Practical 6 :-

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Problem Statement 1 :-

Online Shopping Cart: Imagine you're developing an online shopping platform. Create a Python program that simulates a user's shopping cart.

- Allow the user to add product names and prices to their cart.
- Display the current items in the cart.
- Allow the user to remove items from the cart.
- Calculate the total price and display the total number of items in the cart.

In [7]:
```
# Approach using list of tuples, where each product name and price is inserted a

cart = [] # initialize empty list of tuples

while True:

    print("\nSHOPPING CART OPERATIONS :- \n1. Add product to cart. \n2. Display
    ch = int(input("Enter choice: "))

    if ch == 1:
        product_name = input("\nEnter product name to add: ")
        product_price = float(input("Enter product price: "))
        cart.append((product_name, product_price))
        print(f"{product_name} added to cart successfully!\n")

    elif ch == 2:
        if len(cart) == 0:
            print("\nYour cart is empty!\n")
        else:
            print("\nItems in your cart are :-")
            for item in cart:
                print(f"{item[0]}\t\tRs. {item[1]:.2f}")
            print() # to add a newline

    elif ch == 3:
        product_name = input("\nEnter product name to remove: ")
        product_in_cart = False
        for item in cart:
            if item[0] == product_name:
                product_in_cart = True
                cart.remove(item)
                # break # to remove only first occurence of the product
        if product_in_cart:
            print(f"{product_name} removed from cart!\n")
        else:
            print(f"{product_name} does not exist in the cart!\n")

    elif ch == 4:
        total_price = 0
```

```
        for item in cart:
            total_price += item[1]
        print("\nTotal no. of items in cart:\t", len(cart))
        print(f"Total price of items in cart:\t Rs. {total_price:.2f}\n")

    elif ch == 0:
        print("\nExited the program successfully!")
        break

    else:
        print("\nEnter correct choice.\n")
```

```
SHOPPING CART OPERATIONS :-
1. Add product to cart.
2. Display items in cart.
3. Remove item from cart.
4. Calculate cart total.
0. Exit the program.
iPhone 16 added to cart successfully!


SHOPPING CART OPERATIONS :-
1. Add product to cart.
2. Display items in cart.
3. Remove item from cart.
4. Calculate cart total.
0. Exit the program.
Apple Airpods added to cart successfully!


SHOPPING CART OPERATIONS :-
1. Add product to cart.
2. Display items in cart.
3. Remove item from cart.
4. Calculate cart total.
0. Exit the program.
Apple Watch added to cart successfully!


SHOPPING CART OPERATIONS :-
1. Add product to cart.
2. Display items in cart.
3. Remove item from cart.
4. Calculate cart total.
0. Exit the program.
Items in your cart are :-
iPhone 16               Rs. 79900.00
Apple Airpods           Rs. 12900.00
Apple Watch             Rs. 29900.00


SHOPPING CART OPERATIONS :-
1. Add product to cart.
2. Display items in cart.
3. Remove item from cart.
4. Calculate cart total.
0. Exit the program.
```

```
Total no. of items in cart:      3
Total price of items in cart:    Rs. 122700.00


SHOPPING CART OPERATIONS :-
1. Add product to cart.
2. Display items in cart.
3. Remove item from cart.
4. Calculate cart total.
0. Exit the program.
Apple Watch removed from cart!


SHOPPING CART OPERATIONS :-
1. Add product to cart.
2. Display items in cart.
3. Remove item from cart.
4. Calculate cart total.
0. Exit the program.
Items in your cart are :-
iPhone 16               Rs. 79900.00
Apple Airpods           Rs. 12900.00


SHOPPING CART OPERATIONS :-
1. Add product to cart.
2. Display items in cart.
3. Remove item from cart.
4. Calculate cart total.
0. Exit the program.
Total no. of items in cart:      2
Total price of items in cart:    Rs. 92800.00


SHOPPING CART OPERATIONS :-
1. Add product to cart.
2. Display items in cart.
3. Remove item from cart.
4. Calculate cart total.
0. Exit the program.
Exited the program successfully!
```

Problem Statement 2 :-

Student Grade Analyzer: As a teacher, you have a list of student names and scores (out of 100) for a test.

- Write a Python program that calculates the average score and identifies students who scored above the average.

In [12]:
```python
# list of tuples containing student_name and student_marks as tuple pair
list = [("Sarthak Sanay", 89),
        ("Arnav Singh", 75),
        ("Kunal Mishra", 65),
        ("Rahul Singal", 52),
        ("Abhishek Tripathi", 94),
        ("Hardik Sharma", 44),
        ("Arjun Kumar", 33),
```

```
        ("Aman Yadav", 86),
        ("Vaibhav Raj", 96),
        ("Harsh Rathore", 88)]

# to find average marks of students
total = 0
for marks in list:
    total += marks[1]
average_marks = total / len(list)

# printing names of students who have scored above the average marks
print("Average marks:", average_marks)
print(f"\nStudents who have scored above {average_marks} are :-\n")
for student in list:
    if student[1] > average_marks:
        print(student[0])
```

```
Average marks: 72.2

Students who have scored above 72.2 are :-

Sarthak Sanay
Arnav Singh
Abhishek Tripathi
Aman Yadav
Vaibhav Raj
Harsh Rathore
```

Problem Statement 3 :-

Temperature Converter: You're building a weather app. Create a Python program that converts temperatures between Celsius and Fahrenheit.

- Prompt the user to enter a temperature value and a unit (C or F).
- Calculate and display the converted temperature.
- Example: If the user enters 32 C, the program should output 89.6 F.

