## Python basics

Scripting

IDES:

IDLE

pycharm

jupyter

spyder

vscode

{vi editor (text pad)}

REPL IDE or file

REPL:

Read Eval Print Loop

### comments:

# single line comments

‘’’ ‘’’ ~~multiline comment~~ , used as multiline comment

“”” “””

## Data Types:

## Numbers:

int integers

float floating point numerals

complex numbers

4 + 7j

## bool:

True

False

## Strings:

text data

alphanumeric and ascii representation

indexed

negative indexing

slicing

exclusive of upper range

no boundary errors

can also include steps

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| c | r | i | c | k | e | t |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| -7 | -6 | -5 | -4 | -3 | -2 | -1 |

functions:

capitalize, title

upper, lower

index, count, rindex

isalpha, isalnum

islower, isupper

strip, lstrip, rstrip

**immutable**

can’t be changed unless reassigned

# Operators:

### Arithmetic:

+ add

- subtract

\* multiply

/ division

= assignment

% modulo (remainder)

// floor division

\*\* exponent

Multiple assignment

### Logical:

and

or

not

### relational (comparative):

< less than

> greater than

<=

>=

==

!=

can be chained

### membership:

in

not in

### identity:

is

is not

# Functions:

### generic:

print()

type()

round()

len()

sorted()

### conversion:

int()

float()

str()

list()

tuple()

set()

## Lists:

heterogenous data

can be mutable

allows duplicates

indexed

negative indexing

slicing

exclusive of upper range

no boundary errors

can also include steps

functions:

remove, pop, clear

insert, append, extend

reverse, sort

index, count, find (check)

mutable

## tuple:

heterogenous data

can be mutable

allows duplicates

indexed

negative indexing

slicing

exclusive of upper range

no boundary errors

can also include steps

functions:

index, count

immutable

## set:

heterogenous data

has to be immutable

sets by themselves are mutable

no duplicates

unordered

no index

functions:

explore the functions

## dict:

dictionaries by themselves are mutable

keys:

immutable {numbers, strings, tuple}

unique

values:

anything is ok

unordered

indexed by keys

functions:

explore the functions

# flow control:

if  
elif

else

~~switch case~~

while

~~do while~~

False:

False (bool)

empty sequences:

[ ] { } ( ) ‘ ‘ “ “

0 0.0 (zero)

None

for

range(start, end, step)

# user define functions:

def

return

by default, returns None

variable number of arguments

convention: args, kwargs

default arguments

named arguments