**String**

* Selecting sub sequence from the String: String is the sequence of the characters
* String is immutable (can use it , can’t change it )

Sel\_sub\_string.py

*#message='I'am looking for somone who is very dangerous.' # SyntaxError: invalid syntax*message = **'I\'am looking for somone who is very dangerous.'** *# no error*message = **"'I'am looking for somone who is very dangerous."** *# no error*print(message)

*#message2 = "Hey! i am "yogendra verma" and welcome to my World" # SyntaxError: invalid syntax*message2 = **'Hey! i am "yogendra verma" and welcome to my World'** *# no error*message3 = **'''"Hello!" i am back: and i am gonna 'finish' you "'''**print(message3)

str = (“Welcome to Digi World”)  
print(str[4]) --- o/p -- o  
print(str[1:4+1]) – o/p – elco  
print(str[1:]) -- elcome to Digi World  
print(str[:-2]) -- Welcome to Digi Wor

Find operator :

str = (“Welcome to Digi World”)  
y = (str.find(“c”))  
print(str[y:])  
y = (str.find(“yogi”)) --- it will give -1 as output   
y = (str.find(“yogi”)+4) --- it will give 3 as output  
a=(str.find(“o”))  
b=(str.find(“o”,a+1)) -- o Digi World

Input :

print(**"Hello "**)  
name=input(**"Type you name "**)  
print(name+**" Welcome to pyhton world "**)

len , str , int functions :

print(**"Welcome"**)  
name=input(**"Hello who are you? "**)  
print(**"Length of the Name : "**+str(len(name)))

x=(**"45"**)  
y=int(x)  
print(**"result is : "**,10+y)

Exp:

print(**"Hello"**)  
x=input(**"What is your name? "**)  
print(+**"Length of the Name : "**+str(len(name)))

Exp:

print(**"Hello"**)  
x=input(**"What is your name? "**)  
print(x+**" Length of the Name is : "**+str(len(x)))  
y=input(**"What is your age? "**)  
print(**"you will be "**+str(int(y)+1)+(**" in a year"**))

# Escape Sequences

|  |  |
| --- | --- |
| Escape sequence | Meaning |
| \’ | *Single quote* |
| \” | *Double quote* |
| \\ | *Backslash* |
| \n | *New line* |
| \t | *Tab* |
| \b | *Backspace* |

print("hello pytho\bn")

print("hello \"python\"")

print("hello\npython")

# Comments

# #this is the comment line (ctrl+/)

# Escape Sequences as normal

print("hello \n python")

print("hello \\n python")

print("hello \t python")

print("hello \\t python")

print(" \" \' ") # “ ‘

print(" \\\" \\\' ") # \” \’

# Escape Sequences Short cut as normal

print(r"hello \n python") # hello \n python

**Basic Mathematical Calculations**

|  |  |  |
| --- | --- | --- |
| **Operators** | **Description** | **Use** |
| + | Addition | Print(a+b) |
| - | Subtract | Print(a-b) |
| \* | Multiplication | Print(a\*b) |
| / | Float division | Print(a/b) |
| // | Integer Division | Print(a//b) |
| % | Modulo (gives reminder) | Print(a%b) |
| \*\* | Exponent | Print(a\*\*3) |
|  |  |  |

## **Python Operators Precedence**

|  |  |
| --- | --- |
| **Operators** | Precedence and associativity rule |
| Parenthesis | Highest |
| Exponent | Right to Left |
| \*,/ , // , % | Left to Right |
| +, - | Left to Right |

**Predefined Function**

print(round(2\*\*1.5, 4))

print(max(10,20,5))

print(str(5))

a = input(“pls enter name/number”)

**input(),int(),float()**

#int\_func\_

num1=int(input("Pls enter num1 number"))

num2=int(input("Pls enter num2 number"))

total=num1+num2

print("Total is :"+str(total))

**More inputs**

name , age =input("Pls Enter name and age").split()

#name , age =input("Pls Enter name and age").split(",")

print(name)

print(age)

**String Formaeting**

name ="yogi"

age = 25

print("Hello "+name+" your age is : "+str(age))

print("Hello {} your age is : {} ".format(name,age)) #python3

print(f"Hello {name} your age is : {age}") #python 3.6

num1,num2,num3 =input("Pls Enter three numers seperated by ,").split(",")

print(f"Avg. of the three numbers is : {(int(num1)+int(num2)+int(num3))/3}")

**String Slicing & Stem Argu.**

string = "Lucknow"

print(string[0])

print(string[-1])

#print(string[0:2])

print(string[-1:7])

print(string[:])

print(string[2:])

print(string[:4])

#Step argument [StartAgr:StopArg:StepArg]

print("Lucknow"[0:7:2])

print("Lucknow"[::-1])

