

### 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	stringsting...(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 == ("variable"):
        print ("""A variable is the
value that can change""")
    elif word == ("function"):
        print ("""A function is the
blog of code that can be
reused""")
    elif word == ("parameter"):
        print ("""A parameter is
something given to the
function""")
    elif word == ("agruement"):
        print ("""An agrument is
something given to the
function""")
    elif word == ("string"):
        print ("""A string is a
lsit of characters""")
    elif word == ("function call"):
        print ("""A function call
makes your function run""")
    else:
        print ("Unknown word")
    return
while True: #keep the loop go
forever
    user_input = input("Enter word:
")

printdefinitions(user_input)

```



### Simple Function

```
def printdefinitions(word):
    if word == ("variable"):
        print("""A variable is the
value that can change""")
    elif word == ("function"):
        print("""A function is the
blog of code that can be
reused""")
    elif word == ("parameter"):
        print("""A parameter is
something given to the
function""")
    elif word == ("argument"):
        print("""An argument is
something given to the
function""")
    elif word == ("string"):
        print("""A string is a
list of characters""")
    elif word == ("function call"):
        print("""A function call
makes your function run""")
    else:
        print("Unknown word")
    return
while True: #keep the loop go
forever
    user_input = input("Enter word:
")

    printdefinitions(user_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.upper()) -all letters
will become big HELP THREE
print (mystr.lower()) -all letters
will become small help three
print (mystr.capitalize()) -First
letter of first word will become
big Help three
print (mystr.title())- 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):
    maxvalue = num1
    if num2 > maxvalue:
        maxvalue = num2

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

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

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

### Maxlist

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

### Naming Conventions

Rule for giving name

- letter
- numbers
- underscore\_

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"
    pi = 3.1415
    area = pi (radius*2)
    return area
user_radius = float(input("Enter the radius: "))
print('The area of the circle is', areaofcircle(user_radius))
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(user_input):
        reverse =
user_input[letter_num]+reverse
        letter_num = 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
parindorm')
    else:
        print (user_input,'is not
parindorm')
        break
Enter a word113311
113311 is parindorm
Enter a word123
123 is not parindorm
Enter a wordquit
```

### Short word per line

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

### Basic Function

```
def myprint(text):
    print (" " + str(text) + " ")
    return
myprint("opal")
hello it's bacon
opal
def myprintnew(text, decoration):
    print (decoration + str(text)
+ decoration)
    return
myprintnew("opal", "m")
hello it's bacon
opal
mopalm
def doubleit(number):
```

### Basic Function (cont)

```
    return number * 2
print (doubleit(3))
print (doubleit(doubleit(4)))
hello it's bacon
opal
mopalm
6
```

