

Vocabulary

Variables	a value that can change, depending on conditions or on information passed to the program.
String	list of characters, symbols and could also have numbers.
Syntax	structure of a program.
Print	to display a value on the screen
Loop	when the instructions repeat over and over.
Integer Number	Whole number/ counting number
Float Number	The number in decimal
Modulo	Used to finds the remainder
Boolean	True/False
List	Writing consecutive words, numbers down, one below the other in []
Algorithm	A list of steps to finish something. Instructions that can be performed with or without a computer.
Code	Commands created to allow computer to perform the functions.

Addition

string + string	Combines that strings together (squished together)
string + number	Crash!
number + number	Addition (Math)

Random List

```
import random
intlist = [1,2,3 ,4,5]
random_int = random.choice(intlist)
print (intlist, random_int)
fplist = [1.0,2.0, 3.0 ,4.0 ,5.0]
random_fp = random.choice(fplist)
print (fplist, random_fp)
strlist = ["candy ", " marshmallows", " ice cream", " lolipop"]
random_str = random.choice(strlist)
print (strlist, random_str)
mylist = [1,2,3, 5.0,6.0 ,7.0, " Candy", " Ice cream", " Gum bears"]
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)
```

Counting Down

```
while True:
    use_r_number = input("Enter a number ")
    number = int (user_number)
    countdown_string = ""
    while number > 0:
        countdown_string = countdown_string + str(number) + "\n"
        number = number - 1
    print (countdown_string)
```

Returning largest value

```
#write a function that returns the largest of two values
# name: max2
# arguments: num1, num2
#return: the largest value
def max2 (num1, num2):
    max_value = num1
    if num2 > max_value:
        max_value = num2
    return max_value
print (max2 (2,3))
print (max2 (2,99))
print (max2 (2,55))
#write a function that returns the largest of three values
# name: max3
# arguments: num1, num2, num3
#return: the largest value
```



Area of Triangle

```
#write a function
#name: areaof Tri angle
#param eter: base height
#return: area
def areaof Tri angle (base,
height):
    return ba1/2*height
user_base= float( inp ut( " -
Enter the base of the triangle:
"))
user_h eight= float( inp ut( " -
Enter the height of the
triangle: "))
#function call
print ("The area of the triangle
is", areaof Tri angle (user_
base, user_h eight))
```

Function

float() Change number to be decimal number.

print() Show information that you want on the screen.

int() Change the number/string into a integer.

str() A list of number, letter and symbols.

input() Gain information from user.

len() The length of the string

returning largest value continue

```
def max3 (num1, num2, num3):
    max value = num1

    if maxvalue < num2:
        max value = num2
    if maxvalue < num3:
        max value = num3
    return maxvalue
print (max3 (8,4,3))
#write a function that returns
the largest number in the list
#name : maxlist
#argument: list
#return: the largest value in
the list
```

Output

```
x = false
print (x and True or 1 ==1)
#OUTPUT = TRUE
```

Ask input from user

```
user_input = input("Enter a
number:")
user_input = int (user_ input)
print (user_ inp ut*5)
```

mylist, print all item using loop

```
mylist = [1,2,3]
for item in mylist:
    print (item)
```

Area of Circle

```
def areaOfCircle (r): #r=radius
    pi = 3.1415
    area = pi *2
    return area
user_r adius = input ("Enter the
radius :")
radius = float( use r_r adius)
print ("The area of the circle
is", areaOf Cir cle (ra dius))
```

Receives number from user. State if Neg,Pos,Zero

```
while True:
    use r_input = input
("Enter a number: ")
    use r_input = int(us
er_input)
    if user_input > 0:
        print (user_
input, "is positi ve." )
    elif user_input < 0:
        print (user_
input, "is negati ve." )
    elif user_input == 0:
        print (user_
input, "is zero.")
```

F

```
def myprint (text): #text is
(something your giving to the
function) an argument (param
eter) to the function
    print' #' str(text) +
""')
    return #This exits the
function
myprint(1)
myprin t(2.5)
myprint ("he llo ")
```