**String Methods (len,lower,upper,titile,count)**

string="Lucknow delhi"

#print(len(string))

#print(string.lower())

#print(string.upper())

#print(string.title())

#print(string.count("L"))

print(f"charactor count is :{string.lower().count('l')}")

**Remove spaces from string**

string=" Lucknow "

print(string.lstrip())

print(string.rstrip())

print(string.strip())

**Remove & Find Method**

string="He is in Lucknow,Lucknow is very famous"

print(string.replace("is","was",2))

lko1=string.find("Lucknow")

print(string.find("Lucknow",lko1+1))

**Procedure – Functions**

*def sum(a,b):  
 return a+b  
print(sum(10,20))*

**def** sum(a,b):  
 **return** a+b  
x=input(**"entre 1st number : "**)  
y=input(**"entre 2nd number : "**)  
print(**"Sum of two numbers is: "** ,sum(int(x),int(y)))

**def** squire(a):  
 **return** a\*a  
x=input(**"entre a number : "**)  
print(**"Squire of a numbers is: "** ,squire(int(x)))

Exp:

**def** find(name):  
 **if** (name[0]==(**"Y"**)):  
 **return True  
 if** name[0]==(**"M"**):  
 **return True  
 else**:  
 **return False**x=input(**"enter your name"**)  
print(find(x))

*#print greatest number*

**def** greaterNum(a,b,c):  
 **if** (a > b):  
 **if** (a>c):  
 print(str(a)+**" A is a greater number"**)  
 **else**:  
 print(str(c)+**" C is a greater number"**)  
 **elif** (b>c):  
 print(str(b)+**" B is a greater number"**)  
 **else**:  
 print(str(c)+**" C is a greater number"**)  
greaterNum(2,5,31)

**Nested function**

# Gretest number

def greter\_num(a,b):

if a>b:

return a

else:

return b

#print(greter\_num(12,10))

def gtretest\_num(a,b,c):

if a>b and a>c:

return a

elif b>a and b>c:

return b

else:

return c

#print(gtretest\_num(8,12,10))

# Nested Def

def new\_gretest\_num(a,b,c):

bigger = greter\_num(a,b)

return greter\_num(bigger,c)

print(new\_gretest\_num(20,4,70))

# built in function to find greater number ‘ Max’

**def** greaterNum(a,b,c):  
 **return** max(a,b,c)  
print(**"Greatest number is : "**, greaterNum(15,22,6))

**def** findPosition(data,key):  
 first=data.find(key)  
 **return** (data.find(key,first+1))  
realData=(**"Hello welcome to python world,python is a very cool language"**)  
y=findPosition(realData,**"python"**)  
print(realData[y:])

**Decision making: (if block use only once, elif u can use as much u want )**x=input(**"enter a number"**)  
x=int(x)  
**if** (x<10) :  
 print(x\*x)  
**else**:  
 print(**"wrong number entered"**)

**AND & OR (check two ondition at a time)**

name="yogi"

age=27

#if name=="yogi" and age==25:

if name=="yogi" or age==25:

print("condition true")

else:

print("condition wrong")

**Exp: Find greater number**

a=input("enter 1st number")

b=input("enter 2nd number")

c=input("enter 3rd number")

if (a>b):

if (a>c):

print(str(a)+" A is a greater number")

else:

print(str(c)+" C is a greater number")

elif (b>c):

print(str(b)+" B is a greater number")

else:

print(str(c)+" C is a greater number")

**Basic keywords and terms**

**in keyword -**

string="Lucknow"

if 'l' in string:

print("it is there")

else:

print("it is not there ")

**Check for empty string -**

string="Lucknow"

if string:

print("String is not empty")

else:

print("String is empty")

**While loop**number = input("pls enter a number")

total=0

i=0

while i<len(number):

total=total+int(number[i])

i=i+1

print(f"Total is : {total}")

**def number(a):  
 i=1  
 while i<=a:  
 print(i)  
 i=i+1  
x=input("enter a number")  
number(int(x))**

**#find factorial  
  
def factorial(a):  
 result=1  
 while a>=1:  
 result=result\*a  
 a=a-1  
 return result  
x=int(input("enter a number for factorial"))  
y=factorial(x)  
print("factorial of "+str(x)+(" is : "),y)**

*# print AP (arithmetic progression)***def** Ap(a,d,l):  
 **while** a<=l:  
 print(a)  
 a=a+d  
a=int(input(**"Enter first number"**))  
d=int(input(**"Enter difference of AP Serise"**))  
n=int(input(**"Enter number of terms of AP serise"**))  
l=a+n\*d-d  
print(Ap(a,d,l))

