

Vocabulary

Variable	Holds a value and can be change
String	a list of characters such as numbers, letters, symbols
Integer number	Whole number/counting number
Float number	Number in decimal
Syntax	Grammar/Structure of language
Boolean	True/False
length	the length of the string

Function

Print()	Show information that you want on screen
Int()	Change number to be number integer
input()	receives info from the user
str()	converts the value to a string
float()	converts the value to a floating point
len()	The length of the string
#	comment,no effect
"""	Multi-line comment

Multiplication and Exponents

string * number	stringstring...(number)
string* string	Fail!!
number * number	Multiply
string ** string	Fail!!
number ** number	Exponent
string ** number	Fail!!

Convert to Binary String

```

user_number = ''

while user_name != ''
user_number = input("Enter a number to
convert to binary")
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)

```

Simple Function

```

def printdefinitions(word):
    if word == ("va ria -
ble "):
        print ("""A
variable is the value that can
change " " ")
        elif word == ("fu nct -
ion "):
            print ("""A
function is the blog of code
that can be reused " " ")
            elif word == ("pa ram -
ete r"):
                print ("""A
parameter is something given to
the functi on""")
                elif word == ("ag rum -
ent "):
                    print ("""An
agrumment is something given to
the functi on""")
                    elif word == ("st rin -
g"):
                        print ("""A
string is a lsit of charac ter -
s""")
                        elif word == ("fu nction
call"):
                            print ("""A
function call makes your
function run" " ")
                            else:
                                print ("Un known
word")
                                return
                                while True: #keep the loop go
                                forever
                                    use r_input = input( " -
Enter word: ")

                                pri ntd efi nit ion -
s(u ser _input)

```

Simple Function

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    else:
        print ("Un known
word")
    return
while True: #keep the loop go
forever
    use r_input = input( " -
Enter word: ")

    pri ntd efi nit ion -
s(u ser _input)
Enter word: hello
```

Simple Function (cont)

> Unknown word
Enter word: function
A function is the blog of code that can be reused
Enter word: variable
A variable is the value that can change
Enter word:
area/volume of

Symbols

==	equal to
!=	not equal to
<	less than
<=	less than or equal to
>	greater than
>=	greater than or equal to
+	add
-	subtract
*	multiply
/	divide and quotient is float
//	divide and quotient is integer
**	exponent
%	modulo: the remainder

Addition

string + string	combine together
string + number	Fail
number + number	plus
number - number	minus

Sample code

```
mystr = "hellp THERE"
print (mystr.up per()) -all
letters will become big HELP
THREE
print (mystr.lo wer()) -all
letters will become small help
three
print (mystr.ca pit ali ze()) -
First letter of first word will
become big Help three
print (mystr.ti tle())- first
letter of each words will become
big Help Three
```

Example

Print (2) – integer
Print (2.5) – floating point
Print ("Hello") – 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
```

Modulo/Remainder %
print (4%2) → 0
print (30%7) → 2

Area of the circle

```
def areaOfCircle(r):
    pi = 3.1415
    area = pi*r*2
    return area
user_radius = float(input("Enter the radius:
"))
print('The area of the circle is',areaOfCircle(user_radius))
```

MaxValue

```
def max2(num1,num2):
    max value = num1
    if num2 > maxvalue:
        max value = num2

    return maxvalue
print (max2( 4,5))
print (max2( 33,5))
def max3(num1 ,num2, num3):

    max value = num1
    if num2 > maxvalue:
        max value = num2
    if num3 > maxvalue:
        max value = num3

    return maxvalue
print (max3( 1,2,3))
5
33
3
```

Maxlist

```
def maxlist(list):
    max value = list[0]
    for item in list:
        if item >
            max -
    maxvalue:
        value = item
        return maxvalue
mylist = [1,2,3 ,4, 55, 66, -
777 ,0,1]
print( max list(m ylist))
777
```

Naming Conventions

Rule for giving name

- letter
- numbers
- under score_

Valid name

- _myStr
- my3
- Hello_ there

Invalid name

- 3my="hi " -- cannot start with number
- first name = " hi"
- first-name
- first+name

Capital letter

```
name = "tim GIRARD"

print (name.upper()) → TIM GIRARD
print (name.lower()) → tim girard
print (name.capitalize()) → Tim girard
print (name.title()) → Tim Girard
```

circle area

```
def areaofcircle(radius):
    if radius <= 0:
        return " Error:
invalid raadius s"
    pi = 3.1415
    area = pi (radius*2)
    return area
user_r adius = float( inp ut( " Enter the radius: "))
print('The area of the circle is', areaof cir cle (us er_ rad ius))
Enter the radius: 2
The area of the circle is 12.566
Enter the radius: 0
The area of the circle is Error:
invalid raadius
```

Countdown Number

```
user_number = input("Please enter the
number")
number = int(user_number)
countdown_string = ""
while number>0:
    countdown_string = countdown_string +
str(number)
    number = number - 1
print (countdown_string)
```

Palindrome

```
def isPalindrome(word):
    reverse = ""
    letter_num=0
    while letter_num < len(word):
        reverse = word[letter_num] + reverse
        letter_num += 1
    if reverse == word:
        return True
    else:
        return False

while True:
    user_input = input("Enter a word")
    if user_input == "quit":
        break

    isPal = isPalindrome(user_input)

    if isPal == True:
        print(user_input, 'is a palindrome')
    else:
        print(user_input, 'is not a palindrome')
        break

Enter a word: 113311
113311 is a palindrome
Enter a word: 123
123 is not a palindrome
Enter a word: quit
```

Short word per line

```
mystr = "Hello"
letter_num = 0
while letter_num < len(mystr):
    print(mystr[letter_num])
    letter_num += 1
H
e
l
l
o
```

Basic Function

```
def myprint(text):
    print("#" + str(text) + "\n")
    return
myprint("opal")
hello it's bacon

def myprint_with(text, decoration):
    print(decoration + str(text) + decoration)
    return
myprint_with("opal", "m")
hello it's bacon

opal
mopal

def double_it(number):
```

Basic Function (cont)

```
> return number * 2
print(double_it(3))
print(double_it(double_it(4)))
hello it's bacon
opal
mopal
6
```

