Task -5 Implement various searching and sorting operations in python programing.

3/9/25

Aim:- To implement various searching and sorting operations in python programing

Algorithm:-

1) Input Defination

2) Define the function Find-employee_by- that two parameters:

3) Iterate through the list.

use a for loop to iterate through each dictionary in the employee list

4) check for matching ID:

Within the loop, check if the id field of the current dictionary matches the target_id

5) Return matching Record:

If a match is found, return the current dictionary

6) Handle No match:

if the loop completes without finding a match, return None

Restore :C:\Users\91a7a\Desktop\Print 1\t3.py

{'id': 2, 'name': 'Bob', 'department': 'Engineering'}

Program 5.1

```
def find_employee_by_id(employees, target_id):
    for employee in employees:
        if employee['id'] == target_id:
            return employee
    return None

# Test the function
employees = [
    {'id': 1, 'name': 'Alice', 'department': 'HR'},
    {'id': 2, 'name': 'Bob', 'department': 'Engineering'},
    {'id': 3, 'name': 'Charlie', 'department': 'Sales'},
]
print(find_employee_by_id(employees, 2))
```

Result:- Thus, the program has been verified and executed successfully

Output :-

Before sorting:

{'name': 'Alice', 'score': 88}

{'name': 'Bob', 'score': 95}

{'name': 'Charlie', 'score': 75}

{'name': 'Diana', 'score': 85}

5.2

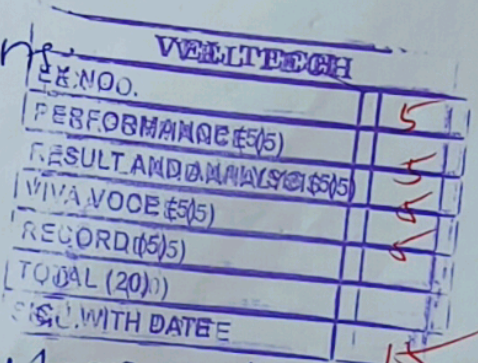
Aim:- You are developing a grade management system for school.

Algorithm:

1. Initialization:
   * Get the length of the students list and store it in n.
2. Outer Loop:
   * iterate from i=0 to n-1. This loop represents the number of passes through the list
3. Track Swaps:
   * Initialize a boolean variable swapped to false
4. Inner loop:
   * Iterate from j=0 to n-i-2. This loop compares adjacent elements in the list
5. Compare & Swap:
   * Compare their score values
   * If students[j]['score'] > students[j+1]['score']
   * Set swapped to True to indicate that a swap was made.
6. Completion
   * The function modifies the students list in place

Program 5.2

```
def bubble_sort_scores(students):
    n= len(students)
    for i in range(n):
#Track if any swap is made in this pass
    swapped=False
    for j in range [0, n-i-1):
    if students [j] ['score'] > students [j+1] ['score']:
#swap if the score of the current student is
greater than the next
    students [j], students [j+1] = students [j+1],
    students [j] swapped = True
    print ("Before sorting :")
    for student in students:
        print [student]
    bubble_sort_scores [students]
    print("In After sorting :")
    for student in students:
        print [student]
```



Result: Thus, the program has been verified and executed successfully