ML_Assignment_Akjot_Singh

PYTHON INTRODUCTION ASSIGNMENT -1

SUBMITTED BY :

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CSE -1

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GITHUB: https://github.com/AkSingh03/MACHINE_LEARNING

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)

Pseudo Code:

def printName():
name = input("Enter Your Name\t")
age = int(input("Enter You Age\t"))
age_100 = (datetime.datetime.now().year) + (100-age)
print("Hello! "+name+ ", you know you will celebrate your centennial in "+ str(age_100)+"\n")
number = int(input("Enter the Number of times you want to print this message \t"))
for i in range(number):
print("\nHello! "+name+ ", you know you will celebrate your centennial in "+ str(age_100))

Code & Output :

```
In [5]: import datetime
        def printName():
          #Question
          name = input("Enter Your Name\t")
          age = int(input("Enter You Age\t"))
          age_100 = (datetime.datetime.now().year) + (100-age)
          print("Hello! "+name+ ", you know you will celebrate your centennial in "+ str(age_100)+"\n")

          # Extras
          number = int(input("Enter the Number of times you want to print this message \t"))
          for i in range(number):
             print("\nHello! "+name+ ", you know you will celebrate your centennial in "+ str(age_100))


        printName()
```

```
Enter Your Name Akjot Singh
Enter You Age   23
Hello! Akjot Singh, you know you will celebrate your centennial in 2098

Enter the Number of times you want to print this message        13

Hello! Akjot Singh, you know you will celebrate your centennial in 2098

Hello! Akjot Singh, you know you will celebrate your centennial in 2098

Hello! Akjot Singh, you know you will celebrate your centennial in 2098

Hello! Akjot Singh, you know you will celebrate your centennial in 2098

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```

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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.

Pseudo Code:

```
def printelements(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 element 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]
printelements(a)
```

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Code & Output :

In [11]:
```
def printelements(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 element 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]
printelements(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 element smaller than the number40
Elements smaller than40 are [1, 1, 2, 3, 5, 8, 13, 21, 34]
```

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, ...)

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Pseudo Code:

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

Code & Output :

In [12]:

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

nterms = int(input("Enter the no. of times to display seq."))
print(" Fibonacci sequence: ")
for i in range(nterms):
  print(fibo(i))
```

```
Enter the no. of times to display seq.7
 Fibonacci sequence:
0
1
1
2
3
5
8
```

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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.**

Pseudo Code:

```
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)
print("\nUsing Sets")
using_set(a)
```

Code & Output :

In [21]:
```
## 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, 4, 6, 8, 15, 26, 33, 57, 62, 78, 89, 94, 99]
print("\n Without using Sets the list is : ")
lst_unique(a)

print("\n Using Sets the list is : ")
using_set(a)
```

```
 Without using Sets the list is :
1
4
6
8
15
26
33
57
62
78
89
94
99

 Using Sets the list is :
89
1
33
99
4
6
8
78
15
94
57
26
62
```

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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

Pseudo Code:

def isPrime():
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")

Code & Output :

In [18]:
```
## Question 5
def isPrime():
  num = int(input("Enter Number you would like to 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 entered is not Prime")
  else:
    print("Number entered is a Prime")

isPrime()
```

```
Enter Number you would like to to check         13
Number entered is a Prime
```

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