
# UNIT 12 PYTHON. SCRIPTING

## Activities (II). Solutions

**Computer Systems**
**CFGS DAW**

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## Nomenclatura

A lo largo de este tema se utilizarán distintos símbolos para distinguir elementos importantes dentro del contenido. Estos símbolos son:

Actividad opcional. Normalmente hace referencia a un contenido que se ha comentado en la documentación por encima o que no se ha hecho, pero es interesante que le alumno investigue y practique. Son tipos de actividades que no entran para examen

Atención. Hace referencia a un tipo de actividad donde los alumnos suelen cometer equivocaciones.

# UD012. SCRIPTING
# Activities (II). Solutions

Use forums to ask questions or help your classmates :)

Some of these exercises must be done in a Linux system.

## 1.1 Activity 1

a) Create a script that asks a number and checks if that number is prime or not. You can remember prime definition here.

```python
#!/usr/bin/python3

import math

def checkPrime(n):
    if (n==1): #1 no es primo por convencion matematica
        return False
    elif (n==2):
        return True
    elif (n%2==0): #Caso de divisibles por 2 que no son 2
        return False
    else:
        #Obtenemos la parte entera de la raiz del numero N
        #que es hasta donde necesitamos comprobar
        #Es mas optimo que limit=n

        limit=int(math.sqrt(n))+1
        for x in range(3,limit,2):
            print(x)
            if(n % x==0):
                return False
        return True
```

**This is an infinite loop ;-)**

```python

while (True):
    print("Write a number to check if it is prime")
    number=int(input())
    if(checkPrime(number)):
        print("It is prime")
    else:
        print("It is not prime")
```

b) Create a script that asks a number and calculates its factorial

```
Set as interpreter
#!/usr/bin/python3

import math

def factorial(n):
    if (n==1):
        return 1
    else:
        num=1

        for i in range(2,n+1):
            num=num*i

        return num


while (True):
    print("Write a number to print its factorial")
    number=int(input())
    print(factorial(number))
```

c) Create a script that shows the number of users currently logged in the system.

**Tip**: `w` or `who` command and their parameters could be useful to do this script.

***This must be done in a Linux operating system.***

```
#!/usr/bin/python3
import subprocess

#OPCION 1
p = subprocess.Popen("who | wc -l", stdout=subprocess.PIPE, shell=True)
(output, err) = p.communicate()
#output da el formato en bytes, para pasar a cadena

print (str(output.decode("utf-8")))


#OPCION 2
p2=subprocess.check_output("who | wc -l", shell=True)
print(p2)
```

d) Create a script that asks a username and shows its home directory. That information should be checked using */etc/passwd* file.

```
1   #!/usr/bin/python3
2   import subprocess
3
4   print("Write user to check directory")
5   user=input()
6
7   #OPCION 1
8   p = subprocess.Popen("grep "+str(user)+ " /etc/passwd | cut -f 6 -d :",
    stdout=subprocess.PIPE, shell=True)
9   (output, err) = p.communicate()
10  #output da el formato en bytes, para pasar a cadena
11
12  print (str(output.decode("utf-8")))
13
14  #OPCION 2
15  p2= subprocess.check_output("grep "+str(user)+ " /etc/passwd | cut -f 6 -d
    :", shell=True)
16  print(p2)
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL                    2: Python
profesor@profesor-virtualbox:~/python$
profesor@profesor-virtualbox:~/python$
profesor@profesor-virtualbox:~/python$
profesor@profesor-virtualbox:~/python$ /usr/bin/python3 /home/profesor/Downloads/Uni
.py
Write user to check directory
profesor
/home/profesor

b'/home/profesor\n'
```

e) We have a file with two columns (name and country) separated by *:* like

```
Pedro:Spain
Juan:Spain
Mark:Holland
Vladimir:Russia
Terry:USA
```

We have to create a program that shows only country names. They should be shown ordered descendingly by its country name.

If a country appears more than one time, it should be shown only one time.

**Tip**: `sort` command and their parameters could be useful to do this script.

***This must be done in a Linux operating system.***

***Try do solve it using similar operations seen in previous scripts.***