Loop Positive Integer

```
even = 0
odd = 0
while True:
user_input = int(input("Enter a number :"))
user = user_input % 2
if user_input > 0:
if user == 0:
even = even + 1
elif user != 0:
odd = odd + 1
print(user_input)
else:
print ("Even number = ", even)
print ("Odd number = ", odd)
break
```

Fibonacci

```
num1 = 0
num2 = 1
fibonacci = num1 + num2
output = "0,1"
while fibonacci < 50:
output = output + "," + str(fibonacci)
num1 = num2
num2 = fibonacci
fibonacci = num1 + num2
print (output)
```

Fibonacci

```
num1 = 0
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fibonacci = num1 + num2
output = "0,1"
while fibonacci < 50:
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num1 = num2
num2 = fibonacci
fibonacci = num1 + num2
print (output)
```

Variable Name

```
Good Variable Name
my_string = "123"
_hello = "1"
mystring = 1
value1 = 1
#can have integers, lowercase/uppercase,
underscores
#the first character must be a lowercase/up-
percase or an underscore
Bad Variable Name
email@ = 2
1value = 2
```

Upper Lower List

```
mystr = "hello THERE"
print (mystr.upper()) #Upper case all the
letter in a word
print (mystr.lower()) #Lower case all the
letter in a word
print (mystr.capitalize()) #Capital only first
letter of first word
print (mystr.title()) #Capital first letter of
every word.
#List in python
shoppinglist = ['Dogs', 'Cats', 'Mouses',
'Giraffe']
print(shoppinglist[2]) #Will print 'Mouses'
#while loop
item_number = 0
while item_number < len(shoppinglist):
print ("list item:", shoppinglist[item_number])
item_number = item_number + 1
#for loop
other = 0
for cat in shoppinglist:
other = other + 1
# print ("List item:", cat)
print (other)
```

Calculator

```
def calc(num1, num2, operation):
if operation == "sum":
return sum(num1, num2)
elif operation == "product":
return product(num1, num2)
elif operation == "diff":
return diff(num1, num2)
elif operation == "div":
return div(num1, num2)
else:
print ("Unknown Operation")
def sum(a, b):
return a + b
def product(a, b):
return a * b
def diff(a, b):
return a - b
def div(a, b):
if b == 0:
return ("Error: Undefined value")
else:
return a // b
print(calc(12, 12, "sum"))
print(calc(9, 18, "diff"))
print(calc(20, 10, "product"))
print(calc(12, 4, "div"))
```

Guessing Game

```
#PWTK 1002
scores = 0
chances = 3
while chances > 0:
print ("-=-=-=-=-=-=-=-=-=-=-Guessing
Game-=-=-=-=-=-=-=-=-=-=-=-")
import random
mylist = ['apple', 'banana', 'papaya', 'melon',
'orange', 'grape', 'mango']
print (mylist)
random_item = random.choice(mylist)
```

Guessing Game (cont)

```
user_guess = input("Guess a word: ")
if user_guess == random_item:
print ("That's correct")
scores = scores + 100
print ("Scores =", scores)
else:
chances = chances - 1
print ("Chances left: ", chances)
if user_guess in mylist:
print ("That's incorrect")
else:
print ("Sorry, that is not even in the list!")
if chances == 0:
print ("The word was: ", random_item)
print ("Final score =", scores)
print ("GAME OVER!!!!!!!!")
```

Vocabulary

String	A list of characters such as numbers, letters, symbols
Variable	Holds a value and can be changed
Syntax	The set of rules that defines the combinations of symbols
Boolean	Identified True or False (true is not the same as True, false is not the same as False)
Modulo	Finds the remainder after division of one number by another

Radius of a Circle

```
while True:
#Ask the user for a radius of a circle
user_radius = input("What is the radius of the circle ")
#Convert the given radius to a floating point
radius = (float(user_radius))
#Make a variable called pi
pi = 3.1415
```

