SUJET D'EXAMEN
Année universitaire 2021-2022

Classe :	**Aéro 4**
Type d'examen :	-
Date :	04/2022
Durée :	**1 heures**
Code matière :	IN423
Intitulé matière :	Réseaux II (Network II)
Enseignant :	M. ALMEIDA & M. SADOUN & M. BONNEFOI
Examen initial :	Oui
Documents autorisés :	Oui
Calculatrices autorisées :	Oui

CADRE RÉSERVÉ A L'ETUDIANT(E) :

En cas de réponse directement sur le sujet, merci de compléter ce cadre :

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Classe : **ELSS**

1 UDP test

Make a python program that use an udp socket to:

1. Send a message to the following IP / PORT - composed as follow:
   "Name FamilyName" encoded with utf8 (you can use spaces etc)
2. Read the response sent on the same socket, and send it back to the same IP/PORT (still using the same socket)
3. Then Close the socket and the program

```
In [1]: runfile('C:/Users/Lucie/Desktop/COURS/AERO4/S2/
SYSTEME/RESEAUX/TP3_Exam.py', wdir='C:/Users/Lucie/Desktop/
COURS/AERO4/S2/SYSTEME/RESEAUX')
UDP target IP: 10.9.148.125
UDP target port: 56001
from: ('10.9.148.125', 56001)
received message: THVjaWUgTWljaGVsZXQ=
Sent message : THVjaWUgTWljaGVsZXQ=
data sent.
```

2 Web request : client and server for arithmetic computation

1. Client side

Make a program that

1. asks the user to give its name in the console/terminal (using input())
2. asks the user to give one string
3. asks the user to give one of the following command : len – isdigit - upper
4. creates a POST request string like the example bellow
5. create a TCP socket, connect it to a server (that is developed on next part of this exercice)
6. uses the TCP socket to send the POST request encoded as ascii text to the server
7. read the socket and print received ascii text

this example if related when the user enter = table len

```
POST /contro_eval.html HTTP/1.1
Host: 127.0.0.1:55000
Content-Length: 24
string=table&command=len
```

Client :

```
Client's name:
Lucie

Message :
bonjourrr

Command : (len - isdigit - upper)
len
connecting to 127.0.0.1:55000...
sending data...
```

Server :

```
Client  LAPTOP-HF4VBLD3 : Lucie

POST /contro_eval.html HTTP/1.1
Host:127.0.0.1:55000
Content-Length:9
string=bonjourrr&command=len
```

First I began with the client part. I wrote the code to ask and send the name, sentence and command with the HTTP request to the server.
Then I connected the server and I got the data.

Server Side

Make another program that simply

1. read the post on tcp socket sent by the client
2. analyse the request and compute the result of the operation
3. return an HTTP 200 OK with the result as ascii text (int or float converted to ascii) following this example:

```
HTTP/1.1 200 OK
Date: xxxx GMT
Content-Type: text/plain;
content-length: 1

5
```

FINAL RESULT

Client :

```
In [1]: runfile('C:/Users/Lucie/Desktop/COURS/AERO4/S2/
SYSTEME/RESEAUX/Exam_2_client.py', wdir='C:/Users/Lucie/
Desktop/COURS/AERO4/S2/SYSTEME/RESEAUX')

Client's name:
Lucie

Message :
Bonjour

Command : (len - isdigit - upper)
upper
connecting to 127.0.0.1:55000...
sending data...

Serveur :
 HTTP/1.1 200 OK
Date:Thu Apr 20 12:27:56 2023GMT
Content-Type: text/plain;
content-length:7
BONJOUR
```

Server :

```
In [1]: runfile('C:/Users/Lucie/Desktop/COURS/AERO4/S2/
SYSTEME/RESEAUX/Exam_2_server.py', wdir='C:/Users/Lucie/
Desktop/COURS/AERO4/S2/SYSTEME/RESEAUX')
binding to 127.0.0.1:55000  ...
Waiting client ...
Client connected with address: ('127.0.0.1', 49385)

Client  LAPTOP-HF4VBLD3 : Lucie

POST /contro_eval.html HTTP/1.1
Host:127.0.0.1:55000
Content-Length:7
string=Bonjour&command=upper
sending data...
```

ANNEXE

The `len()` method

Returns the len of a string or a list.
Exemple:

```
print(len("toto"))   # > prints 4
```

The `upper()` method

The `upper()` method returns a string where all characters are in upper case.

Syntax

string.upper()

example:

```
txt = "Hello my friends"
x = txt.upper()
print(x)
```

The `isdigit()` method

The `isdigit()` method returns True if all the characters are digits, otherwise False.

Exponents, like ², are also considered to be a digit.

Syntax

string.isdigit()

1. **Example**

```
a = "toto"
b = "127"

print(a.isdigit())
print(b.isdigit())
```