh491989/machine_learning_lab

Q1. Create a program that asks the user to enter their name and their age. Print out a message addressed to them that tells them the year that they will turn 100 years old.

Extras:

1. Add on to the previous program by asking the user for another number and

printing out that many copies of the previous message.

2. Print out that many copies of the previous message on separate lines. (Hint:

the string "\n is the same as pressing the ENTER button)

Code:

```
import datetime
## Question 1
def printName():
  name = input("Enter Your Name\t")
  age = int(input("Enter You Age\t"))
  number = int(input("Enter the Number of times you want to print Message \t"))
  age_100 = (datetime.datetime.now().year) + (100-age)
  print("Hello! "+name+ ", and you will be of 100 years in "+ str(age_100)+"\n")

  print("Printing Multiple copies \n")
  for i in range(number):
    print("Hello! "+name+ ", and you will be of 100 years in "+ str(age_100)+"\n")


printName()
```

```python
import datetime
## Question 1
def printName():
  name = input("Enter Your Name\t")
  age = int(input("Enter You Age\t"))
  number = int(input("Enter the Number of times you want to print Message \t"))
  age_100 = (datetime.datetime.now().year) + (100-age)
  print("Hello! "+name+ ", and you will be of 100 years in "+ str(age_100)+"\n")

  print("Printing Multiple copies \n")
  for i in range(number):
    print("Hello! "+name+ ", and you will be of 100 years in "+ str(age_100)+"\n")


printName()
```

```
Enter Your Name Fateh Singh
Enter You Age    22
Enter the Number of times you want to print Message    3
Hello! Fateh Singh, and you will be of 100 years in 2099

Printing Multiple copies

Hello! Fateh Singh, and you will be of 100 years in 2099

Hello! Fateh Singh, and you will be of 100 years in 2099

Hello! Fateh Singh, and you will be of 100 years in 2099
```

Q2. Take a list, say for example this one:

a = [1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89]

and write a program that prints out all the elements of the list that are less than 5.

Extras:

1. Instead of printing the elements one by one, make a new list that has all the

elements less than 5 from this list in it and print out this new list.

2. Write this in one line of Python.

3. Ask the user for a number and return a list that contains only elements from the

original list a that are smaller than that number given by the user.

Code:

Question 2

```python
def printele(lst):
  # Printing Elements Less than 5
  new_lst = []
  for i in lst:
    if i<5:
      print(i)
      ##1. Appending in List
      new_lst.append(i)
  print("New List is {}".format(new_lst))


  ##2. Appending in one line
  new_lst2 = [x for x in lst if x<5]
  print("New List in one line is{}".format(new_lst2))


  ##3. Asking user and responding accordingly
  number = int(input("Enter the number to find ele smaller than the number"))
  new_lst3 = [x for x in lst if x<number]
  print("Elements smaller than{} are {}".format(number, new_lst3))
a = [1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89]
printele(a)
```

```
## Question 2
def printele(lst):
  # Printing Elements Less than 5
  new_lst = []
  for i in lst:
    if i<5:
      print(i)
      ##1. Appending in List
      new_lst.append(i)
  print("New List is {}".format(new_lst))

  ##2. Appending in one line
  new_lst2 = [x for x in lst if x<5]
  print("New List in one line is{}".format(new_lst2))

  ##3. Asking user and responding accordingly
  number = int(input("Enter the number to find ele smaller than the number"))
  new_lst3 = [x for x in lst if x<number]
  print("Elements smaller than{} are {}".format(number, new_lst3))


a = [1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89]
printele(a)
```

```
1
1
2
3
New List is [1, 1, 2, 3]
New List in one line is[1, 1, 2, 3]
Enter the number to find ele smaller than the number4
Elements smaller than4 are [1, 1, 2, 3]
```
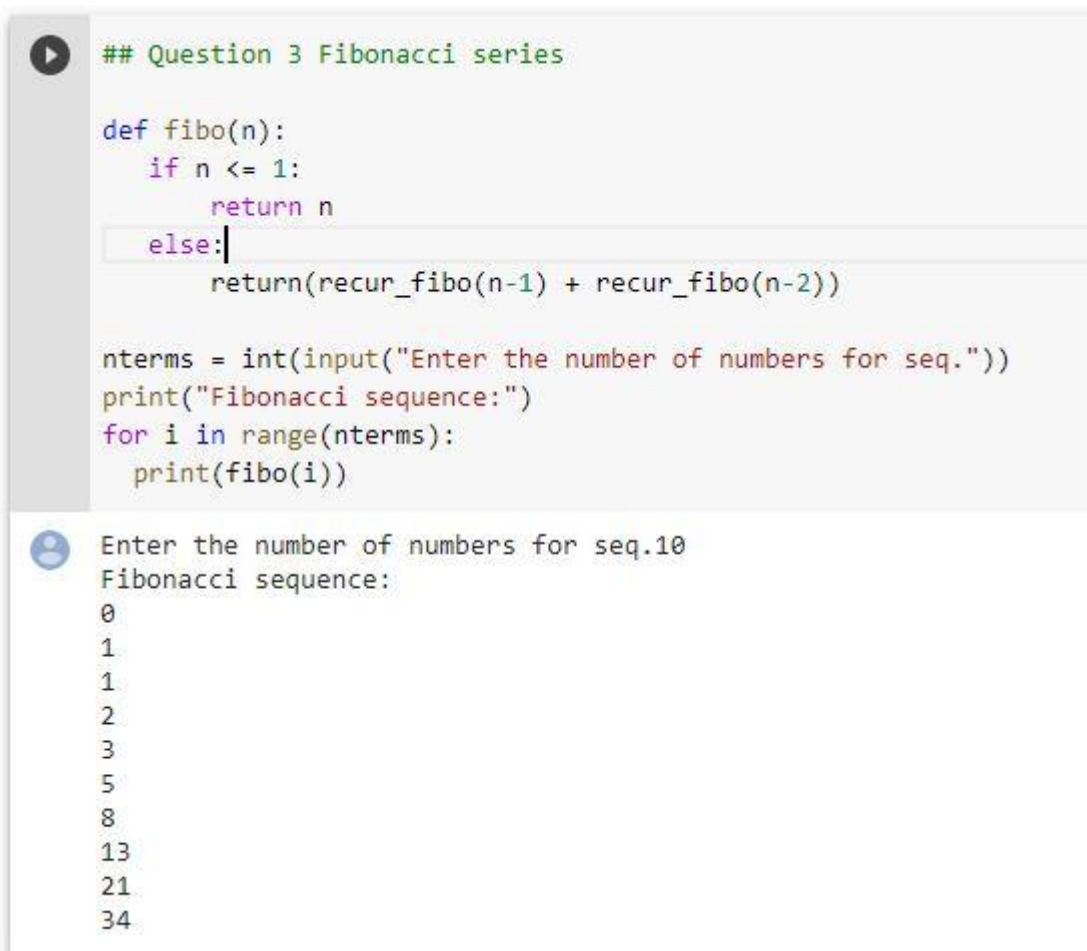
Q3. Write a program that asks the user how many Fibonacci numbers to generate and then generates them. Take this opportunity to think about how you can use functions. Make sure to ask the user to enter the number of numbers in the sequence to generate.(Hint: The Fibonacci seqence is a sequence of numbers where the next number in the sequence is the sum of the previous two numbers in the sequence. The sequence looks like this: 1, 1, 2, 3, 5, 8, 13, ...)