Radius of a Circle (cont)

```
#Calculate the area of the circle using exponents
area = (pi *(radius* * 2))
#Display the area of the circle to the user
print("The area of the circle is", area)
```

Basic Info

Basic Python Programming Language
:(colon) = syntax
Syntax (=) Grammar
Variable = Something that cahnges(numbers, words)
Number vs Strings: my var = 1 + 2
print my var = 3
my var 2 = "1" + "2"
print my var "12"
hello= "hello" + "It's me"
print hello = "helloIt'sme"
If 1==2:
When you do division in programming the program will add decimal even if it doesn't have the decimal EX: 10.0
my var = "yourname"[0] (the first letter in programming is 0 not 1)
== equal to
!= not equal to
> Greater than
>= Greater than or equal to
<= Less than or equal to
< Less than
print (len(fullname))
if 1 == 2:
print ("true")
else:
print ("false")
if 2 == 2:
print ("true")
else:
print ("flase")
print ("false2")

Palindrome

```
def isPalindrome(word):
reverse = ""
for item in user_word:
reverse = item + reverse
reverse_item = reverse
if reverse_item == user_word:
return True#(reverse_item, ("is a palindrome"))
else:
return False#(reverse_item, ("is not a palindrome"))
while True:
user_word = input("Enter a word: ")
length = len(user_word)
if user_word == 'quit':
break
else:
print (length)
numlen = 0
while numlen < length / 2 + 1:
if user_word[numlen] != user_word[-numlen-1]:
print (user_word,"is not a palindrom")
break
numlen += 1
else:
print (user_word,"is a palindrome")
```

Return Max Number

```
def max2(num1, num2):
maxvalue = num1
if num2 > maxvalue:
masvalue = num2
return maxvalue
def max3(num1, num2, num3):
maxvalue = num1
if num2 > maxvalue:
maxvalue = num2
if num3 > maxvalue:
maxvalue = num3
return maxvalue
```

Return Max Number (cont)

```
def maxlist(list):
maxvalue = list[0]
for num in list:
if num > maxvalue:
maxvalue = num
return maxvalue
print (maxlist([1,2,3,4,5]))
```

Binary

```
while True:
user_number = input("Put the number: ")
number = int(user_number)
binary_string = ''
while (number > 0):
remainder = (number % 2)
binary_string = str(remainder) + binary-
_string
number = (number // 2)
print ("binary string is", binary_string)
```

Loop Range

```
#Creating List
mylist = [1,2,3,4,5,6]
mylist2 = ['hi', 'hello', 'anything']
mylist3 = [1, 'hello', 2.5]
print (mylist)
print (mylist2)
print (mylist3)
#How to make a list with all numbers from
0-10
mynumbers = range(11) #0-10 (Number
starts with 0)
for num in mynumbers:
print (num)
mylist2.append('another item') #Adding item
in a list
print (mylist2)
```

Reverse

```
word = input("Input a word: ")
reverse = ""
letter_num = 0
'''
while letter_num < len(word):
reverse = word[letter_num] + reverse
letter_num = letter_num + 1
'''
for item in word:
reverse = item + reverse
print ("Reverse: ",reverse)
```

Command

# Hashtag	Add comment	# CAN WRITE ANYTHING HEREEE
''' (3 Apostr-ophe)	Long comment	''' ALSO HEREEEEE '''
print	To display something	print (var)
" "	Assign something in a variable	mystr = ("George")
int()	Set the number to interger	integer = int(20) #with no decimal
str()	Convert a variable to string	String = str(integer)
input()	Gain inform-ation from the user	Name = input(" Put your name here: "
float()	Convert the number with decimal	Num = float(2) #the answer will be 2.0
len()	Find the length of the string	num1 = ("Georg-e"),, num2 = len(num1) #Answer will be 6

