

Syrian Arab Republic

Lattakia - Tishreen University

Department of Communication and  
electrical engineering

5<sup>th</sup> , Network Programming : Homework  
No1



الجمهورية العربية السورية

اللاذقية جامعة تشرين

كلية الهندسة الكهربائية والميكانيكية

قسم هندسة الاتصالات والالكترونيات

السنة الخامسة: وظيفة 1 برمجة شبكات

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Submitted To GitHub: <https://github.com/wafaa7amhana/first-homework.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.

الطلب الأول س 1.py - C:/Users/Windows.10/AppData/Local/Programs/Python/Python37/1 س 1.py (3.7.2)

File Edit Format Run Options Window Help

```
list=['ali','ahmed','aya','rasha']
name=input('Enter your name:')
grade=int(input('Enter your grade:'))
if grade >= 60:
    print("graduated")
    list.append(name)
    print(list)
else:
    print("you are not graduated")
```

### Explanation of the code:

- Define a list that contain the names of graduated students
- Define an object that ask the user to enter its name
- Define an object that ask the user to enter his grade and converting grade to type int
- Using the for loop if the grade is greater than or equal to 60, **print graduated**, and add the name to the list then print list
- Otherwise print **you are not graduated**.

الطلب الأول س1.py - C:/Users/Windows.10/AppData/Local/Programs/Python/Python37/1الطلب الأول س1.py (3.7.2)

File Edit Format Run Options Window Help

```
list=['ali','ahmed','aya','rasha']
name=input('Enter your name:')
grade=int(input('Enter your grade:'))
if grade >= 60:
    print("graduated")
    list.append(name)
    print(list)
else:
    print("you are not graduated")
```

Python 3.7.2 Shell

File Edit Shell Debug Options Window Help

```
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23
(AMD64)] on win32
Type "help", "copyright", "credits" or "licer
>>>
RESTART: C:/Users/Windows.10/AppData/Local/F
\س1.PY
Enter your name:wafaa
Enter your grade:90
graduated
['ali', 'ahmed', 'aya', 'rasha', 'wafaa']
>>> |
```

الطلب الأول س1.py - C:/Users/Windows.10/AppData/Local/Programs/Python/Python37/1الطلب الأول س1.py (3.7.2)

File Edit Format Run Options Window Help

```
list=['ali','ahmed','aya','rasha']
name=input('Enter your name:')
grade=int(input('Enter your grade:'))
if grade >= 60:
    print("graduated")
    list.append(name)
    print(list)
else:
    print("you are not graduated")
```

Python 3.7.2 Shell

File Edit Shell Debug Options Window Help

```
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 23:09:28) [MSC v.1916 64 bit
(AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
RESTART: C:/Users/Windows.10/AppData/Local/Programs/Python/Python37/الطلب الأول
\س1.PY
Enter your name:mona
Enter your grade:55
you are not graduated
>>> |
```

B- Generate and print a list of odd numbers from 1 to 1000. **Tips:** “List Comprehension”

الطلب الثاني سؤال 1.py - C:/Users/Windows.10/AppData/Local/Programs/Python/Python37/1الطلب الثاني سؤال 1.py (3.7.2)

File Edit Format Run Options Window Help

```
list1=range(1,1002)
only_odd=[num for num in list1 if num %2==1]
print(only_odd)
```

**Explanation of the code:**

- Define a list **/list1/** and give it the range (1,1002)
- Define another list **/only\_odd/** and using the List Comprehension , define variable **/num/** and as long num in list1 && remainder of num by 2 ==1 → **the num is odd**
- Print **/only\_odd/**

Python 3.7.2 Shell

File Edit Shell Debug Options Window Help

Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 23:09:28) [MSC v.1916 64 bit (AMD64)] on win32

Type "help", "copyright", "credits" or "license()" for more information.

