

Addition

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

Data Types

String	a list of characters e.g. "abc123-\$%^", or empty string ""
Integer	whole numbers, and negative numbers e.g. -5, 0, 2, 99
Floating Point	decimal numbers e.g. 1.5, 2.0, -2.99
Boolean	True or False

True and False

True or anything is always True
False and anything is always False

Math

==	equal to
!=	no equal to
<	less than
>	v
<=	less than or equal to
>=	more than or equal to
%	Modulo, Find the remainder

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

Area of Circle

```

"""
Python Intro Assignment #2
name
student number
"""

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

```

Conditionals

If.....	If the statement is true then do
:then.....	command under then else do
else.....	command under else
while.....	While this is true loop the command under the conditional
While True	loops forever
for each item in name of list	For every item in the list repeat the command under the loop that many times. (a string is a list too)

List

```

#what do you think will be the output of the following code:
mastr = " hel lol 23" # string is just a list of characters
number = [1,2,3 ,4,5,6]
print (number)
shoppi nglist = ['shoe s', 'ba - gs' , 'p ant s', 'sh irts'])
#how to add an item at the end of the list
shopping. append ('t ies')
print (shopp ing list)
for martin in shoppi nglist
    print ('"' + martin + '"')

```



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Add str

```
number1 = 1.0
number2 = 2.0
sum = str(number1) + str(number2)
print(sum)
Ans: 3.0
```

Define

```
def bacon():
    print("hello it's bacon")
    return
bacon()
Ans: hello it's bacon
def myprint(text):
    print("#" + str(text) + "#")
    return
myprint(1)
Ans: 1
def myprintnew(text, decoration):
    print(decoration + str(text) + decoration)
    return
myprintnew(1, "+++ ")
myprintnew(555, "+++ ")
Ans: +++1+++
+++555+++
def doubleIt(number):
    return number * 2
print(doubleIt(5))
myvar = 12
```

Define (cont)

```
> myvar = doubleIt(myvar)
print(myvar)
Ans: 10, 24
def areaOfCircle(r):
    if r <= 0:
        return "error: invalid radius"
    pi = 3.1415
    area = pi*r**2
    return area
user_radius = input("Enter the radius: ")
r = float(user_radius)
print('The area of the circle is', areaOfCircle(r))
```

mix the item

```
mystr = "hello123"
numbers = [1,2,3,4,5,6]
print(numbers)
shoppinglist = ['shoes', 'bags', 'pants', 'shirts']
print(shoppinglist)
mixed = [1, 'hello', 2.5, True, False]
print(mixed)
```

Volume of prism

```
user_base = float(input("Enter the base of triangle: "))
user_height = float(input("Enter the height of the triangle: "))
user_length = float(input("Enter the length of the triangle: "))
def volumeOfPrism(b,h,l):
    volume = 1/2 * b * h * l
    return volume
print("The volume of the prism is", volumeOfPrism(user_base, user_height, user_length))
```

Function Largest Value

```
def max2(num1,num2):
    largestvalue = num1
    if num1 > num2:
        largestvalue = num1
    else:
        largestvalue = num2
    return largestvalue
def max3(num1, num2, num3):
    if num1 > num2 and num1 > num3:
        largestvalue = num1
    elif num2 > num3 and num2 > num1:
        largestvalue = num2
    else:
        largestvalue = num3
    return largestvalue
```

Function Largest Value (cont)

```
> print (max3(9,100,25))
print (max3(69,85,1))
print (max3(75,9,33))
def maxlist (list):
    largestvalue = list [0]
    for item in list:
        if item > largestvalue:
            largestvalue = item
    return largestvalue
mylist = [1,2,3,4,103,100,89,57]
print (maxlist(mylist))
```

Vocabulary

Variable	hold a value and can be changed
String	a list of characters such as number, letter, symbol
Integer	Whole number / counting number
Input	Gain information
Float	The number in decimal number
Syntax	Grammar/Structure of language
Modulo	Find the remainder
Boolean	True/False
Function	define block of code that can reuse

Vocabulary (cont)

Parameter	some thing you give to the function
Argument	some thing you give to the function
function call	Something that make the fuction work

Function

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

Naming Convention

Rule for giving name

- letter
 - numbers
 - underscore _
- Valid name
- _myStr
 - my3

Naming Convention (cont)

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

Sort word per line

```
myst = "Hello" letter_num = 0 while
letter_num < len(myst): print (myst[lette-
r_num]) letter_num = letter_num + 1
```

H
e
l
l
o

Number to Hex

```
user_number = input("please
enter a number: ")
number = int(us er_ number)
hex_string = ' '
while (number > 0):
    rem aider = number % 16
    if remainder == 10:
        rem aider = 'A'
    elif remainder == 11:
        rem -
aider = 'B'
    elif remainder == 12:
        rem -
aider = 'C'
    elif remainder == 13:
        rem -
aider = 'D'
    elif remainder == 14:
```

Number to Hex (cont)

```
> remainder = 'E'
elif remainder == 15:
    remainder = 'F'

hex_string = str(remainder) + str(hex_s-
tring)
number = number // 16
print ("Hexadecimal string is 0x", hex_st-
ring)
```

