

## Multiplication and Exponents

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

## Random

```
import random
intlist = [1,2,3,4,5,6,7,8,9,0]
random_int = random.choice(intlist)
print(intlist,random_int)

fplist = [4.6,3.2,7.7,6.2]
random_fp = random.choice(fplist)
print(fplist,random_fp)

strlist = ['uik','lok','pki','roo']
random_str = random.choice(strlist)
print(strlist,random_str)

mylist = [589,56.3,'suay']
random_mylist = random.choice(mylist)
print(mylist,random_mylist)

myvar1 = 1
myvar2 = 2
myvar3 = 3
varlist = [myvar1,myvar2,myvar3]
random_var = random.choice(varlist)
print(varlist,random_var)
```

## 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

## 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
```

## 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
Length	the length of the string

## 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)
```

## Convert to Binary String

```
user_number = input ("Please enter the number")
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)
```

## Reverse Number

```
word = input("enter the word")
letter_num = 0
reverse = ""
while letter_num < len(word):
    reverse = word[letter_num] + reverse
    letter_num = letter_num + 1
print ("Reverse:",reverse)
```

## Boolean Operators

not x	x and y	x or y
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    binary_string = str(remainder) + (binary_string)
    number = number//2
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```

### Symbol

==	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

### 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`

### Area of circle

```
user_radius = input("Enter the radius of the circle")
radius = float(user_radius)
pi = 3.1415
answer = pi / (radius * 2)
print("The area of the circle is", answer)
```

### Addition

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

### Operation

x in s	True if x is contained in s
x not in s	True if x is not contained in s
s.index(i-tem)	position in s of item
s[i]	ith item in s (0-based)
len(s)	length of s

### 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

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