>>>

RESTART: C:/Users/Windows.10/AppData/Local/Programs/Python/Python37/1الطلب الثاني سؤال 1.py

```
[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, 1001]
>>>
```

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

السؤال 1 طلب 3.py - C:/Users/Windows.10/AppData/Local/Programs/Python/Python37/3السؤال 1 طلب 3.py (3.7.2)

File Edit Format Run Options Window Help

```
def test(lst, char):
    result = [i for i in lst if i.startswith(char)]
    return result
L=["Network","Math","Programming","Physics","Music"]
print("\nOriginal list:")
print(L)
char = "P"
print("\nItems start with",char,"from the said list:")
print(test(L, char))
```

السؤال 1 طلب 3.py - C:/Users/Windows.10/AppData/Local/Programs/Python/Python37/3السؤال 1 طلب 3.py (3.7.2)

File Edit Format Run Options Window Help

```
def test(lst, char):
    result = [i for i in lst if i.startswith(char)]
    return result
```

```
L=["Network",
print("\nOriginal list:")
print(L)
char = "P"
print("\nItems start with",char,"from the said list:")
print(test(L, char))
```

Python 3.7.2 Shell

File Edit Shell Debug Options Window Help

Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 23:09:28) [MSC v.1916 64 bit (AMD64)] on win32

Type "help", "copyright", "credits" or "license()" for more information.

>>>

RESTART: C:/Users/Windows.10/AppData/Local/Programs/Python/Python37/السؤال 1 طلب 3.py

Original list:


['Network', 'Math', 'Programming', 'Physics', 'Music']

Items start with P from the said list:

['Programming', 'Physics']

>>> |

**D:** Using Dictionary comprehension, Generate this dictionary d={1:1,2:4,3:9,4:16,5:25,6:36,7:42,8:64,9:81,10:100}

 الطلب الرابع س1 - C:/Users/Windows.10/AppData/

File Edit Format Run Options Window Help

```
d={i:i**2 for i in range(1,11)}  
print(d)
```


**Explanation of the code:**

- ✚ Define a Dictionary `/d/` and using Dictionary comprehension , I defin a variable `/i/` for keys and the values will be `/i**2/` and as long `/i/` in range `(1,11)`
- ✚ Print(d)

 الطلب الرابع س1 - C:/Users/Windows.10/AppData/Local/Programs/Python/Python37/1الطلب الرابع س1.py (3.7.2)

File Edit Format Run Options Window Help

```
d={i:i**2 for i in range(1,11)}  
print(d)
```

 Python 3.7.2 Shell

File Edit Shell Debug Options Window Help

Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 23:09:28) [MSC v.1916 64 bit (AMD64)] on win32

Type "help", "copyright", "credits" or "license()" for more information.

>>>

RESTART: C:/Users/Windows.10/AppData/Local/Programs/Python/Python37/الطلب الرابع س1.py

ع.س1

{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.

```
Question2.py - C:\Users\Windows.10\Desktop\التطبيقات برمجية\Question2.py (3.7.2)
File Edit Format Run Options Window Help
#get input and initialize variables
decimal = int(input("Enter a decimal number \n"))
binary = 0
ctr = 0
temp = decimal #copy input decimal

#find binary value using while loop
while(temp > 0):
    binary = ((temp%2)*(10**ctr)) + binary
    temp = int(temp/2)
    ctr += 1

#output the result
print("Binary of {x} is: {y}".format(x=decimal,y=binary))
list=[]
list.append(binary)
print("The orignal list is:")
print(list)
list.reverse()
print("The revers list is:")
print(list)
```

```
Python 3.7.2 Shell
File Edit Shell Debug Options Window Help
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 23:09:28) [MSC v.1916 64 bit
(AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
==== RESTART: C:\Users\Windows.10\Desktop\التطبيقات برمجية\Question2.py ====
Enter a decimal number
7
Binary of 7 is: 111
The orignal list is:
[111]
The revers list is:
[111]
>>>
```

### 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.

**First:** I create a text file and called it / Questions/ and it contain the questions of my Quiz

1.the larger the cluster size .the larger number of interfering cells in first tier:

a.true

b.false

2.the lower cell \_ reuse factor results in lower interference:

a.true

b.false

3.the cluster size can be any integer:

a.true

b.false

4.a cellular system with non\_overlapping cells will not function well:

a.true

b.false

5.the increment of cluster size decrease the frequency reuse ratio:

a.true

b.false

6.the higher cell\_reuse factor .the higher the capacity of the network:

a.true

b.false

7.larger cell size increase the power requirements for mobiles:

