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الجمهورية العربية السورية

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كلية الهندسة الكهربائية والميكانيكية

قسم هندسة الاتصالات والإلكترونيات

5th , Network Programming : Homework No1

السنة الخامسة: وظيفة 1 برمجة شبكات



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Question 1: Python Basics?

A- If you have two lists, L1=['HTTP','HTTPS','FTP','DNS'] L2=[80,443,21,53], convert it to generate this dictionary d={'HTTP':80,'HTTPS':443,'FTP':21,'DNS':53 }

B- Write a Python program that calculates the factorial of a given number entered by user.

C- L=['Network', 'Bio', 'Programming', 'Physics', 'Music']

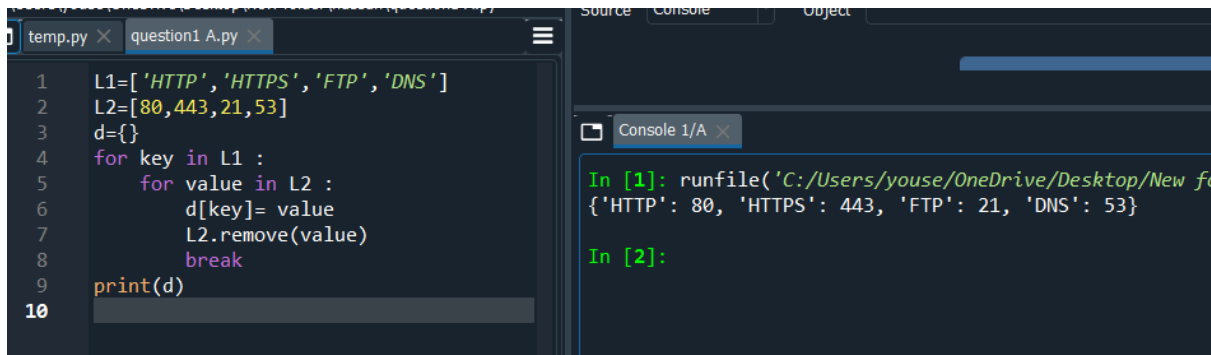
In this exercise, you will implement a Python program that reads the items of the previous list and identifies the items that starts with 'B' letter, then print it on screen.

Tips: using loop, 'len ()' , startswith() methods.

D: Using Dictionary comprehension, Generate this dictionary

d={0:1,1:2,2:3,3:4,4:5,5:6,6:7,7:8,8:9,9:10,10:11 }

.A



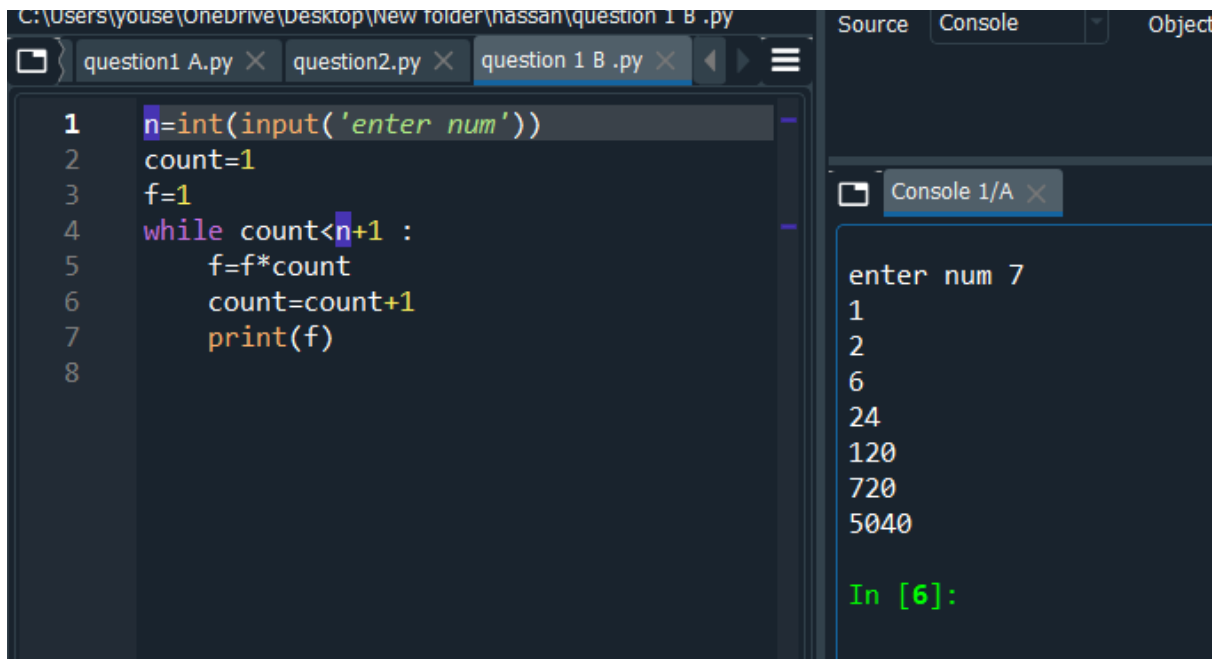
```
temp.py x question1 A.py x
1 L1=['HTTP','HTTPS','FTP','DNS']
2 L2=[80,443,21,53]
3 d={}
4 for key in L1 :
5     for value in L2 :
6         d[key]= value
7         L2.remove(value)
8         break
9 print(d)
10
```