List RandomChoice

```
import random
intlist = [1, 2, 3, 4, 5]
random_int = random.choice(intlist)
print (intlist, random_int)
fplist = [2.2, 3.5, 4.8, 6.2, 7.9]
random_fp = random.choice(fplist)
print (fplist, random_fp)
strlist = ['burger', 'cheese', 'ham', 'bacon',
'sandwich', 'pizza']
random_str = random.choice(strlist)
print (strlist, random_str)
mylist = [4, 6, 8, 11.4, 12.8, 17.6,'coco',
'latte', 'mocha']
random_item = random.choice(mylist)
print (mylist, random_item)
myvar1 = 1
myvar2 = 2
myvar3 = 3
varlist = [myvar1, myvar2, myvar3]
random_var = random.choice(varlist)
print (varlist, random_var)
```

Countdown

```
user_number = input("Please enter a
number: ")
number = int(user_number)
countdown_string = ""
while number > 0:
countdown_string = countdown_string +
str(number)
number = number - 1
#add the number to the string
#subtract 1 from the number
print (countdown_string)
```

Area of Triangle

```
# Pom Wintakorn 1002
def areaofTriangle(base, height):
return 0.5 *base* height
user_base = float(input("Enter the base of
the triangle: "))
```

Area of Triangle (cont)

```
user_height = float(input("Enter the height of the triangle: "))
print ("The area of the triangle is", areaofTriangle(user_base, user_height))
area = areaofTriangle(user_base, user_height)
def volumeofPrism(area, height):
return area * height
user_height2 = float(input("Enter the second height of the triangle: "))
print ("The volume of the triangular prism is", volumeofPrism(area, user_height2))
```

Hexadecimal

```
while True:
user_number = input("Put the number: ")
number = int(user_number)
#Loop the command
hex_string = ''
while (number > 0):
remainder = number % 16
if remainder == 10:
remainder = 'A'
elif remainder == 11:
remainder = 'B'
elif remainder == 12:
remainder = 'C'
elif remainder == 13:
remainder = 'D'
elif remainder == 14:
remainder = 'E'
elif remainder == 15:
remainder = 'F'
hex_string = str(remainder) + hex_string
number = number // 16
print ("hexadecimal string is 0x"+ hex_string)
```

Loop Review

```
#While loop
mylist = [1,2,3]
index = 0 #set to 0 because that is the first item in the list
while index < len(mylist):
print (mylist[index])
index = index + 1
#For loop
for item in mylist:
print(item)
```

List Practice

```
import random
intlist = [1, 2, 3, 4, 5]
random_int = random.choice(intlist)
print (intlist, random_int)
fplist = [2.2, 3.5, 4.8, 6.2, 7.9]
random_fp = random.choice(fplist)
print (fplist, random_fp)
strlist = ['burger', 'cheese', 'ham', 'bacon', 'sandwich', 'pizza']
random_str = random.choice(strlist)
print (strlist, random_str)
mylist = [4, 6, 8, 11.4, 12.8, 17.6,'coco', 'latte', 'mocha']
random_item = random.choice(mylist)
print (mylist, random_item)
myvar1 = 1
myvar2 = 2
myvar3 = 3
varlist = [myvar1, myvar2, myvar3]
random_var = random.choice(varlist)
print (varlist, random_var)
```

Number and String

"String" + "String"	Put both string together
Number + "String"	CRASH!

Number and String (cont)

Number + Number	Addition(Math)
"String" * "String"	CRASH!
"String" * Number	Print that string that number times
Number * Number	Multiplication(Math)
String ** String	CRASH!
String ** Number	CRASH!
Number ** Number	Exponent(Math)

Mathematics

+	Addition
-	Subtraction
*	Multiplication
/	Division (Result with floating point)
//	Division
**	Exponent
%	Modulo (Find remainder)
==	Equal to
>=	Greater than or equal to
<=	Less than or equal to
!=	Not equal to
<	Less than
>	More than

Multiplication Table

```
def multiplicationTable():
innum = int(input("Enter a number: "))
for i in range(1,11):
output = innum*i
print (str(innum) + "*" + str(i) + "=" + str(output))
multiplicationTable()
```