a.true

b.false

8.using the hexagon shaps makes the overlapping areas between adjacent cell footprints more comtrollable than using rectangular or square shapes:

a.true

b.false

9.cells with radius less than 500 m are macro cells:

a.true

b.false

10 .2G standards support limited data transmtion :

a.true

b.false

11. a common frequency reuse plan for GSM is 3/12:

a.true

b.false

12.MS makes use of Abis and Um interface:

a.true

b.false

13.in TDD signal radio frequency can be used:

a.true

b.false

14 .2G standards support limited internet browsing

a.true

b.false

15.NSS consists of NS,HLR and VLR

a.true

b.false

16. all GSM mobiles have the same maximum power output level

a.true

b.false

17.GSM specifiacs four database

a.true

b.false



18.cell is the basic services unit of GSM communication

a.true

b.false

19.GSM is considered a MAN

a.true

b.false

20.in GSM each band is divided into 124 channels of 13 KHZ

a.true

b.false

21.one E1 trunk can carry up to 92 traffic and control channel

a.true

b.false

**Seconde:** I create a text file and called it / answers/ and it contain the answers of my Quiz



And the code is:

3.py - C:\Users\Windows.10\Desktop\3السؤال الأخير\11تطبيقات برمجية.py (3.7.2)  
File Edit Format Run Options Window Help

```
m = 0
answerarray = list()
hole_txt = f3.read()
for n in range ( int ( len ( hole_txt ) / 2 ) ) :
    answerarray.append ( hole_txt [ m ] )
    m +=2
f3.close()
# opening the file that contain the Questions
f = open('Questions.txt' , 'r' )

#creating an empty list to fill it with lines from the Questions' file
l1=list()
for line in f :
    l1.append( line )
#Aggregating each 3 lines to make the quistion and making a list from them
l2 = list()
index1 = 0
for index2 in range ( int( ( len( l1 ) /3 ) ) ) :
    l2.append( l1[ index1 : index1 + 3 ] )
    index1 += 3
#we could use the following syntax but we will be constrained to only 7 quistions from the file
#l2=[ l1[0:3] , l1[3 :6] , l1[6 :9] , l1[9: 12] ,l1[12:15] , l1[15 :18] , l1[18 :21] ]
correct = 0
old_i = list ()
i = random.randint ( 0, len( l2 ) -1 )
#displaying 3 random quagustions from the quistions' Bank file
for c in range(3) :
    print("*****")
    print("Q{} : ".format ( c+1 ) )
    for j in range(3) :
        print( l2[i][j] , end = ' ' )

    answer = input ()
    if answer == answerarray[ i ] :
        correct += 1

    old_i.append( i )
    while(i in old_i) :
        i= random.randint( 0, len( l2 ) -1 )
#calculating the result
```

3.py - C:\Users\Windows.10\Desktop\3السؤال الأخير\11تطبيقات برمجية.py (3.7.2)