In [1]:
```
print("TEMPERATURE CONVERTER :- \nEnter 'EXIT' to terminate the program.\n")

while True:
    user_temp = input("Enter temperature value and a unit (C or F): ")

    if user_temp == "EXIT":
        print("\nExited the program successfully!")
        break

    temperature = float(user_temp[ :user_temp.find(" ")])
    unit = user_temp[(user_temp.find(" ")) + 1: ]
    unit = unit.upper()

    if unit == 'C':
        temp_fahr = (temperature * (9/5)) + 32
        print(f"Temperature in Fahrenheit: {temp_fahr:.2f} F\n")

    elif unit == 'F':
        temp_cel = (temperature - 32) * (5/9)
        print(f"Temperature in Celsius: {temp_cel:.2f} C\n")
```

```
    else:
        print("Enter correct unit for temperature.\n")
```

```
TEMPERATURE CONVERTER :-
Enter 'EXIT' to terminate the program.

Temperature in Fahrenheit: 75.20 F

Temperature in Fahrenheit: 87.80 F

Temperature in Celsius: 0.56 C

Temperature in Celsius: -6.67 C

Exited the program successfully!
```

Problem Statement 4 :-

Vowel Counter: You're developing a text analysis tool. Write a Python program that reads a sentence from the user.

- Count the number of vowels (a, e, i, o, u) in the sentence.
- Display the total count of each vowel.

In [2]:
```
print("Text Analysis Tool :-\n")

sentence = input("Enter a sentence: ")
sentence = sentence.upper()

# dictionary having key-value pair with vowels as keys, and the values being eac
vowels = {'A':0, 'E':0, 'I':0, 'O':0, 'U':0}

# checks if a char in the str is vowel, and increments the particular vowel acco
for char in sentence:
    if char in vowels:
        vowels[char] += 1

# to print the total no. of vowels as well as the count of each vowel
print("\nCount of each vowel is as follows:-")
total_vowels = 0
for vowel, count in vowels.items():
    print(f"{vowel}: {count}")
    total_vowels += count
print("\nTotal count of vowels in the sentence:", total_vowels)
```

```
Text Analysis Tool :-

Count of each vowel is as follows:-
A: 1
E: 3
I: 1
O: 4
U: 2

Total count of vowels in the sentence: 11
```

Problem Statement 5 :-

Bookstore Inventory: As a bookstore manager, you create a list of book titles and their corresponding quantities in stock.

- Write a Python program that asks if the user is a manager or a normal user.
- Then allow the manager to create and update the list of books.
- Allow other users to search for a book title and check its availability.
- Prompt the user to enter a book title.
- If the book is in stock, display the quantity available; otherwise, show an appropriate message.

In [2]:
```
# Approach using two lists (one to maintain the book titles, and the other one t

print("BOOKSTORE INVENTORY :- \nEnter 'EXIT' to terminate the program.\n")

# added few books as example
book_titles = ["Harry Potter", "Famous Five", "Merchant of Venice"]
book_quantity = [12, 5, 3]

while True:
    user_type = input("Enter M for 'Manager' or U for 'User' \nEnter choice: ")
    user_type = user_type.upper()

    if user_type == 'M':
        ch = int(input("Enter 1 to add a new book. \nEnter 2 to remove a book. \

        if ch == 1:
            book_add = input("\nEnter book title: ")
            quantity_add = int(input("Enter quantity: "))
            book_titles.append(book_add)
            book_quantity.append(quantity_add)
            print(f"Book '{book_add}' with {quantity_add} quantity successfully

        elif ch == 2:
            book_remove = input("\nEnter book title: ")
            book_found = False
            for index, book in enumerate(book_titles):
                if book == book_remove:
                    book_titles.remove(book_remove)
                    book_quantity.pop(index)
                    book_found = True
                    break
            if book_found:
                print(f"Book '{book_remove}' removed from inventory!\n")
            else:
                print(f"Book '{book_remove}' not found in inventory!\n")

        elif ch == 3:
            book_update = input("\nEnter book title: ")
            book_found = False
            for index, book in enumerate(book_titles):
                if book == book_update:
                    quantity_update = int(input("Enter new quantity value: "))
                    book_quantity[index] = quantity_update
                    book_found = True
                    break
            if book_found:
                print(f"Quantity of book '{book_update}' updated successfully!\n
```

```
            else:
                print(f"Book '{book_update}' not found in inventory!\n")

        else:
            print("\nEnter correct choice.\n")


    elif user_type == 'U':
        book_user = input("\nEnter a book title: ")
        book_found = False
        for index, book in enumerate(book_titles):
            if book == book_user:
                print(f"Book '{book_user}' is available in the inventory!")
                print(f"Quantity: {book_quantity[index]}\n")
                book_found = True
                break
        if book_found == False:
            print(f"Book '{book_user}' is not available in the inventory!\n")

    elif user_type == "EXIT":
        print("\nExited the program successfully!")
        break

    else:
        print("\nEnter correct choice.\n")
        continue
```

```
BOOKSTORE INVENTORY :-
Enter 'EXIT' to terminate the program.

Book 'Oliver Twist' with 4 quantity successfully added to inventory.

Book 'Wings of Fire' with 8 quantity successfully added to inventory.

Book 'Oliver Twist' is available in the inventory!
Quantity: 4

Quantity of book 'Oliver Twist' updated successfully!

Book 'Oliver Twist' is available in the inventory!
Quantity: 10

Book 'Oliver Twist' removed from inventory!

Book 'Oliver Twist' is not available in the inventory!

Enter correct choice.

Book 'Wings of Fire' is available in the inventory!
Quantity: 8

Exited the program successfully!
```