Programming for IoT applications

Lab 1

How to manage files in python?

Python provides functions to read and write files.

1. Open a file with the function open()
2. Read or write it with read(), readline(), or write()
3. Close the file with close()

Reading files

Read a file taking its name from command line

```
from sys import argv

filename = argv[1]
txt = open(filename)

print "Here's your file %r:", % filename
print txt.read()

print "\nType the filename again:"
file_again = raw_input("> ")
txt_again = open(file_again)
print txt_again.read()
```

Open the file

Show the file content

Writing files

```
from sys import argv

script, filename = argv

print "We're going to erase %r." % filename
print "Opening the file..."
target = open(filename, 'w')
print "... truncating the file. Goodbye!"
target.truncate()
print "\nNow I'm going to ask you for two lines."
line1 = raw_input("line 1: ")
line2 = raw_input("line 2: ")
print "I'm going to write these to the file."
target.write(line1)
target.write("\n")
target.write(line2)
target.write("\n")
print "And finally, we close it."
target.close()
```

Open the file in *write* mode

Empties the file

Write string to file

Close the file

How to manage JSON formats in python?

The json module provides API for converting in-memory Python objects to JSON.

- json.loads(json_string): convert a JSON string to a Python object

```
string = '{"name": "Tony", "surname": "Stark"}'
obj = json.loads(string)
```

This is a JSON string

obj is a dictionary

- json.dumps(object): convert a Python object to a JSON string

```
obj = {"num1": 12 ,"num2": 34}
string = json.dumps(obj)
```

JSON lib example

```
import json

#converting a JSON string to a Python object
string_1 = '{"name": "Tony", "surname": "Stark"}'
obj_1 = json.loads(string_1)
print obj_1

#converting a Python object to a JSON string
obj_2 = {"num1": 12 ,"num2": 34}
string_2 = json.dumps(obj_2)
print string_2
```

string_1 is a JSON string

obj_1 is a Python dictionary

obj_2 is a Python dictionary

string_2 is a JSON string