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Question 1: Python Basics

In [1]:
```python
#  A. Converting Two Lists into a Dictionary
# Lists
L1 = ['HTTP', 'HTTPS', 'FTP', 'DNS']
L2 = [80, 443, 21, 53]

# Converting to dictionary
d = dict(zip(L1, L2))

# Output
print(d)
```

```
{'HTTP': 80, 'HTTPS': 443, 'FTP': 21, 'DNS': 53}
```

In [2]:
```python
#B. Calculating Factorial of a Given Number
# Function to calculate factorial
def factorial(n):
    if n == 0:
        return 1
    else:
        return n * factorial(n-1)

# Taking user input
number = int(input("Enter a number to calculate its factorial: "))

# Calculating factorial
result = factorial(number)

# Output
print(f"The factorial of {number} is {result}")
```

```
Enter a number to calculate its factorial: 3
The factorial of 3 is 6
```

In [3]:
```python
#C. Identifying Items Starting with 'B'
# List of items
L = ['Network', 'Bio', 'Programming', 'Physics', 'Music']

# Identifying items starting with 'B'
for item in L:
    if item.startswith('B'):
        print(item)
```

```
Bio
```

In [4]:
```python
#D. Generating Dictionary Using Comprehension
# Dictionary comprehension
d = {i: i + 1 for i in range(11)}

# Output
print(d)
```

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

Question 2: Convert from Binary to Decimal

In [5]:
```python
# Function to convert binary to decimal
def binary_to_decimal(binary):
    try:
        decimal = int(binary, 2)
        return decimal
    except ValueError:
        return "Invalid binary number"

# Taking user input
binary_number = input("Enter a binary number: ")

# Converting and outputting
decimal_number = binary_to_decimal(binary_number)
print(f"The decimal equivalent of binary {binary_number} is {decimal_number}")
```

```
Enter a binary number: 10110
The decimal equivalent of binary 10110 is 22
```

Question 3: Working with Files" Quiz Program"

ملف الأسئلة:

1+5=6

5*5=25

10-3=7

8/2=4

9+1=10

7*3=21

15-5=10

12/3=4

6+4=10

3*6=18

8-4=4

16/4=4

11+2=13

9*2=18

20-10=10

24/6=4

7+9=16

4*5=20

18-8=10

30/5=6

[7]:
```python
import os

# Function to read questions and answers from a text file
def read_quiz_file(filename):
    with open(filename, 'r') as file:
        lines = file.readlines()

    questions = []
    answers = []
    for line in lines:
        question, answer = line.strip().split('=')
        questions.append(question + '?')
        answers.append(answer)

    return questions, answers

# Function to conduct the quiz
def conduct_quiz(questions, answers):
    score = 0
    for i in range(len(questions)):
        print(questions[i])
        user_answer = input("Your answer: ").strip()
        if user_answer == answers[i]:
            score += 1
    return score

# Function to save the user's result to a CSV file
def save_result_to_csv(filename, username, score, total_questions):
    if not os.path.exists(filename):
        with open(filename, 'w') as file:
            file.write("Username,Score,Total Questions,Percentage\n")

    percentage = (score / total_questions) * 100
    with open(filename, 'a') as file:
        file.write(f"{username},{score},{total_questions},{percentage:.2f}\n")

# Main program
def main():
    questions, answers = read_quiz_file('quiz.txt')
    username = input("Enter your name: ")
    print("Starting the quiz...")
    score = conduct_quiz(questions, answers)
    total_questions = len(questions)
    print(f"{username}, you scored {score} out of {total_questions} ({(score/total_questions)*100:.2f}%)")

    save_result_to_csv('results.csv', username, score, total_questions)

if __name__ == "__main__":
    main()
```

النتيجة

	A	B	C	D	E
1	Username	Score	Total Que	Percentage	
2	marwa	18	20	90	
3					
4					

الخرج

```
Enter your name: marwa
Starting the quiz...
1+5?
Your answer: 6
5*5?
Your answer: 25
10-3?
Your answer: 7
8/2?
Your answer: 4
9+1?
Your answer: 10
7*3?
Your answer: 21
15-5?
Your answer: 10
12/3?
Your answer: 4
6+4?
Your answer: 10
3*6?
Your answer: 18
8-4?
Your answer: 4
16/4?
Your answer: 0
11+2?
Your answer: 13
9*2?
Your answer: 18
20-10?
Your answer: 10
24/6?
Your answer: 4
7+9?
Your answer: 63
4*5?
Your answer: 20
18-8?
Your answer: 10
30/5?
Your answer: 6
marwa, you scored 18 out of 20 (90.00%)
```

Question 4: Object-Oriented Programming - Bank Class

In [6]:
```python
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
        print(f"Deposited ${amount}. Current balance: ${self.balance}")

    def withdraw(self, amount):
        if amount > self.balance:
            print("Insufficient funds")
        else:
            self.balance -= amount
            print(f"Withdrew ${amount}. Current balance: ${self.balance}")

    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):
        self.balance += self.balance * self.interest_rate
        print(f"Applied interest. New balance: ${self.balance}")

    def __str__(self):
        return f"Account Balance: ${self.balance}, Interest Rate: {self.interest_rate * 100}%"

# Creating an instance of BankAccount
account = BankAccount('1930', ' مروى عيد حسان')
# Perform a deposit of $1000
account.deposit(1000)

# Perform a withdrawal of $500
account.withdraw(500)

# Print the current balance
print(f"Current balance: ${account.get_balance()}")
```

```python
# Print the current balance
print(f"Current balance: ${account.get_balance()}")

# Creating an instance of SavingsAccount
savings_account = SavingsAccount('1930', " 0.25,"مروى عيد حسان)

# Perform a deposit in SavingsAccount
savings_account.deposit(2000)

# Apply interest
savings_account.apply_interest()

# Print the current balance and interest rate
print(savings_account)
```

```
Deposited $1000. Current balance: $1000.0
Withdrew $500. Current balance: $500.0
Current balance: $500.0
Deposited $2000. Current balance: $2000.0
Applied interest. New balance: $2500.0
Account Balance: $2500.0, Interest Rate: 25.0%
```