Homework 1

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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 }
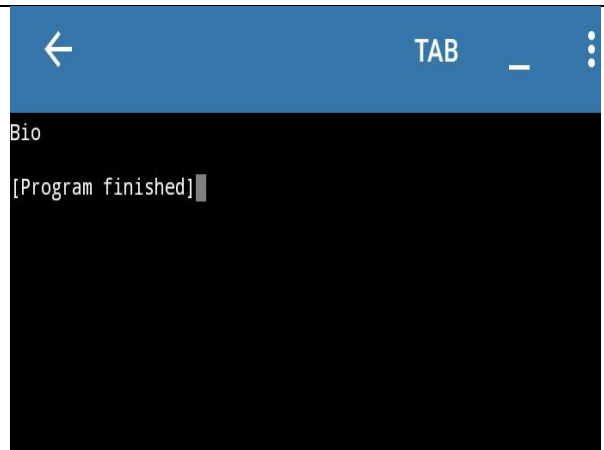
CODE	RESULT
L1 = ["HTTP","HTTPS","FTP","DNS"] L2 = [80.443,21.53] D = {} for k,v in zip(L1,L2) : D{k} = v print (D)	← TAB _ ⋮ {'HTTP': 80, 'HTTPS': 443, 'FTP': 21, 'DNS': 53} [Program finished]

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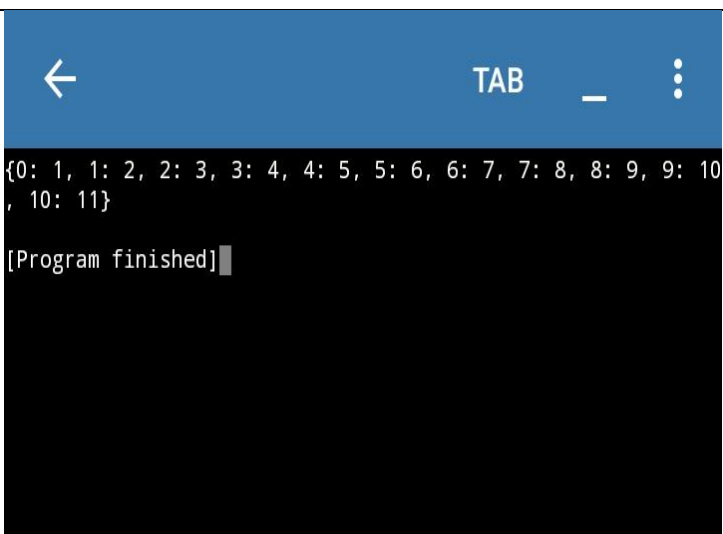
CODE	RESULT

while True :
   n = eval(input("enter number : ")
   factorial = 1
   for I in range (1,n+1) :
     factorial *= i
   print('Factorial of %d is %d'
%(n,factorial))
	← TAB _ ⋮
	
	enter number : 5
	Factorial of 5 is 120
	enter number : 8
	Factorial of 8 is 40320
	enter number : 2
	Factorial of 2 is 2
	enter number :

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

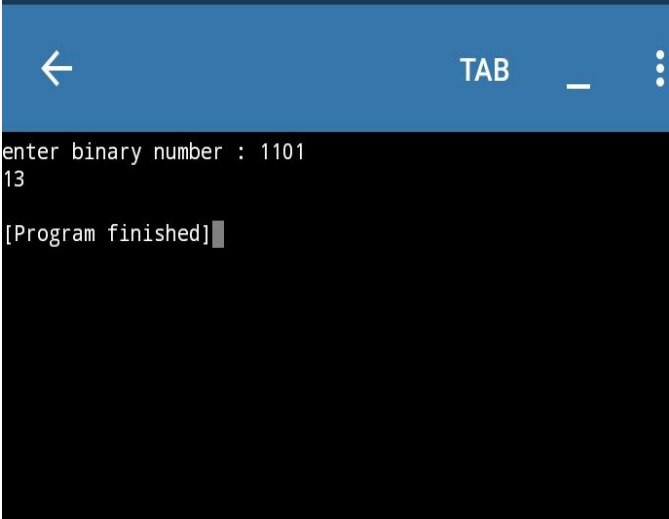items that starts with 'B' letter, then print it on screen. Tips: using loop, 'len ()' , startswith() methods.

CODE	RESULT

L =['Network' , 'Bio' , 'Programming', 'Physics' , 'Music']
for I in range(len(L)) :
   if L[i].startswith('B') :
     print(L[i])
	← TAB _ ⋮
	
	Bio
	
	[Program finished]▮

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}.

CODE	RESULT
d = {x:x+1 for x in range(0,11)} print(d)	← TAB _ ⋮ {0: 1, 1: 2, 2: 3, 3: 4, 4: 5, 5: 6, 6: 7, 7: 8, 8: 9, 9: 10 , 10: 11} [Program finished]▮

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.

