Summary

Common Data structures in Python

- Lists: lists maintain the order of its elements, and they're mutable. They may contain duplicates.
- Tuples: maintain the order of its elements ,immutable, may contain duplicates. You couldn't add or remove elements from a tuple.
- Sets: Does NOT maintain the order of its elements. Changing an element's value in a set isn't possible. However, you could add and remove elements from a set. Sets DO NOT contain duplicates. Sets store unique values.
- Dictionaries: a data structure made up of keys and values. Each key is associated with a given value.

Random Module:

Random module has some popular methods for random generation of values or choice like:

- random.choice(*iterrable),
- random.randint(start(inclusive),end(inclusive))

Functions

A block of reusable code that may contain some parameters.

Syntax:

```
def function(X):
    code
```

the code must be indented.

Parameter: a temporary variable used within a function that may be defined in function definition or passed through the user. The parameter value is called an argument .

Function Arguments

- Positional arguments: argument position matches the parameter in function definition.ex:

```
def function(x,y,z):
        print(x)
        print(y)
        print(z)
function(2,3,1)
```

Output:

```
2
3
1
```

here x=2,y=3,z=1. If you want to pass arguments without regard for their position in the function definition, you may use key word arguments.

- Key word arguments: arguments passed by stating their key first ex:

```
def function(x,y,z):
        print(x)
        print(y)
        print(z)
function(y=3,z=1,x=2)
```

Output:

```
2
3
1
```

- Default arguments: Default values given in function definition that apply only if no argument is passed.ex:

```
def function(x=2,y,=3,z=1):
        print(x)
```

```
        print(y)
        print(z)
    function()
```

Output:

```
    2
    3
    1
```

Arbitrary arguments: passing to a function a varying number of arguments. An arbitrary argument may be a key word argument. An unpacking operator (*) is used before defining such arguments. Arbitrary key word arguments are passed as dictionary. Arbitrary positional arguments are passed as a tuple.

Modules

A python file that could be used via import. Modules are made for organizing projects or having some useful code somewhere where it could be saved for future use.

Scope Resolution

Local->enclosed->global->built-in

Local variables: variables defined within a function that couldn't be seen outside of it.

Enclosed: if a function is inside another function then a variable defined in the outer function would be used, if no variables with the same name are assigned in inner function.

Global variables: Variables defined outside a function.

Built-in variables: ex :Variables defined in an imported module

Exception Handling

Exception handling is done through try and except blocks. Ex:

try:

    code

except (error):

    code

a finally or else block might be added to exception handling. Else block executes if no exception of the ones defined is thrown. Finally block always executes regardless of any exception.

Files

Files and directories may be read through or written to using multiple ways in python. A path is required for any operation. Modules support a lot of useful operations like : copy,move,delete,write,read,….etc.