

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	loops forever
True	
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 = "hello123" # string is
just a list of characters
number = [1,2,3,4,5,6]
print (number)
shoppinglist =
['shoes','bags','pants','shirts'])
#how to add an item at the end of
the list
shopping. append('ties')
print (shoppinglist)
for martin in shoppinglist
    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
myvar = doubleIt(myvar)
```

Define (cont)

```
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

```
my_str = "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: "))
```

Volume of prism (cont)

```
user_lenght = float(input("Enter
the lenght 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_he
ight,user_lenght))
```

Function Largest Value

```
def max2(num1,num2):
    largestvalue = num1
    if num1 > num2:
        num1 = largestvalue
    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
print (max3(9,100,25))
print (max3(69,85,1))
print (max3(75,9,33))
def maxlist (list):
    largestvalue = list [0]
```



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Function Largest Value (cont)

```
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
Parameter	some thing you give to the function
Argument	some thing you give to the function
function call	Something that make the function 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
- Hello_there
Invalid name
- 3my="hi" -- cannot start with number
- first name="hi"
- first-name
- first+name

Sort 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

Number to Hex

```
user_number = input("please enter a number: ")  
number = int(user_number)  
hex_string = ' '  
while (number > 0):  
    remainder = number % 16  
    if remainder == 10:  
        remainder = 'A'  
    elif remainder == 11:  
        remainder = 'B'  
    elif remainder == 12:  
        remainder = 'C'  
    elif remainder == 13:  
        remainder = 'D'  
    elif remainder == 14:  
        remainder = 'E'  
    elif remainder == 15:  
        remainder = 'F'  
  
    hex_string = str(remainder) + str(hex_string)  
    number = number // 16  
print ("Hexadecimal string is 0x", hex_string)
```

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Random

```
import random  
  
intlist = [1,2,3,4,5]  
random_int =  
random.choice(intlist)  
print (intlist,random_int)  
  
fplist =  
[1.69,2.69,3.69,4.69,5.69]  
random_fp = random.choice(fplist)  
print (fplist,random_fp)  
  
strlist =  
['one','two','three','four','five']  
random_str =  
random.choice(strlist)  
print (strlist,random_str)  
  
mylist = [1,1.69,'one']  
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)
```

Palindrome

```
User_input = input("Type in an  
string: ")  
reverse = ""  
for letter in User_input:  
    reverse = letter + reverse  
print ("Reverse: ", reverse)  
palindrome = reverse  
if User_input == palindrome:  
    print ("you input is  
palindrome")
```

Palindrome (cont)

```
else:  
    print ("you input is not  
palindrome")
```

Palindrome 2

```
while True:  
    user_input = input("Enter the  
word: ")  
    if user_input == "quit" :  
        break  
    print (len(user_input))  
    reverse = ""  
    for letter in user_input:  
        reverse = letter + reverse  
    palindrome = reverse  
    if user_input == palindrome:  
        print (user_input," is  
palindrome")  
    else:  
        print (user_input," is not  
palindrome")
```

Palindrome 3

```
def isPalindrome(word) :  
    reverse = ""  
    for letter in user_input:  
        reverse = letter + reverse  
    palindrome = reverse  
    if palindrome:  
        return True  
    else:  
        return False
```

```
while True:
```

Palindrome 3 (cont)

```
user_input = input("Enter the  
word: ")  
if user_input == "quit" :  
    break  
print (len(user_input))  
ispal =  
isPalindrome(user_input)  
if ispal == True:  
    print (user_input,"is a  
palindrome")  
else:  
    print (user_input,"is not a  
palindrome")
```

Spelling a string out in reverse code

```
word = input("Type in an word: ")  
reverse = ""  
for letter in word:  
    reverse = letter + reverse  
print ("Reverse: ", 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 * b * 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)  
letternumber = input("what is  
letter number? ")
```

Name strip (cont)

```
mynumber = int(letternumber)-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 Code (cont)

```
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 volume. Also it can change
```

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Print definition (cont)

```
""")  
elif word == "Function" :  
    print ("""  
        A function is define block  
        of code that can reuse  
    """)  
elif word == "Paramiter" :  
    print ("""  
        A parameter and argument  
        are some thing you give to the  
        function  
    """)  
elif word == "Function call" :  
    print ("""  
        A function call is  
        something that make the fuction  
        work  
    """)  
elif word == "String" :  
    print ("""  
        A string is a lis of  
        characters  
    """)  
else:  
    print ("Unkonw 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:  
  
    print ("-----  
=====  
")  
    print ("Guessing Game")  
    print ("-----  
=====  
")  
  
    print ("Words:", mylist)  
  
    user_guese = input("Guese the  
word: ")  
  
    if user_guese == random_item:  
        score = score+100  
        print ("That's correct!  
Score:", score)  
        random_item =  
random.choice(mylist)  
    else:  
        chance = chance-1  
        if user_guese in mylist:  
            print ("Sorry, wrong  
choice!")  
            print ("Chances  
Remaining:", chance)  
        else:  
            print ("Sorry, that is  
not ever in the list")  
            print ("Chances  
Remaining:", chance)
```

Guessing Game (cont)

```
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
```