CODE	RESULT
| ```python
B = list(input("enter binary number : ")
D = 0
for i in range(len(B)) :
    t = B.pop()
    if t == "1" :
        D = D+pow(2,i)
print (D)
``` | enter binary number : 1101<br>13<br><br>[Program finished] |

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   f = "morhaf.txt"
2   infile = open(f,'r')
3   r = infile.read()
4   s = r.split()
5   infile.close()
6   degre = 0
7   for i in s :
8       print(i[ :-1])
9       r = input ()
10      if r == i[-1] :
11          degre+=1
12  user = input("enter your name ")
13  r = user + " , "+ str(degre)+"/20"
14  print (r)
15  out = open("2848.csv",'w')
16  out.write(r)
17  out.close()
```

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.

Screen Code with Pydroide

```python
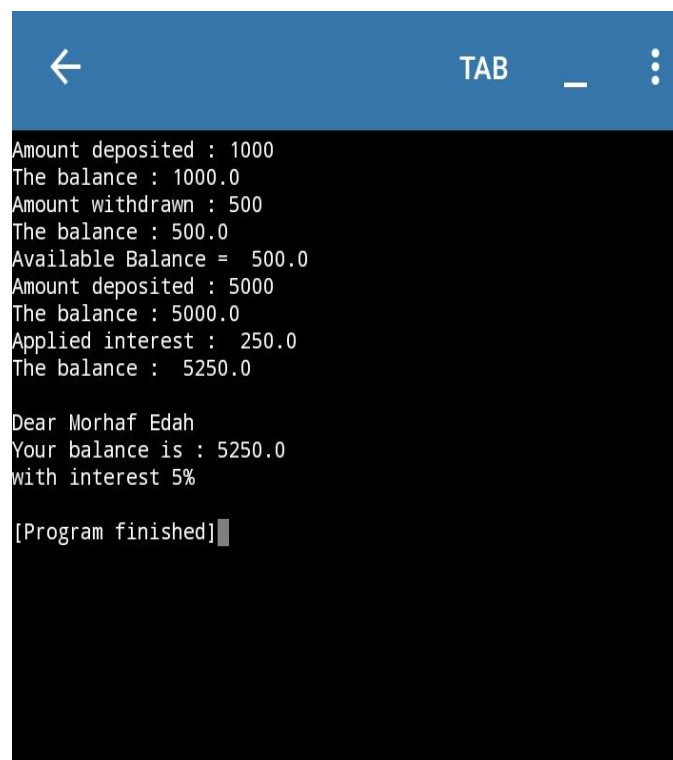 1  #Define a class BankAccount
 2  class Bank_Account:
 3      def __init__(self, account_number="",
        account_holder="",balance=0.0):
 4          self.account_number =
        account_number
 5          self.account_holder =
        account_holder
 6          self.balance = balance
 7      def deposit(self, amount):
 8          if amount > 0:
 9              self.balance += amount
10              print("Amount deposited :",amount,
        "\nThe balance :",self.balance)
11          else:
12              print("You will be enter positef
        amount")
13      def withdraw(self, amount):
14          if 0 < amount and amount <= self.
        balance:
15              self.balance -= amount
16              print("Amount withdrawn :",amount,
        "\nThe balance :",self.balance)
17          else:
18              print("Insufficient balance or
        invalid withdrawal amount.")
19      def get_balance(self) :
20          print("Available Balance = ",self.
        balance)
21      def __str__(self):
22          return str(self.balance)
23  #Define a subclass SavingsAccount that
    inherits from BankAccount
24  class SavingsAccount(Bank_Account):
25      def __init__(self, account_number="",
        account_holder="",interest_rate=0.0):
26          super().__init__(account_number,
        account_holder)
27          self.interest_rate = interest_rate
28      def apply_interest(self):
29          interest = self.balance * self.
        interest_rate / 100
30          self.balance += interest
31          print("Applied interest : ",interest,
        "\nThe balance : ",self.balance)
32      def __str__(self):
33          return ("\nDear "+str(self.
        account_holder) +"\nYour balance is : "+
        str(self.balance)+"\nwith interest "+
        str(self.interest_rate)+"%")
```

```python
34
35  # Create an instance of BankAccount
36  account = Bank_Account("2848", "Morhaf
    Edah")
37  # Perform a deposit of $1000
38  account.deposit(1000)
39  # Perform a withdrawal of $500
40  account.withdraw(500)
41  # Print the current balance after each
    operation
42  account.get_balance()
43
44  # Create an instance of SavingsAccount
45  savings_account =
    SavingsAccount("2848", "Morhaf Edah",
    interest_rate=5)
46  # Perform a deposit of $5000
47  savings_account.deposit(5000)
48  # Apply interest
49  savings_account.apply_interest()
50  # Print the current balance and interest
    rate
51  print(savings_account)
```

Screen Result with Pydroide