*#Password program***while True**:  
 x=str(input(**"Pls enter your name? "**))  
 **if** x!=**"yogi"**:  
 **continue** y=str(input(**"Hello Yogi! Pls enter your passord: "**))  
 **if** y==**"yogi1234"**:  
 **break**print(**"Accress granted, Welcome Yogi"**)

*#Multiple Assignment*

x,y=10,20  
print(x)  
print(y)  
  
x,y=y,x  
print(x)  
print(y)

List:

* collection of items in a particular order
* in python squire brackets [] indicate a list
* Individual items in the list are separated by commas.

p = [1,2,3,4,**'mukesh'**,**'yogi'**,**'raju'**]  
p.append(100) *# adding at last position of the list*p.insert(2,**'rakesh'**)

p.insert(-1,**'suraj'**) *# shift the current value to the right (100)*

p.insert(100,**'mahi'**) *# this will take last position of the list*

p.insert(100,**'mahi'**.title()) *# title() method will capitalize the first letter*

p.insert(-40,**'mahiya'**) *# this will take 0th position of the list*  
p.remove(4) *# removing the element*p[1]=**'Singh'** *# replacing***del** p[0] *#deleting elements at position*

x= p.pop() *# delete the last element in the list and stor it in x variable*print(p)

print(x)

# # index() , reverse() , sort() , sorted() functions

animals=[**'dog'**,**'elephant'**,**'cow'**,**'tiger'**,**'lion'**,**'fox'**]  
x=animals.index(**'cow'**) *# get the position of the data/value*print(x)  
animals.reverse() *# reverse the whole list's alements*print(animals)  
animals.sort() *# sort the elements alphabeticaly*print(animals)

animals.sort(reverse=**True**) *# use both functions togather*print(animals)

y=sorted(animals) *# sort but keep original list safe*y.reverse()  
print(y)  
print(animals)

*#list in list*animals=[[**"orrange"**,**"banana"**,**"graps"**,**"mango"**],**'dog'**,**'elephant'**,**'cow'**,**'tiger'**,**'lion'**]  
print(animals[0][1][0])  
print(animals[1][1])  
  
*#list function*x=(**"yogendra"**)  
x=list(x)  
print(x)

**Problem1 :**

*#Sum of all digits*x=input(**"Enter a number "**)  
y=len(x)  
i=0  
sum=0  
**while** i<y:  
 sum=sum+int(x[i])  
 i=i+1  
print(**"sum of all digits : "**,sum)

**Problem2 :**

*#Making list using user input*x=int(input(**"How many items u want to store in the list"**))  
items=[]  
i=0  
**while** i<x:  
 y=str(input(**"Enter the items for ur list"**))  
 items.append(y)  
 i=i+1  
z=sorted(items)  
print(**"ur list in alphabatically order"**+str(z))  
print(**"Do u want to change any item in ur list? : yes/no"**)  
a=str(input())  
**if** a==**'yes'**:  
 b=input(**"which item u want to change in ur list? : "**)  
 c=z.index(b)  
 print(**"which item u want to place at this position ? "**+str(b))  
 t=str(input())  
 z[c]=t  
 print(**"your complete new list is "**+str(z))  
**if** a==**'no'**:  
 print(**"Thank you.."**)

**#For Loop**

*#For loop***for** i **in** range(12): --- this will print 0-11 numbers   
 print(i)

**for** i **in** range(2,12): --- this will print 2-11 numbers  
 print(i)

**Exp - Add all char**

temp =""

string=input("pls enter a string")

for i in range(len(string)):

if string[i] not in temp:

print(f"{string[i]}: {string.count(string[i])}")

temp=temp+string[i]

**Exp - add num till end****def** add(n):  
 sum=0  
 **for** i **in** range(1,n+1):  
 sum=sum+i  
 **return** sum  
print(**"Addition of N numbers : "**,add(5))

**Exp - add num till end**

num=input("Pls enter a number")

total=0

for i in num:

total=total+int(i)

print(f"total is : {total}")

**#step argument****for** i **in** range(1,10,2): -here 2 is a step argument(diff b/w two numbers)  
 print(i)

**#print Ap series using for loop (tn = a+(n-1)d) ?**

*# for loop in list*animals=[**'dog'**,**'elephant'**,**'cow'**,**'tiger'**,**'lion'**,[**"orrange"**,**"banana"**,**"graps"**,**"mango"**]]  
*#for animal in animals:  
 #print(animal.title())  
 #print(animal.upper())***for** animal **in** animals[5]:  
 print(animal.title())

**Problem :**

*# find element in list*items=[]  
**while True**:  
 a=input(**"want to add items in ur list ? yes/no"**)  
 **if** a==**'yes'**:  
 b=input(**"Items 1st"**)  
 **if** b **in** items:  
 print(**"this item is already in ur list "**)  
 **else**:  
 items.append(b)  
 **else**:  
 **break**print(items)

