First Network Programming Homework

Name: أوس النعمان علي, Number:1703, Submitted To
GitHub:https://github.com/Aous3li/Network-Programming-Homeworks/blob/main/
Network_Programming_Homework_No1_2023/
Network_Programming_Homework_No1_2023.ipynb

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 }

```python
L1=['HTTP','HTTPS','FTP','DNS']
L2=[80,443,20,53]

d = {L1[i]: L2[i] for i in range(len(L1))}

print(d)

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

B- Generate and print a list of primary numbers from 1 to 1000. Tips: "List Comprehension"

```python
def is_prime(n):
    if n < 2:
        return False
    for i in range(2, int(n**0.5) + 1):
        if n % i == 0:
            return False
    return True

prime_numbers = [i for i in range(1, 1001) if is_prime(i)]
print(prime_numbers)

[2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61,
67, 71, 73, 79, 83, 89, 97, 101, 103, 107, 109, 113, 127, 131, 137,
139, 149, 151, 157, 163, 167, 173, 179, 181, 191, 193, 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, 653, 659, 661, 673, 677, 683, 691, 701, 709, 719, 727, 733, 739,
743, 751, 757, 761, 769, 773, 787, 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 x in L:
    if x.startswith('Ph'):
        print(x)

Physics
```

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_number = input("Enter a binary number: ")

# checkimg if the input is a valid binary number
if set(binary_number) == {'0', '1'} or set(binary_number) == {'0'} or
set(binary_number) == {'1'}:
    decimal_number = int(binary_number, 2)
    print("The decimal equivalent of binary number {} is:
{}".format(binary_number, decimal_number))
else:
    print("Invalid binary number. Please enter only 0 and 1.")

Enter a binary number: 1111
The decimal equivalent of binary number 1111 is: 15
```

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

# quiz questions and answers
quiz = {
    "questions": [
        {
```

```json
        "question": "What does the 'print' function do in
Python?",
        "answer": "Displays output"
    },
    {
        "question": "What symbol denotes a comment in Python?",
        "answer": "#"
    },
    {
        "question": "What function can you use to get input from a
user in Python?",
        "answer": "input"
    },
    {
        "question": "What keyword is used to define a function in
Python?",
        "answer": "def"
    },
    {
        "question": "What is the correct file extension for Python
files?",
        "answer": ".py"
    },
    {
        "question": "What data type is immutable in Python?",
        "answer": "tuple"
    },
    {
        "question": "Which Python function can be used to cast a
value to an integer?",
        "answer": "int"
    },
    {
        "question": "Which Python keyword is used in a loop to
stop the iteration?",
        "answer": "break"
    },
    {
        "question": "What keyword is used to create a class in
Python?",
        "answer": "class"
    },
    {
        "question": "Which Python function gives the number of
elements in a list?",
        "answer": "len"
    },
    {
        "question": "What is the use of the 'pass' keyword in
Python?",
```

```
            "answer": "It is a placeholder and does nothing"
        },
        {
            "question": "Which operator is used for exponentiation in
Python?",
            "answer": "**"
        },
        {
            "question": "Which method can be used to add an element to
a Python set?",
            "answer": "add"
        },
        {
            "question": "Which Python module provides mathematical
functions?",
            "answer": "math"
        },
        {
            "question": "What keyword is used to define a conditional
in Python?",
            "answer": "if"
        },
        {
            "question": "Which Python data type is an ordered
sequence?",
            "answer": "list"
        },
        {
            "question": "How do you create a tuple in Python?",
            "answer": "With parentheses () and comma-separated values"
        },
        {
            "question": "What is the use of 'self' keyword in
Python?",
            "answer": "It refers to the instance of the class"
        },
        {
            "question": "How do you create a loop in Python?",
            "answer": "With the for or while keyword"
        },
        {
            "question": "What is a string in Python?",
            "answer": "A sequence of characters"
        }
    ]
}

# Opening a file for writing
with open('quiz.json', 'w') as file:
```

```python
    # Writing the quiz to the file
    json.dump(quiz, file)

# opennig quiz questions
with open('quiz.json', 'r') as file:
    quiz = json.load(file)

score = 0
username = input("Enter your name: ")

# Asking the questions
for item in quiz['questions']:
    print(item['question'])
    answer = input("Your answer: ")
    if answer.lower() == item['answer'].lower():
        score += 1

# printing the results
print(f"{username}, your score is: {score} out of
{len(quiz['questions'])}")

# Storing the username and result in a new JSON file
result = {
    "username": username,
    "score": score
}

with open('result.json', 'w') as file:
    json.dump(result, file)
```

Enter your name: Aous
What does the 'print' function do in Python?
Your answer: Displays output
What symbol denotes a comment in Python?
Your answer: #
What function can you use to get input from a user in Python?
Your answer: input
What keyword is used to define a function in Python?
Your answer: def
What is the correct file extension for Python files?
Your answer: .py
What data type is immutable in Python?
Your answer: tuple
Which Python function can be used to cast a value to an integer?
Your answer: int
Which Python keyword is used in a loop to stop the iteration?
Your answer: break
What keyword is used to create a class in Python?
Your answer: class
Which Python function gives the number of elements in a list?

Your answer: len
What is the use of the 'pass' keyword in Python?
Your answer: I don't know xx
Which operator is used for exponentiation in Python?
Your answer: **
Which method can be used to add an element to a Python set?
Your answer: add
Which Python module provides mathematical functions?
Your answer: math
What keyword is used to define a conditional in Python?
Your answer: if
Which Python data type is an ordered sequence?
Your answer: list
How do you create a tuple in Python?
Your answer: With parentheses () and comma-separated values
What is the use of 'self' keyword in Python?
Your answer: It refers to the instance of the class
How do you create a loop in Python?
Your answer: With the for or while keyword
What is a string in Python?
Your answer: A sequence of characters
Aous, your score is: 19 out of 20