Simple Python Built-In Functions

abs(x)	Returns the absolute value for x	abs(-2) is 2
max(x1, x2,...)	Returns the largest among x1, x2,...	max(1, 5, 2) is 5
min(x1, x2,...)	Returns the smalles among x1, x2,...	min(1, 5, 2) is 1
pow(a, b)	Same as a ** b	pow(2, 3) is 8
round(x)	Returns an integer nearest to x. If x is equally close to two inetegers, the even one is returned	round(5.5) is 6
round(x, n)	Returns the float value rounded to n digits after the decimal point	round(5.466, 2) is 5.47

Mathematical Functions in Python

fabs(x)
Returns the absolute value for x as a float
ceil(x)
Round up x
floor(x)
Round down x
exp(x)
exponential function x(e^x)
log(x)
Natural logarithms
log(x)
Natural logarithms
log(x, base)
Logarithms of x for the specified base
sqrt(x)
Square root of x
sin(x), cos(x), tan(x)
sin, cos, tan of x angle in radians
asin(x), acos(x)
Inverse of sin, cos of an angle
degrees(x)
convert radians to degrees
radians(x)
convert degrees to radians

Strings and Characters

ASCII Code
American Standard Code for Information Interchange. Uses numbers 0 - 127. Can be accessed using alt key
Unicode Code
Unicode consortium, starts with \u and hexadecimal nmbers

Escape Sequences for Special Characters

Character Escape Sequence	Name
\b	Backspace
\t	Tab
\n	Linefeed
\r	Carriage Return
\\	Backslash
\'	Single Quote
\"	Double Quote

Printing without the Newline

```
print("AAA", end = ' ')
print("BBB", end = '')
print("CCC", end = '*')
print("DDD", end = '*')
displays
AAA BBBCCCDDD
```

Invoke the print function with the end argument

```
n = 3
id(n)
type(n)
s = salalah
sl = s.lower()
print (s)
---
su = s.upper()
print(s)
s = "\t Salalah \n"
print(s)
s = s.strip()
print(s)
```

Convert numbers to a string

```
num1 = str(3.4)
print (num1)
num2 = str(5)
print (num2)
```

Read strings from the keyboard

```
firstname = input("firstname is: ")
secondname =input("second name is: ")
name = firstname + secondname
print (name)
print(firstname + " " + secondname)
```

To use the + operator to concatenate strings

```
firstname = " Mohammad"
secondname = "Ali"
name = firstname + secondname
print (name)
Firstname + = secondname
print(firstname)
use " " space
```

Format Strings and Numbers

```
a = 3
b = .123
c = a / b
print(c)
---
print (round(c,2))
---
print (format(c,"10.2f"))
print (format(c,"10.2e"))
print (format(c,"10.%")
---
(for int only)
print(format(a,"b")) #binary
print(format(a,"o")) #octal
print(format(a,"x")) #hexadecimal
```

Format Strings and Numbers cont...

```
print (format(c,"10.2f"))
print (format(c,"<10.2f"))
print (format(c,">10.2f")
---
print(format(a,"b"))
print(format(a,"<b"))
print(format(a,">b"))
---
s = "I love Python"
print(s)
print(format(s,"20s"))
print(format(s,"<20s"))
print(format(s,">20s"))
```

Draw Various Shapes

```
import turtle
turtle.pensize(n) 1-3
turtle.penup()
turtle.goto(x,y) (-200,-50)
turtle.pendown()
turtle.circle(40, steps = 3) #triangle
turtle.done()
```

Draw graphics with colors and fonts

```
import turtle
turtle.pensize(n)
turtle.penup()
turtle.goto(x,y)
turtle.pendown()
turtle.begin_fill()
turtle.color("color")
turtle.circle(40, steps = 3)
turtle.end_fill()
turtle.done()
```