F (cont)

```
> def myprint2 (text, decoration):
    print (decoration + text + decoration)
    return
myprint2 ("hello", "+++")
myprint2 ("hello", "_=_=_=")
myprint2 ("hello", ">>>>>>")
def double (number):
    return number * 2 #return value
print(double(2))
myvar = double(double(3)) #same as
double (6) because double(3) == 6
print(myvar)
```

Countdown Machine

```
user_number = input("What number
do you want to count down?")
number = int(us er_ number)
countd own_ string = ' '
while number > 0:
countd own_ number =count dow -
n_ s tring + str(nu mber) + " "
number = number -1
#print (nu mber)
print (count dow n_ s tring)
```

Multiplication and Exponents

```
string *    Combines that string in the
number      amount of numbers.

string      Crash!
*string

number *    Multiple (Math)
number

string      Crash!
**string

number **   Exponent (Math)
number

string **   Crash!
number
```

Volume Of Prism

```
#Write the function compute
volume of prism
#name: volume rOf Prism
#Param eter: base, height,
prism_ height
#return volume
def volume OfPrism (base,
height, prism_ hei ght):
    #area * prism_ height
    volume = areaOf Tri -
angle (base, hei ght)* prism_ -
height
    return volume
user_p ris m_ h eight = float( -
inp ut( " Enter the prism
height: "))
print ("The volume of the prism
is", volume OfPrism (user_ base,
user_ h eight, user_p ris m_ h -
eight))
```

Operations

```
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 a // b
    else:
        print ("Er -
ror ")
def calc(num1, num2, operat -
ion):
    if operation == " sum ":
        return sum
(num1, num2)
    elif operation == " pro -
duc t":
        return product
(num1, num2)
    elif operation == " dif -
f":
        return diff
(num1, num2)
    elif operation == " -
div ":
        return div
(num1, num2)
print (calc(1,2, " sum "))
print (calc(4,2, " dif f"))
print (calc( 10,0, " div "))
print (calc( 2,12, " pro duc -
t"))
```



Function

```
#how to create a function 1
def Nameof Fun ction (myvar1,
myvar2):
    print ("he llo ")
    return myvar1, myvar2
#function call
Nameof Fun ction (2, 3)
#Code above, prints only hello
#2
def Nameof Fun ction (myvar1,
myvar2):
    print ("he llo ")
    return myvar1 + myvar2
#function call
Nameof Fun ction (2, 3)
myanswer = Nameof Fun ction
(4,1)
print (myanswer)
#code 2 prints out hello hello
and 5
```

Print all even numbers from -100 to -1.

While loop

```
mynum = -100
while mynum <-1:
    print (mynum)
    mynum= mynum + 2
```

Reverse Word

```
while True:
    word = input( " Please
enter a word: ")
    index = 0
    reverse = ''
    while index < len(word):
```

Reverse Word (cont)

```
> reverse = word[index] + reverse
index = index + 1
print ("Reverse ", reverse)
```

Examples

```
print (2) - integer
print (2.5) - floating point
print ("He llo ") - string
print (mystr) - variable
print (mystr, " hi", 2,1,0) - -
commas
mystr = " Hi"
mystr - name
" Hi" - value can change
print (int(1.5)) - 1
print (int ("2")) - 2
print (float (1)) - 1.0 anything
to a float
```

Naming Convention

Rules for giving names

- letters
- numbers (Can't be the first letter)
- underscore _

Valid

- _mystr
- my3
- Hello_ there

Invalid name

- 3my="hi " -- cannot start with number
- firstname ="hi "

Naming Convention (cont)

```
> = first-name
```

returning largest value continue2

```
def maxlist (list):
    max value =(list[0])
    for item in list:
        if maxvalue <
item:
            max -
value = item
    return maxvalue
print (maxli st( ran ge( 0,1 -
23)))
```