Console 1/A x

```
In [1]: runfile('C:/Users/youse/OneDrive/Desktop/New fo
{'HTTP': 80, 'HTTPS': 443, 'FTP': 21, 'DNS': 53}

In [2]:
```

B.



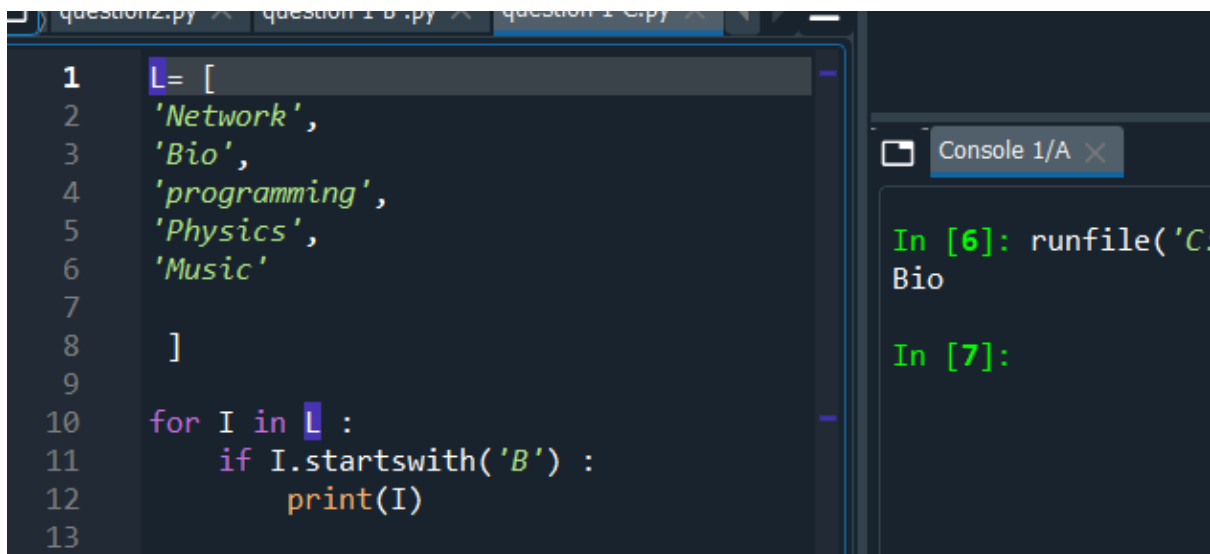
```
C:/Users/youse/OneDrive/Desktop/New folder/nassan/question 1 B .py
question1 A.py x question2.py x question 1 B .py x
1 n=int(input('enter num'))
2 count=1
3 f=1
4 while count<n+1 :
5     f=f*count
6     count=count+1
7     print(f)
8
```