Random

```
import random
intlist = [1,2,3 ,4,5]
random_int = random.choice(i -
ntlist)
print (intli st, ran dom _int)
fplist = [1.69, 2.6 -
9,3.69 ,4.6 9, 5.69]
random_fp = random.choice(f -
plist)
print (fplis t,r and om _fp)
strlist = ['one' , 't wo' , 't -
hre e', 'fo ur' , 'f ive']
random_str = random.choice(s -
trlist)
print (strli st, ran dom _str)
mylist = [1,1.6 9, ' one']
random_item = random.choice -
e(m ylist)
print (mylis t,r and om _item)
myvar1 = 1
myvar2 = 2
myvar3 = 3
varlist = [myvar 1,m yva r2, -
myvar3]
random_var =random.m.c hoi ce( -
var list)
print (varli st, ran dom _var)
```

Palindrome

```
User_input = input("Type in an
string: ")
reverse = " "
for letter in User_i nput:
    reverse = letter +
reverse
print ("Re verse: ", reverse)
palindrome = reverse
if User_input == palind rome:
    print ("you input is
palind rom e")
else:
    print ("you input is not
palind rom e")
```

Palindrome 2

```
while True:
    use r_input = input( " -
Enter the word: ")
    if user_input == " qui t"
:
        break
    print (len(u ser _in -
put))
    reverse = " "
    for letter in user_i -
nput:
        reverse = letter
+ reverse
    pal indrome = reverse
    if user_input == palind -
rome:
        print (user_ -
inp ut, " is palind rom e")
    else:
        print (user_ -
inp ut, " is not palind rom e")
```

Palindrome 3

```
def isPali ndr ome (word) :
    reverse = " "
    for letter in user_i -
nput:
        reverse = letter
+ reverse
    pal indrome = reverse
    if palind rome:
        return True
    else:
        return False
```

```
while True:
    use r_input = input( " -
Enter the word: ")
    if user_input == " qui t"
:
        break
    print (len(u ser _in -
put))
    ispal = isPali ndr ome -
(us er_ input)
    if ispal == True:
        print (user_ -
inp ut, "is a palind rom e")
    else:
        print (user_ -
inp ut, "is not a palind rom e")
```

Spelling a string out in reverse code

```
word = input("Type in an word:
")
reverse = " "
for letter in word:
    reverse = letter +
reverse
print ("Re verse: ", reverse)
```



Area of triangle

```
user_base = float(input("Enter
the base of triangle: "))
user_height = float(input("Enter the height of the
triangle: "))
def areaOfTriangle(b,h):
    area = 1/2 * h
    return area
print("The area of the triangle", areaOfTriangle(user_base, user_height))
```

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
```

Print Name

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

Name strip

```
firstname = input("what is your
first name? ")
lastname = input("what is your
lastname? ")
fullname = firstname + " " +
lastname
print("Your fullname is ")
print(fullname)
letter_number = input("what is
letter number? ")
mynumber = int(letter_number) -
1
if (mynumber) > len(fullname):
    print("invalid letter
number, try again")
else:
    print(fullname[mynumber])

repeat = input("how
many times you want to print the
letter? ")
myrepeat = int(repeat)
if (myrepeat) > 99:
    print("too many
letter!")
else:
    print(fullname[mynumber] * (myrepeat))
```

Reverse Word

```
while True:
    word =
input("Please enter a word")
    index = 0
    reverse = ''
    while
int(index) < len(word):
        reverse = word[index] +
(reverse)
    index = int(index) + 1
    print("Reverse: ",
reverse)
```

Countdown Code

```
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
print(countdown_string)
```

This prints the true or false value using boolean

```
print(True)
print(2 < 3)
print(2 != 2)
```

Convert to binary

```
user_number = ' '
while user_number != '0' :
    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)
```

Print definition

```
def printdefinition(word) :
    if word == " Variable" :
        print ("""
        A variable is
something that has value. Also
it can change
""")
    elif word == " Function" :
        print ("""
        A function is
define block of code that can
reuse
""")
    elif word == " Parameter" :
        print ("""
        A parameter and
argument are something you give
to the function
```

Print definition (cont)

```
> """
elif word == "Function call" :
    print ("""
    A function call is something that make
the function work
""")
elif word == "String" :
    print ("""
    A string is a list of characters
""")
else:
    print ("Unknow word")

return

user_input = input("Enter the word")
printdefinition(user_input)
```

Guessing Game

```
"""
Group Members: Mind and Gam
Class: 10-05
"""
chance = 5
score = 0
mylist = ['coke ', 'bacon',
'chicken', 'pocky', 'pepsi',
'pizza']
import random
random_item = random.choice(mylist)
while chance > 0:
```

Guessing Game (cont)

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

print ("Words:", mylist)

user_guess = input("Guess the word: ")
if user_guess == random_item:
    score = score+100
    print ("That's correct! Score:", score)
    random_item = random.choice(mylist)
else:
    chance = chance-1
    if user_guess in mylist:
        print ("Sorry, wrong choice!")
        print ("Chances Remaining:",
chance)
    else:
        print ("Sorry, that is not even in the
list")
        print ("Chances Remaining:",
chance)
print ("Game Over! The word was",
random_item)
print ("Final Score:", score)
```

For-Loop with List:

```
forlist = [3, 4, 5, 2, 1]
for item in forlist:
    print(item)
```

While Loop with List

```
thelist = [4, 3, 2, 1, 0]
index = 0 # start at the first
item
while index < len(thelist):
    print (thelist[index])
#prints each item
index = index + 1
```



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