Code:

```
def fibo(n):
  if n <= 1:
    return n
  else:
    return(recur_fibo(n-1) + recur_fibo(n-2))
nterms = int(input("Enter the number of numbers for seq."))
print("Fibonacci sequence:")
for i in range(nterms):
 print(fibo(i))
```

```
## Question 3 Fibonacci series

def fibo(n):
    if n <= 1:
        return n
    else:
        return(recur_fibo(n-1) + recur_fibo(n-2))

nterms = int(input("Enter the number of numbers for seq."))
print("Fibonacci sequence:")
for i in range(nterms):
  print(fibo(i))
```

```
Enter the number of numbers for seq.10
Fibonacci sequence:
0
1
1
2
3
5
8
13
21
34
```

Q4. Write a program (function!) that takes a list and returns a new list that contains all the elements of the first list minus all the duplicates.

Extras:

● Write two different functions to do this - one using a loop and constructing a list, and another using sets.

Code:

```python
def lst_unique(lst):
  unique = []
  for l in lst:
    if l not in unique:
      unique.append(l)
  for x in unique:
    print(x)


def using_set(lst):
  list_set = set(lst)
  unique_list = list(list_set)
  for x in unique_list:
    print(x)


a = [1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 21, 89]
lst_unique(a)
```

```
## Question 4
def lst_unique(lst):
  unique = []
  for l in lst:
    if l not in unique:
      unique.append(l)
  for x in unique:
    print(x)

def using_set(lst):
  list_set = set(lst)
  unique_list = list(list_set)
  for x in unique_list:
    print(x)

a = [1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 21, 89]
print("Without using Sets")
lst_unique(a)
```

```
Without using Sets
1
2
3
5
8
13
21
34
55
89
```

```
print("Using Sets")
using_set(a)
```

```
Using Sets
1
2
3
34
5
8
13
21
55
89
```

Q5. Ask the user for a number and determine whether the number is prime or not. (For those who have forgotten, a prime number is a number that has no divisors.). Use functions

```python
## Question 5
def prime_check():
    num = int(input("Enter Number you want to check \t"))
    flag = 1
    for i in range(2, int(num/2)):
        if(num%i == 0):
            flag = 0
            break
    if(flag==0):
        print("Number is not Prime")
    else:
        print("Number is Prime")


prime_check()
```

```
## Question 5
def prime_check():
  num = int(input("Enter Number you want to check \t"))
  flag = 1
  for i in range(2, int(num/2)):
    if(num%i == 0):
      flag = 0
      break
  if(flag==0):
    print("Number is not Prime")
  else:
    print("Number is Prime")

prime_check()
```

```
Enter Number you want to check  11
Number is Prime
```