Console 1/A x

```
enter num 7
1
2
6
24
120
720
5040

In [6]:
```

.C

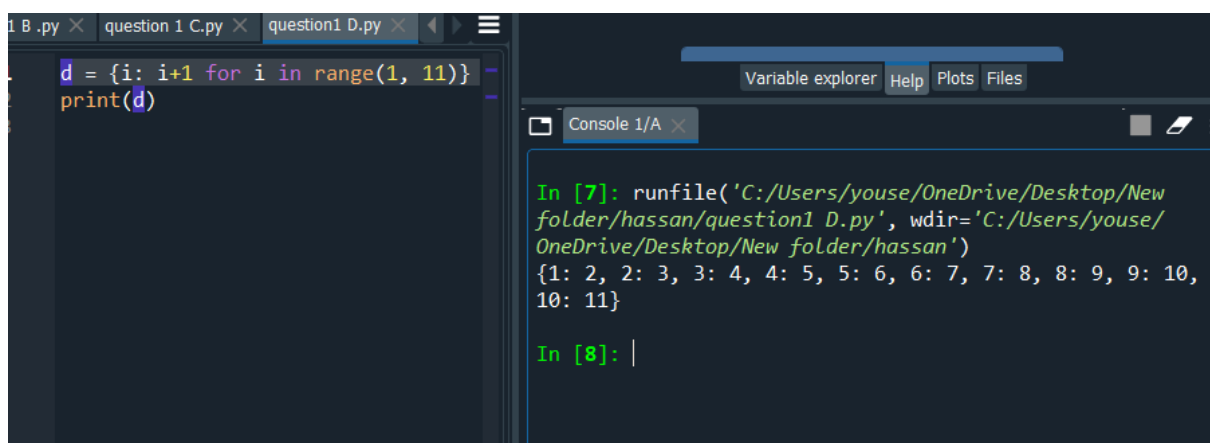


```
1 L = [  
2     'Network',  
3     'Bio',  
4     'programming',  
5     'Physics',  
6     'Music'  
7  
8 ]  
9  
10 for I in L :  
11     if I.startswith('B') :  
12         print(I)  
13
```

Console 1/A

```
In [6]: runfile('C:  
Bio  
  
In [7]:
```

.D



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

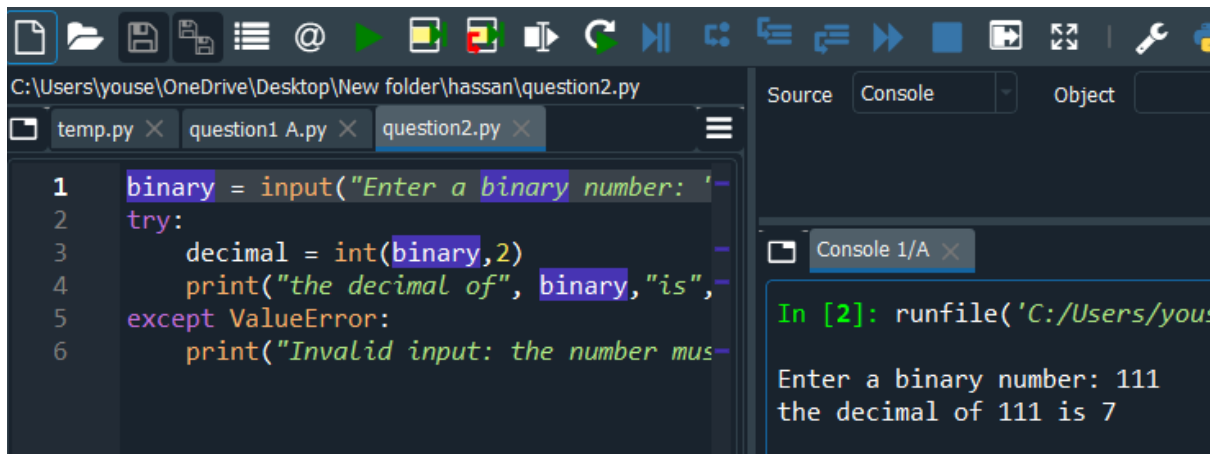
Variable explorer Help Plots Files

Console 1/A

```
In [7]: runfile('C:/Users/youse/OneDrive/Desktop/New  
folder/hassan/question1 D.py', wdir='C:/Users/youse/  
OneDrive/Desktop/New folder/hassan')  
{1: 2, 2: 3, 3: 4, 4: 5, 5: 6, 6: 7, 7: 8, 8: 9, 9: 10,  
10: 11}  
  
In [8]: |
```

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.



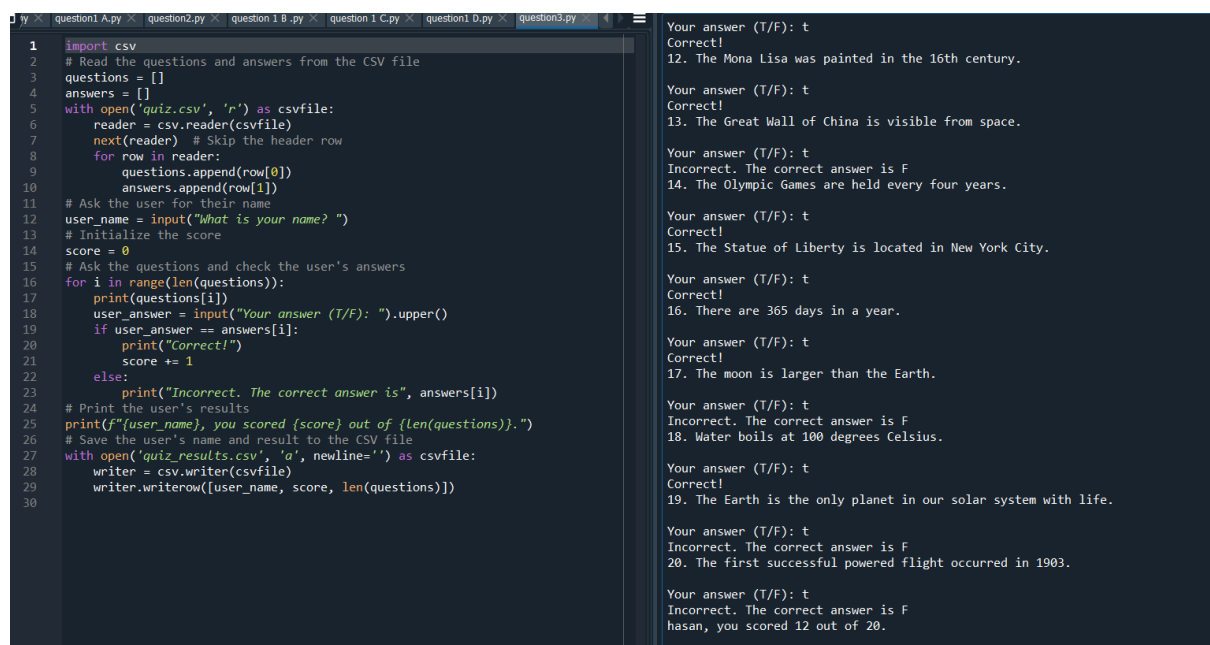
```
1 binary = input("Enter a binary number: ")
2 try:
3     decimal = int(binary,2)
4     print("the decimal of", binary,"is",
5 except ValueError:
6     print("Invalid input: the number mus-
```

Console 1/A

```
In [2]: runfile('C:/Users/you
Enter a binary number: 111
the decimal of 111 is 7
```

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.



```
1 import csv
2 # Read the questions and answers from the CSV file
3 questions = []
4 answers = []
5 with open('quiz.csv', 'r') as csvfile:
6     reader = csv.reader(csvfile)
7     next(reader) # Skip the header row
8     for row in reader:
9         questions.append(row[0])
10        answers.append(row[1])
11 # Ask the user for their name
12 user_name = input("What is your name? ")
13 # Initialize the score
14 score = 0
15 # Ask the questions and check the user's answers
16 for i in range(len(questions)):
17     print(questions[i])
18     user_answer = input("Your answer (T/F): ").upper()
19     if user_answer == answers[i]:
20         print("Correct!")
21         score += 1
22     else:
23         print("Incorrect. The correct answer is", answers[i])
24 # Print the user's results
25 print(f"{user_name}, you scored {score} out of {len(questions)}.")
26 # Save the user's name and result to the CSV file
27 with open('quiz_results.csv', 'a', newline='') as csvfile:
28     writer = csv.writer(csvfile)
29     writer.writerow([user_name, score, len(questions)])
30
```