Diff b/w String and List:

1. List is the collection of anything and string is the sequence of characters
2. **List** is the mutable(Changeable, Variable) and **String** is immutable
3. To find character in list use indexed() and in string use find() operator

*#print only even numbers*x=list(range(1,11))  
**for** i **in** x:  
 **if** i%2==0:  
 print(i)

*#print squire of all numbers in list*x=list(range(1,11))  
y=[]  
**for** i **in** x:  
 a=i\*\*2  
 y.append(a)  
print(y)

*#print Quebe of all numbers in list*x=list(range(1,11))  
y=[]  
**for** i **in** x:  
 a=i\*\*3  
 y.append(a)  
print(y)

*#print squire of all numbers in list*x=list(range(1,11))  
y=[]  
**for** i **in** x:  
 a=i\*\*3  
 y.append(a)  
print(y)

*#continue statement in list*x=list(range(1,11))  
**for** i **in** x:  
 **if** i==5:  
 **continue** print(i)  
  
   
*#min , max sum functions in list*x=list(range(1,11))  
print(min(x))  
print(max(x))  
print(sum(x))

**Tuple :**

* Sequence of python objects like-list
* In tuple we use parenthesis instead of squire brackets
* list tuples are immutable means u can’t change it

*Exp:*t=(1,2,3,**'yogi'**,**'muku'**,[4,5,6])  
*#t[3]='mahi' # cant change the value in tuple*t[5].append(7)  
print(t)  
**for** i **in** t:  
 print(i)

***Dictionaries:***

* In dict. every items contains its own key word
* mapping : means every value of tuple is associated with its key call mapping
* in dictionaries we can store anything (like: int,char,string etc.)

d={**'key1'**:**'yogi'**,**'key2'**:**'muku'**,**'key3'**:**'123'**,**'key4'**:**'rajesh12'**}  
print(d[**'key2'**])  
  
d={**'name'**:**'muku'**,**'age'**:**'28 year'**,**'address'**:**'delhi'**}  
d[**'mob'**]=**'12345'**print(d)  
**del** d[**'mob'**]  
print(d)  
  
*#keys method - which will filter all the keys from dict. in a list*print(d.keys())

*#values method - which will filter all the values from dict. in a list*print(d.values())

*# for loop to print keys***for** i **in** d.keys():  
 print(i)

*# for loop to print values***for** i **in** d.values():  
 print(i)  
  
*#items : to print keys and values from tuple in a list*print(d.items())

*# for loop in items***for** i,j **in** d.items():  
 *#print(i)  
 #print(j)* print(**'key is : '**+str(i)+**" and it's value is : "**+str(j))  
  
*#check two dict.*d1={**'age'**:**'28 year'**,**'name'**:**'muku'**,**'address'**:**'delhi'**}  
**if** d==d1:  
 print(**"both are same dict."**)  
**else**:  
 print(**"both are different dict."**)  
  
*#sorted function in dict. - to print the keys in alphabatical oder***for** i **in** sorted(d.items()):  
 print(i)

**#nesting , list contains dict. here  
user1={'name':'muku','age':26,'address':'delhi'}  
user2={'name':'yogi','age':28,'address':'mumbai'}  
all\_user=[user1,user2]  
for i in all\_user:  
 for key,val in i.items():  
 print("\n"+"User's "+str(key)+' is '+str(val))  
  
  
  
# nesting , dict. contais list  
food={'Tiger':['cow','fox','bull'],'Lion':['graps','banana','orrange']}  
for key,val in food.items():  
 print(str(key)+"'s fav food is ")  
 for names in val:  
 print("\t"+str(names))***# nesting , dict. contains dict.*d={**'emp1'**:{**'name'**:**'yogi'**,**'age'**:28,**'address'**:**'delhi'**},  
 **'emp2'**:{**'age'**:28,**'name'**:**'muku'**,**'address'**:**'Mumbai'**}}  
**for** names,about **in** d.items():  
 print(**"\n"**+**"EmpId- "**+str(names))  
 **for** key,val **in** about.items():  
 print(**"\t"**+str(key)+**":"**+str(val))

***Set:***

* unordered collection of **unique** elements , it does not have any address or location or indexing
* set : it will remove the doubling of the values from the list because it contains only unique values

s={1,2,3,4}  
print(s)  
  
*#add method in set*x=set()  
x.add(3)  
x.add(4)  
x.add(5)  
x.add(6)  
x.add(4)  
print(x)  
  
l=[1,2,3,44,5,6,7,8,3,2,1,2,3,4,5,5,6,7,43,32,2,3,4,5,5,6,7,88,5,6,4,3,2,1,7,8,5,4,4,33,22,11,55]  
a=set(l)  
**for** i **in** set(a):  
 print(i)