Syrian Arab Republic

Lattakia - Tishreen University

Department of Communication and electrical engineering

5th , Network Programming : Homework No1

الجمهورية العربية السورية

اللاذقية -جامعـــة تشريـــن

كلية الهندسة الكهربائية والميكانيكية

قسم هندسة الاتصالات والالكترونيات

السنة الخامسة: وظيفة1 برمجة شبكات

الياس هيثم ملحم – ٢٠٨٦ - https://github.com/eliasmelhem/assignment-1

Question 1: Python Basics?

A-If you have two lists, L1=['HTTP','HTTPS','FTP','DNS'] L2=[80,443,20,53], convert it to generate this dictionary d={'HTTP':80,'HTTPS':443,'FTP':20,'DNS':53 }

```
d={}
L1=['HTTP','HTTPS','FTP','DNS']
L2=[80,443,20,53]
for i in range(4):
    d[L1[i]]=L2[i]
print(d)
```

```
{'HTTP': 80, 'HTTPS': 443, 'FTP': 20, 'DNS': 53}
```

باستخدام حلقة FOR تم دمج كل من القائمتين في dictionary و أصبحت القائمة L1 هي ال key

و القائمة L2هي ال value

B- Generate and print a list of primary numbers from 1 to 1000.

Tips: "List Comprehension"

```
value = 1000
prime = [x for x in range(2, value) if all(x % y != 0 for y in range(2, x))]
print(prime)
```

تم استخدام List Comprehension حيث ان الشرط الواجب تحقيقه ليكون العدد اوليا ان يقبل القسمة على الواحد و على نفسه فقط

فعندما يكون باقي قسمة xعلى y لا يساوي الصفر يكون الشرط محقق على جميع القيم من ال 2 الى قيمة y الحالية و يكون خرج الكود كالتالي:

```
[2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 9
7, 101, 103, 107, 109, 113, 127, 131, 137, 139, 149, 151, 157, 163, 167, 173, 179, 181, 191, 1
93, 197, 199, 211, 223, 227, 229, 233, 239, 241, 251, 257, 263, 269, 271, 277, 281, 283, 293,
307, 311, 313, 317, 331, 337, 347, 349, 353, 359, 367, 373, 379, 383, 389, 397, 401, 409, 419,
 421, 431, 433, 439, 443, 449, 457, 461, 463, 467, 479, 487, 491, 499, 503, 509, 521, 523, 541
, 547, 557, 563, 569, 571, 577, 587, 593, 599, 601, 607, 613, 617, 619, 631, 641, 643, 647, 65
3, 659, 661, 673, 677, 683, 691, 701, 709, 719, 727, 733, 739, 743, 751, 757, 761, 769, 773, 7
87, 797, 809, 811, 821, 823, 827, 829, 839, 853, 857, 859, 863, 877, 881, 883, 887, 907, 911,
919, 929, 937, 941, 947, 953, 967, 971, 977, 983, 991, 997]
```

C- L=[‘Network’ , ’Math’ , ’Programming’, ‘Physics’ , ‘Music’]

In this exercise, you will implement a Python program that reads the items of the previous list and identifies the items that starts with ‘Ph’ letter, then print it on screen.

Tips: using loop, ‘len ()’ , startswith() methods.

```python
L = ['Network', 'Math', 'Programming', 'Physics', 'Music']

for item in L:
    if item.startswith('Ph'):
        print(item)
```

```
Physics
```

تم استخدام حلقة لتمر على جميع عناصر المصفوفة و باستخدام startswith() methods تم فحص اذا ما كان العنصر يبدا بالمحرفين ph و طباعته في حال تحقق الشرط

D: Using Dictionary comprehension, Generate this dictionary d={1:2,2:3,3:4,4:5,5:6,6:7,7:8,8:9,9:10,10:11}

```python
d = {i:i + 1 for i in range(1, 11)}
print (d)
```

```
{1: 2, 2: 3, 3: 4, 4: 5, 5: 6, 6: 7, 7: 8, 8: 9, 9: 10, 10: 11}
```

Question 2: Convert from Binary to Decimal

Write a Python program that converts a Binary number into its equivalent Decimal number.

The program should start reading the binary number from the user. Then the decimal equivalent number must be calculated. Finally, the program must display the equivalent decimal number on the screen.

Tips: solve input errors.

```python
binary = input("Enter a binary number: ")

# Check if the input is a valid binary number
if not all(char in '01' for char in binary):
    print("Invalid input. Please enter a binary number (0s and 1s) only.")
else:
    decimal = 0
    power = len(binary) - 1

    # Calculate the decimal equivalent
    for digit in binary:
        decimal += int(digit) * (2 ** power)
        power -= 1

    print("The decimal equivalent of", binary, "is:", decimal)
```

```
Enter a binary number: 10
The decimal equivalent of 10 is: 2
```

```
Enter a binary number: 0110101
The decimal equivalent of 0110101 is: 53
```

```
Enter a binary number: 54
Invalid input. Please enter a binary number (0s and 1s) only.
```

يطلب من المستخدم ادخال عدد ثنائي

حيث يتم التأكد من القيم المدخلة قبل البدء بعملية التحويل في حال كانت القيم المدخلة غير صحيحة يتم اعلام المستخدم بذلك

و الا يقوم الكود بحساب العدد العشري المقابل و طباعته

Question 3: Working with Files" Quiz Program"

Type python quiz program that takes a text or json or csv file as input for (20 (Questions, Answers)). It asks the questions and finally computes and prints user results and store user name and result in separate file csv or json file.

```python
import json
count=0
store={}
with open("Question.json","r") as Question:
    o_fQ = json.load(Question)
student_answer=[]

for key,value in o_fQ.items():
    print(key)
    print(value)
    x=input("enter answer: ")
    student_answer.append(x)

with open("Answers.json","r") as Answer:
    o_fA = json.load(Answer)

for i in range(0,20):
    if student_answer[i] == o_fA[i]:
        count+=1

student_name = input("enter the name: ")
student_name = student_name.capitalize()
store[student_name]=count

print(student_name+" made the reselt: "+ str(count))
with open ("mark.json","w") as mark:
    o_fm = json.dumps(store)
    mark.write(o_fm)
```

يقوم الكود بقراءة ملف (Question.json) ثم طرح السؤال على المستخدم و يخزن الإجابات ضمن مصفوفة و يقارنها بالإجابات الصحيحة المخزنة في ملف (Answers.json) ثم يخزن العلامة و اسم المستخدم في ملف منفصل (mark.json)

```
1   {"Elias": 6}
```

خرج الكود :

```
Question1
['a', 'b', 'c']
enter answer: a
Question2
['a', 'b', 'c']
enter answer: b
Question3
['a', 'b', 'c']
enter answer: a
Question4
['a', 'b', 'c']
enter answer: c
Question5
['a', 'b', 'c']
enter answer: a
Question6
['a', 'b', 'c']
enter answer: a
Question7
['a', 'b', 'c']
enter answer: a
Question8
['a', 'b', 'c']
Question16
['a', 'b', 'c']
enter answer:
Question17
['a', 'b', 'c']
enter answer:
Question18
['a', 'b', 'c']
enter answer:
Question19
['a', 'b', 'c']
enter answer:
Question20
['a', 'b', 'c']
enter answer:
enter the name: elias
Elias made the reselt: 6
```