File Edit Format Run Options Window Help

```
#we could use the following syntax but we will be constrained to only 7 quistions from the file
#l2=[ l1[0:3] , l1[3 :6] , l1[6 :9] , l1[9: 12] ,l1[12:15] , l1[15 :18] , l1[18 :21] ]
correct = 0
old_i = list ()
i = random.randint ( 0, len( l2 ) -1 )
#displaying 3 random quagustions from the quistions' Bank file

for c in range(3) :

    print("*****")
    print("Q{} : ".format ( c+1 ) )

    for j in range(3) :
        print( l2[i][j] , end = ' ' )

    answer = input ()
    if answer == answerarray[ i ] :
        correct += 1

    old_i.append( i )
    while(i in old_i) :
        i= random.randint( 0, len( l2 ) -1 )
#calculating the result

avg = correct /3 *100
if avg < 25 :
    result = "very Bad"
elif avg < 50 :
    result = "Bad"
elif avg < 75 :
    result = "Good"
else :
    result = "Excellent"

print("\n your result is : " , result )
f.close()
#saving the result for each student in a Separated file

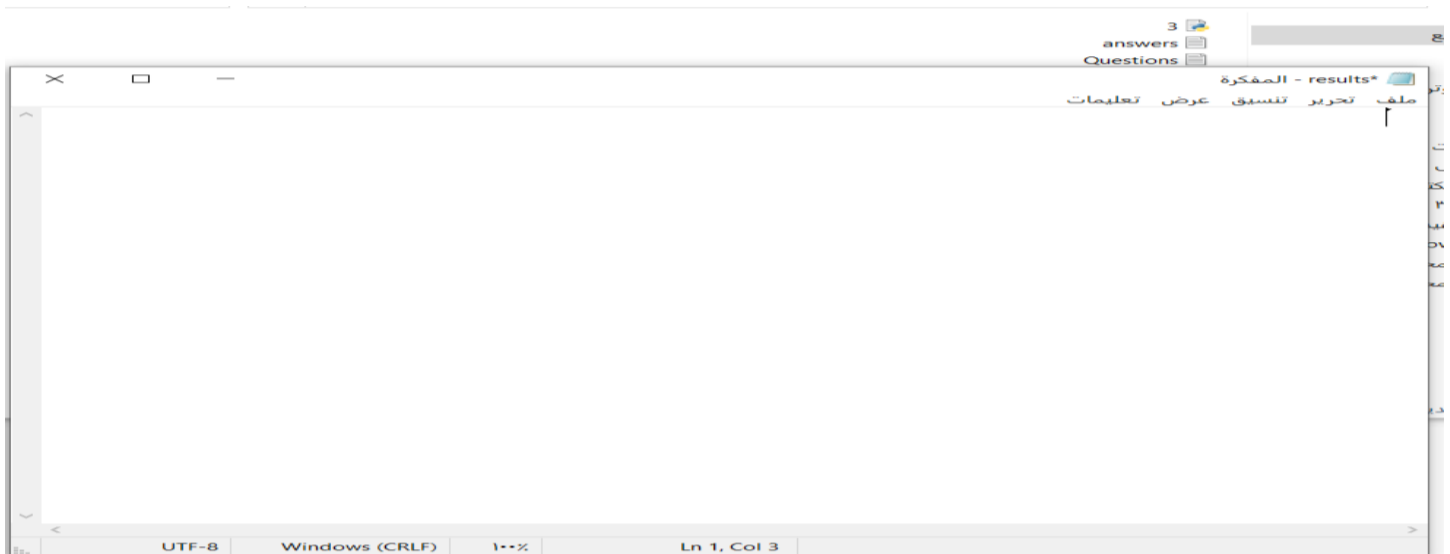
f1 = open ( 'results.txt' , 'a' )
f1.write ( " \n name : {} ".format ( name ) )
f1.write ( " \n ID : {} ".format( ID ) )
f1.write ( " \n Score :{} % \n ----- ".format( avg ) )

f1.close()
```

### *Explanation of the code:*

- ✚ import Random module
- ✚ ask the user to enter his name and ID
- ✚ oppening the answers' file and saving the answers in a list
- ✚ opening the file that contain the Questions
- ✚ creating an empty list to fill it with lines from the Questions' file and Aggregating each 3 lines to make the quistion and making a list from them
- ✚ we could use the folowing syntax but we will be constrained to only 7 questions from the file  
`l2=[ l1[0:3] , l1[3 :6] , l1[6 :9] , l1[9: 12] ,l1[12:15] , l1[15 :18] , l1[18 :21] ]`
- ✚ displaying 3 random qauestions from the questions' Bank file
- ✚ calculating the result
- ✚ saving the result for each student in a Separated file

