Addition

string + string	combine together
string + number	crash
number + number	math-addition

Math

==	equal to
!=	no equal to
<	less than
>	more than
<=	less than or equal to
/	divide and quotient is float
//	divide and quotient is integer
**	exponent
%	modulo: remainder

Naming Convention

```
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
```

List code

```
import random
inlist = [1, 2, 3, 4, 5]
random_int =
random.choice(inlist)
print(inlist, random_int)
fplist = [1.1, 1.2, 1.3, 1.4, 5]
random_fp = random.choice(fplist)
print(fplist, random_fp)
strlist = ["tien", "love", "opal"]
random_str =
random.choice(strlist)
print(strlist, random_str)
mylist = ["opal", 1, 1.2]
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)
[1, 2, 3, 4, 5] 1
[1.1, 1.2, 1.3, 1.4, 5] 5
['tien', 'love', 'opal'] tien
['opal', 1, 1.2] 1.2
[1, 2, 3] 3
```

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):
    return number * 2
print (doubleit(3))
print (doubleit(doubleit(4)))
hello it's bacon
***opal***
mopalm
6
16
```

maxlist

```
def maxlist(list):
    maxvalue = list[0]
    for item in list:
        if item > maxvalue:
            maxvalue = item
```

maxlist (cont)

```
    return maxvalue
mylist = [1,2,3,4,55,66,777,0,1]
print(maxlist(mylist))
```

```
777
```

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
>>>
```

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
```

Multiplication and Exponent

string * number	combine that string
string * string	crash
number * number	Multiply (Math)
string ** string	CRASH!!
number ** number	Exponent (Math)
String ** number	CRASH!!

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
```

Sample code

```
mystring = "hello"
print (mystring)
firstname = input( "what is your
first name?")
lastname = input( "what is your
last name?")
fullname = firstname + " " +
lastname
print (fullname)
letternumber = int(input( " what
is letter number? " ))
if letternumber >len(fullname):
    print ( " invalid letter
number, try again! " )
else:
    letter = (
fullname[letternumber] )
    print (letter)
    numberletter = int(input( "how
many times to print letter " ))
    if numberletter >100:
      print ( " too many letters
to print! " )
    else:
        print (letter *
numberletter )
```

Guessing game code

```
print("'-'-'-'-'-'-'-'-'-'-'-'")
print("Guessing Game")
print("'-'-'-'-'-'-'-'-'-'-'-'")

import random
mylist = ['opal', 'game', 'pin',
'timmy', 'tupkung']
random_item =
random.choice(mylist)
print("Words :",mylist)
```

Guessing game code (cont)

```
chance = 5
score = 0
while chance > 0:
    user_guess = input("Guess a
word: ")
    if user_guess == random_item:
        print("That's correct!")
        score = score+100
        print ("score: ",score)
        print ("chance remaining:
",chance)
        random_item =
random.choice(mylist)
    else:
        chance = chance-1
        if user_guess in mylist:
            print("Sorry, wrong
choice!")
        else:
            print("Sorry, That
is not even in the list")
        print("chance: ",chance)
print ("Game over! The word was",
random_item)
print ("Final score is :", score)
```

reverse

```
reverse = ""
letter_num = 0
while True==True : #loop will go
forever
    user_input = input('type in a
string: ')
    while letter_num <
len(user_input):
        reverse =
user_input[letter_num] + reverse
        letter_num = letter_num + 1
    if user_input == reverse:
```

reverse (cont)

```
        print("user_input is the
parindorm")
    else:
        print("user_input is not a
parindorm")
```

```
type in a string: 235
user_input is not a parindorm
type in a string: 12021
user_input is not a parindorm
```

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
```

Function

print()	Show information that you want on the screen
int()	change the number to be number integer
float()	change the number to be number decimal
input()	Gain information from user
str()	A list of letter, number and symbols
len()	The length of the string
#	comment, no effect

Convert to binary

```
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)
```

Definition

String	list of letters/symbol/numbers
Variable	value that can be changed
Integer	whole number
Floating Point	decimal
Syntax	grammar/structure
Boolean	True/False

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
```

simple function

```
def printdefinitions(word):
    if word == ("variable"):
        print ("""A variable is the
value that can change""")
```

simple function (cont)

```
    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 == ("agrument"):
        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)
```

```
Enter word: hello
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 triangle

```
def areaofTriangle(b,h):
    return 0.5 b h
user_base = float(input('Enter the
base of triangle: '))
user_height = float(input('Enter
the height of the trianglr: '))
print('The area of triangle is',
areaofTriangle(user_base,
user_height))
def volumeofprism(b,h,l):
    volume = areaofTriangle(b,h) *
l
    return(volume)
user_base = float(input('Enter the
base of triangle: '))
user_height = float(input('Enter
the height of the trianglr: '))
user_length = float(input('Enter
the length of the triangle: '))
print('The volume of prism is',
volumeofprism(user_base,
user_height, user_length))
```

```
Enter the base of triangle: 6
Enter the height of the trianglr: 6
The area of triangle is 18.0
Enter the base of triangle: 6
Enter the height of the trianglr: 6
Enter the length of the triangle: 6
The volume of prism is 108.0
```