Your answer (T/F): t
Correct!
12. The Mona Lisa was painted in the 16th century.
Your answer (T/F): t
Correct!
13. The Great Wall of China is visible from space.
Your answer (T/F): t
Incorrect. The correct answer is F
14. The Olympic Games are held every four years.
Your answer (T/F): t
Correct!
15. The Statue of Liberty is located in New York City.
Your answer (T/F): t
Correct!
16. There are 365 days in a year.
Your answer (T/F): t
Correct!
17. The moon is larger than the Earth.
Your answer (T/F): t
Incorrect. The correct answer is F
18. Water boils at 100 degrees Celsius.
Your answer (T/F): t
Correct!
19. The Earth is the only planet in our solar system with life.
Your answer (T/F): t
Incorrect. The correct answer is F
20. The first successful powered flight occurred in 1903.
Your answer (T/F): t
Incorrect. The correct answer is F
hasan, you scored 12 out of 20.

Question 4: Object-Oriented Programming - Bank Class

Define a class BankAccount with the following attributes and methods:

Attributes: account_number (string), account_holder (string), balance (float, initialized to 0.0)

Methods: deposit(amount), withdraw(amount), get_balance()

- Create an instance of BankAccount, - Perform a deposit of \$1000, - Perform a withdrawal of \$500.
- Print the current balance after each operation.
- Define a subclass SavingsAccount that inherits from BankAccount and adds **interest_rate** Attribute and **apply_interest()** method that Applies interest to the balance based on the interest rate.

And **Override print()** method to print the current balance and rate.

- Create an instance of SavingsAccount, and call apply_interest() and print() functions.

```
1 #Question 4
2 class BankAccount:
3     def __init__(self, account_number, account_holder):
4         self.account_number = account_number
5         self.account_holder = account_holder
6         self.balance = 0.0
7     def deposit(self, amount):
8         self.balance += amount
9         print(f"Deposited ${amount:.2f} into account {self.account_number}. New balance: ${self.balance:.2f}")
10    def withdraw(self, amount):
11        if self.balance >= amount:
12            self.balance -= amount
13            print(f"Withdrew ${amount:.2f} from account {self.account_number}. New balance: ${self.balance:.2f}")
14        else:
15            print(f"Insufficient funds in account {self.account_number}. Current balance: ${self.balance:.2f}")
16    def get_balance(self):
17        return self.balance
18    class SavingsAccount(BankAccount):
19        def __init__(self, account_number, account_holder, interest_rate):
20            super().__init__(account_number, account_holder)
21            self.interest_rate = interest_rate
22        def apply_interest(self):
23            interest_earned = self.balance * self.interest_rate
24            self.balance += interest_earned
25            print(f"Applied {self.interest_rate * 100:.2f}% interest to account {self.account_number}. New balance: ${self.balance:.2f}")
26        def __str__(self):
27            return f"Account Number: {self.account_number}, Account Holder: {self.account_holder}, Interest Rate: {self.interest_rate}"
28    bank_account = BankAccount("937266144", "yousefsalem")
29    bank_account.deposit(1000)
30    bank_account.withdraw(500)
31    print(f"Final balance: ${bank_account.get_balance():.2f}")
32    savings_account = SavingsAccount("992577513", "mohamadsalem", 0.05)
33    savings_account.apply_interest()
34    print(savings_account)
```

```
In [9]: runfile('C:/Users/youse/OneDrive/Desktop/New folder/hassan/question 4.py', wdir='C:/Users/youse/OneDrive/Desktop/New folder/hassan')
Deposited $1000.00 into account 937266144. New balance: $1000.00
Withdrew $500.00 from account 937266144. New balance: $500.00
Final balance: $500.00
Applied 5.00% interest to account 992577513. New balance: $525.13
Account Number: 992577513, Account Holder: mohamadsalem, Balance: $525.13, Interest Rate: 5.00%

In [10]:
```