**Third:** I create an empty text file and called it / results/ and it contain the result for each student



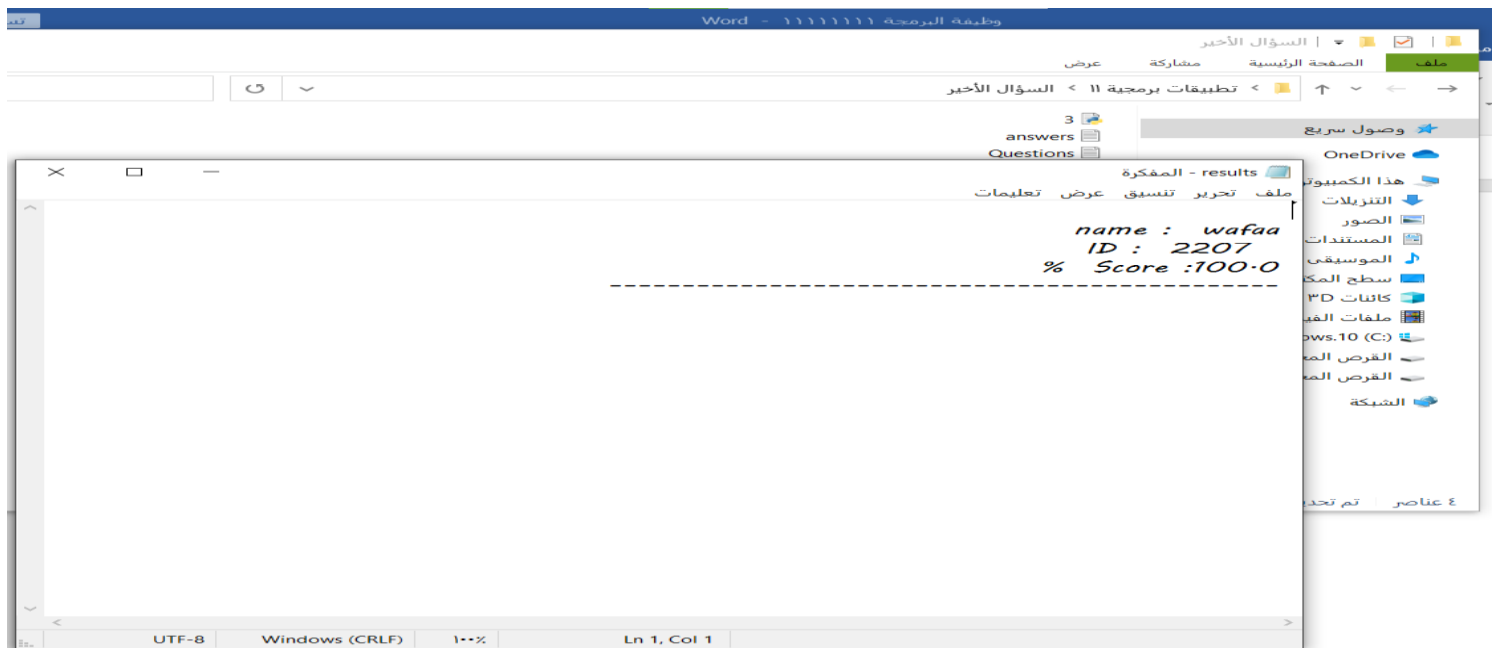
**After 1th Run Module:**

```
Python 3.7.2 Shell
File Edit Shell Debug Options Window Help
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 23:09:28) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\Windows.10\Desktop\٣\السؤال الأخير\١١ تطبيقات برمجية.py =

An cellular Quize:
Please enter your name and ID number :

name: wafaa
ID: 2207
choose the correct answer (a) or (b) :
*****
Q1 :
11. a common frequency reuse plan for GSM is 3/12:
a.true
b.false
b
*****
Q2 :
6.the higher cell_reuse factor .the higher the capacity of the network:
a.true
b.false
b
*****
Q3 :
2.the lowercell_reuse factor results in lower interference:
a.true
b.false
b
your result is : Excellent
>>> |
```

The Results file after run module:



After 2th Run Module:

```
3.py - C:\Users\Windows.10\Desktop\3\السؤال الأخير\11 تطبيقات برمجية.py (3.7.2)
File Edit Format Run Options Window Help

# import Random module
import random
print("\n")
print("Please enter your name and ID number :")
name=input()
ID=input()
print("choose the correct answer (a) or (b) :")
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\Windows.10\Desktop\3\السؤال الأخير\11 تطبيقات برمجية.py =
An cellular Quize:
Please enter your name and ID number :
name: aya
ID: 6987
choose the correct answer (a) or (b) :
*****
Q1 :
13.in TDD signal radio frequency can be used:
a.true
b.false
*****
Q2 :
1.the larger the cluster size .the larger number of interfering cells in first tier:
a.true
b.false
*****
Q3 :
18.cell is the basic services unit of GSM communication
a.true
b.false
*****
your result is : Good
>>> |

for c in r
pr
pr
```

The Results file after run module:

