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## Network Programming Homework (1)

### 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 }

```
a.py
1 d= { }
2 L1 = ['HTTP', 'HTTPS', 'FTP', 'DNS']
3 L2 = [80,443,21,53]
4 for m,f in zip(L1,L2):
5     d[m]=f
6 print(d)
7
```

```
{'HTTP': 80, 'HTTPS': 433, 'FTP': 21, 'DNS': 53}
```

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

```
b.py
1 m=int(input('enter number '))
2 f=1
3 for i in range (1,m+1):
4     f=f*i
5 print('the factorial of ', m , 'is: ', f)
```

```
enter number 4
the factorial of 4 is: 24
```

\*\*\*\*\*

**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 ()', starts with() method

```
c.py x
1  L = ['Network', 'Bio', 'Programming', 'Physics', 'Music']
2  i = 0
3  for i in range(len(L)):
4      if L[i].startswith("B"):
5          print(L[i])
6
```

```
Bio
```

\*\*\*\*\*

**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}

```
d.py x
1  d = {a:a+1 for a in range(0,11)}
2  print(d)
3
4
```

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

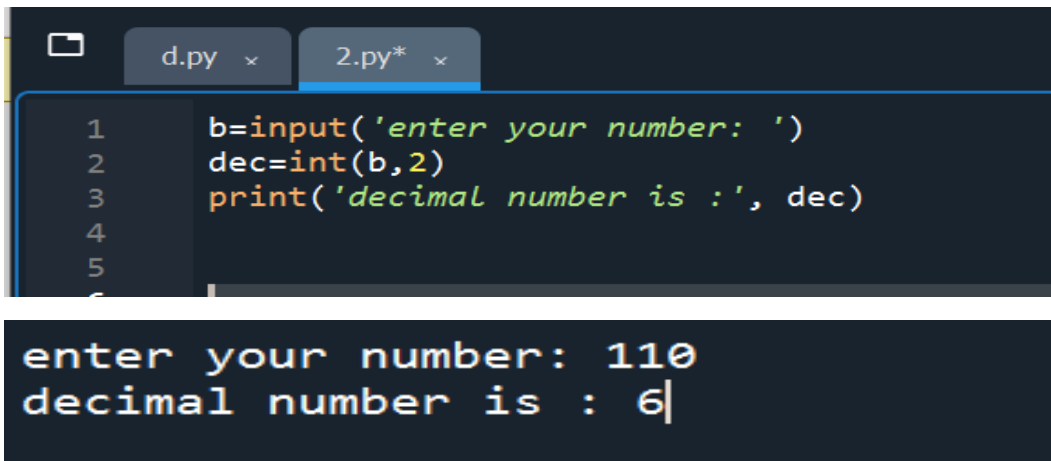
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### Question 2: Convert from Binary to Decimal

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.



```
d.py 2.py*  
1 b=input('enter your number: ')  
2 dec=int(b,2)  
3 print('decimal number is :', dec)  
4  
5  
6  
  
enter your number: 110  
decimal number is : 6|
```

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### 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.

```
import json
que = { }

res = 0

num=1

b = open("questions.txt",'r')
que = json.load(b)
b.close()


name = input("Enter your name: ")
#display the questions
for i in que.keys():

    print("Question",num , ": ", i)
    a = input("The answer is ")

    if a == que[i]:
        res = res + 1


    num = num + 1

result={name:res}
m = open("result.txt",'w')
result = json.dump(result,m)
m.close()
```

 \*questions - Notepad

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```
{
" 'gg'.islower() return true " : "t",
" 'gg'.isupper() return true " : "f",
" 'gg'.isdigit() return true " : "f",
" 'gg'.isalnum() return true " : "t",
" 'ab13'.isalpha() return true " : "f",
" 'ab13'.isdigit() return true " : "f",
" 'ab13'.isalnum() return true " : "t",
" 'abc'.startswith('ab') return true " : "t",
" 'abc'.startswith('abc') return true " : "t",
" 'abc'.startswith('g') return true " : "f",
" 'abc'.startswith('f') return true " : "f",
" 'abc'.endswith('bc') return true " : "t",
" 'abc'.endswith('ff') return true " : "f",
" 'abc'.endswith('a') return true " : "f",
" python is easy language " : "t",
" there are three types of errors in python " : "t",
" 'FATIMA'.islower() return true " : "f",
" 'FATIMA'.isupper() return true " : "t",
" '123'.isdigit() return true " : "t",
" '12n'.isalnum() return true " : "t",
}
```

 result - Notepad

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```
{"fatima ali": 11}
```

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#### 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

```
class BankAccount:
    def __init__(self, account_number, account_holder):
        self.account_number = account_number
        self.account_holder = account_holder
        self.balance = 0.0

    def deposit(self, amount):
        self.balance += amount

    def withdraw(self, amount):
        if self.balance >= amount:
            self.balance -= amount

    def get_balance(self):
        return self.balance

class SavingsAccount(BankAccount):

    def __init__(self, account_number, account_holder, interest_rate):
        super().__init__(account_number, account_holder)
        self.interest_rate = interest_rate

    def apply_interest(self):
        interest_amount = self.balance * self.interest_rate
        self.balance += interest_amount

    def print(self):
        print(f'current balance: ${self.balance}, interest rate: {self.interest_rate}')
```

```

class SavingsAccount(BankAccount):

    def __init__(self, account_number, account_holder, interest_rate):
        super().__init__(account_number, account_holder)
        self.interest_rate = interest_rate

    def apply_interest(self):
        interest_amount = self.balance * self.interest_rate
        self.balance += interest_amount

    def print(self):
        print(f'current balance: ${self.balance}, interest rate: {self.interest_rate}')

bank_acc=BankAccount('2627129', 'Fatima Ali')
bank_acc.deposit(1000)
print(f'balance after deposit: $ {bank_acc.get_balance()}')
bank_acc.withdraw(500)
print(f'Balance after withdraw: $ {bank_acc.get_balance()}')
savings_acc = SavingsAccount('2712926', 'Mouhammad Ali', 0.05)
savings_acc.deposit(2000)
savings_acc.apply_interest()
savings_acc.print()

```

```

balance after deposit: $ 1000.0
Balance after withdraw: $ 500.0
current balance: $2100.0, interest rate:
0.05

```