

Syrian Arab Republic

Lattakia - Tishreen University

Department of Communication and
electrical engineering

5th , Network Programming : Homework
No1



الجمهورية العربية السورية

اللاذقية - جامعة تشرين

كلية الهندسة الكهربائية والميكانيكية

قسم هندسة الاتصالات والإلكترونيات

السنة الخامسة: وظيفة ١ برمجة شبكات

Name: Maram Nezha , Number: 2217 , Submitted To GitHub:
https://github.com/MaramNezha/Network_programming.git

First Network Programming Homework

Question 1: Python Basics?

A- Define a list that contain the names of graduated students” 5 students at least”:

Create a program that accept student name and prints if the user is graduated or not.

Code:

```
#Defining the list
graduated_students = ['Maram', 'Sara', 'Ali', 'Ziad', 'Saleem']
#ask the user to enter a student name
name = input("Enter student name: ")
#check whether the name is graduated or not
if name in graduated_students:
    print(name, "is graduated")
else:
    print(name, "isn't graduated")
```

Code execution:

```
In [3]: runfile('C:/Users/maram2/.spyder-py3/temp.py', wdir='C:/Users/maram2/.spyder-py3')
Enter student name: Ali
Ali is graduated

In [4]: runfile('C:/Users/maram2/.spyder-py3/temp.py', wdir='C:/Users/maram2/.spyder-py3')
Enter student name: Mazen
Mazen isn't graduated
```

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

Tips: “List Comprehension”

Code:

```
odd_numbers = [x for x in range(1,1001) if x%2==1]
print(odd_numbers)
```

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Code execution:

```
In [5]: runfile('C:/Users/maram2/.spyder-py3/temp.py', wdir='C:/Users/maram2/.spyder-py3')
[1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47,
49, 51, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73, 75, 77, 79, 81, 83, 85, 87, 89, 91, 93,
95, 97, 99, 101, 103, 105, 107, 109, 111, 113, 115, 117, 119, 121, 123, 125, 127, 129, 131,
133, 135, 137, 139, 141, 143, 145, 147, 149, 151, 153, 155, 157, 159, 161, 163, 165, 167,
169, 171, 173, 175, 177, 179, 181, 183, 185, 187, 189, 191, 193, 195, 197, 199, 201, 203,
205, 207, 209, 211, 213, 215, 217, 219, 221, 223, 225, 227, 229, 231, 233, 235, 237, 239,
241, 243, 245, 247, 249, 251, 253, 255, 257, 259, 261, 263, 265, 267, 269, 271, 273, 275,
277, 279, 281, 283, 285, 287, 289, 291, 293, 295, 297, 299, 301, 303, 305, 307, 309, 311,
313, 315, 317, 319, 321, 323, 325, 327, 329, 331, 333, 335, 337, 339, 341, 343, 345, 347,
349, 351, 353, 355, 357, 359, 361, 363, 365, 367, 369, 371, 373, 375, 377, 379, 381, 383,
385, 387, 389, 391, 393, 395, 397, 399, 401, 403, 405, 407, 409, 411, 413, 415, 417, 419,
421, 423, 425, 427, 429, 431, 433, 435, 437, 439, 441, 443, 445, 447, 449, 451, 453, 455,
457, 459, 461, 463, 465, 467, 469, 471, 473, 475, 477, 479, 481, 483, 485, 487, 489, 491,
493, 495, 497, 499, 501, 503, 505, 507, 509, 511, 513, 515, 517, 519, 521, 523, 525, 527,
529, 531, 533, 535, 537, 539, 541, 543, 545, 547, 549, 551, 553, 555, 557, 559, 561, 563,
565, 567, 569, 571, 573, 575, 577, 579, 581, 583, 585, 587, 589, 591, 593, 595, 597, 599,
601, 603, 605, 607, 609, 611, 613, 615, 617, 619, 621, 623, 625, 627, 629, 631, 633, 635,
637, 639, 641, 643, 645, 647, 649, 651, 653, 655, 657, 659, 661, 663, 665, 667, 669, 671,
673, 675, 677, 679, 681, 683, 685, 687, 689, 691, 693, 695, 697, 699, 701, 703, 705, 707,
709, 711, 713, 715, 717, 719, 721, 723, 725, 727, 729, 731, 733, 735, 737, 739, 741, 743,
745, 747, 749, 751, 753, 755, 757, 759, 761, 763, 765, 767, 769, 771, 773, 775, 777, 779,
781, 783, 785, 787, 789, 791, 793, 795, 797, 799, 801, 803, 805, 807, 809, 811, 813, 815,
817, 819, 821, 823, 825, 827, 829, 831, 833, 835, 837, 839, 841, 843, 845, 847, 849, 851,
853, 855, 857, 859, 861, 863, 865, 867, 869, 871, 873, 875, 877, 879, 881, 883, 885, 887,
889, 891, 893, 895, 897, 899, 901, 903, 905, 907, 909, 911, 913, 915, 917, 919, 921, 923,
925, 927, 929, 931, 933, 935, 937, 939, 941, 943, 945, 947, 949, 951, 953, 955, 957, 959,
961, 963, 965, 967, 969, 971, 973, 975, 977, 979, 981, 983, 985, 987, 989, 991, 993, 995,
997, 999]
```

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 'P' letter, then print it on screen.

Tips: using loop, list 'len ()' method

Code:

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```
#Defining the subjects list
L = ['Network', 'Math', 'Programming', 'Physics', 'Music']
for s in L:
    # test whether the subject start with P or not
    if s.startswith('P'):
        #print the subject and its length
        print(s, end=', ')
        print(s, 'length is ', len(s))
```

Code execution:

```
In [8]: runfile('C:/Users/maram2/.spyder-py3/temp.py', wdir='C:/Users/maram2/.spyder-py3')
Programming, Programming length is 11
Physics, Physics length is 7
```

D: Using Dictionary comprehension, Generate this dictionary d={1:1,2:4,3:9,4:16,5:25,6:36,7:49,8:64,9:81,10:100}

Code:

```
#in this dictionary the key is x and the value is x power 2
#where x takes the values from 1 to 10
d = {x:x**2 for x in range(1,11)}
print(d)
```

Code execution:

```
In [9]: runfile('C:/Users/maram2/.spyder-py3/temp.py', wdir='C:/Users/maram2/.spyder-py3')
{1: 1, 2: 4, 3: 9, 4: 16, 5: 25, 6: 36, 7: 49, 8: 64, 9: 81, 10: 100}
```

Question 2: Convert from decimal to binary

Write a Python program that **converts a decimal number into its equivalent binary number**.

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

Tips: use empty list to hold binary number, use loop, use % operator, use // operator, use list append method, reverse the list.

Code:

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```
#Enter the decimal number
decimal_number=int(input("Enter decimal number: "))
#define a list to hold the binary number
binary_number=[]
#while loop for the conversion
while(decimal_number>0):
    temp = decimal_number%2
    binary_number.append(temp)
    decimal_number=decimal_number//2
#reverse the list to get the correct number
binary_number.reverse()

#print the binary number
print("Equivalent in binary is :", end = " ")
for i in binary_number:
    print(i,end="")
```

Code execution:

```
In [5]: runfile('C:/Users/maram2/.spyder-py3/temp.py', wdir='C:/Users/maram2/.spyder-py3')
Enter decimal number: 65
Equivalent in binary is : 1000001
```

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.

Code:



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```
import json
questions = { }
#define a variable for the score
scores = 0
#define the question number
number=1
#loading question to the program
f = open("questions.txt", 'r')
questions = json.load(f)
f.close()

print("python quiz programm")
print("Enter t for True or f for False")
name = input("Enter your full name: ")
#display the questions
for ques in questions.keys():
    #displaying the question
    print("Question", number, ": ", ques)
    ans = input("The answer is ")
    #testing the result
    if ans.upper() == questions[ques].upper():
        scores = scores + 1
        print("Correct ")
    else:
        print("Wrong")
        number = number + 1

#write the name and the score in a separate file
result={name:scores}
m = open("score.txt", 'w')
result = json.dump(result, m)
m.close()
```

Questions file:



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 questions - Notepad

File Edit Format View Help

```
{
"10.0.0.5 is a private ip address. ":"t",
"153.16.2.8 is a private ip address. ":"f",
"ARP refers to Address Resolution Protocol. ":"t",
"TCP is a network layer protocol. ":"f",
"IPv4 is a 128-bit address. ":"f",
"IPv6 is a 128-bit address. ":"t",
"SDN refers to Software Defined Network. ":"t",
"UDP is a Transport Layer protocol. ":"t",
"224.0.0.9 is a multicast address. ":"t",
"192.168.1.1 is a class A address. ":"f",
"Python is a machine language. ":"f",
"130.130.130.130 is a class C address. ":"f",
"MAC is address is 6 byte address. ":"t",
"IPv4 is a 32-bit address. ":"t",
"IP is a network Layer protocol. ":"t",
"OSPF is a Routing Protocol. ":"t",
"ARP request message is a unicast message. ":"f",
"ICMP refers to Internet Control Message Protocol. ":"t",
"hub is a layer 2 device . ":"f",
"bridge is a layer 3 device. ":"f"}
}
```

Code execution:

```
In [5]: runfile('C:/Users/maram2/Desktop/الوظيفة/python_quiz_program.py', wdir='C:/Users/maram2/Desktop/الوظيفة')
python quiz programm
Enter t for True or f for False

Enter your full name: MaramNezha
Question 1 : 10.0.0.5 is a private ip address.

The answer is t
Correct
Question 2 : 153.16.2.8 is a private ip address.
```

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```
The answer is f
Correct
Question 18 : ICMP refers to Internet Control Message Protocol.

The answer is t
Correct
Question 19 : hub is a layer 2 device .

The answer is f
Correct
Question 20 : bridge is a layer 3 device.

The answer is f
Correct
```

Score file:



score - Notepad

File Edit Format View Help

```
{ "MaramNezha": 20 }
```