

AI Assisted Coding - Lab Test 2

Htno : 2503A52L10

Subgroup M

M.1 — [S15M1] Stable sort employees by dept asc, salary desc

Prompt :

Write a python program that takes a list of employee records(each with Name, Department, and Salary) then sort them department in ascending order and salary in descending order within each department then display the output in separate CSV file.

Code:

```
import csv

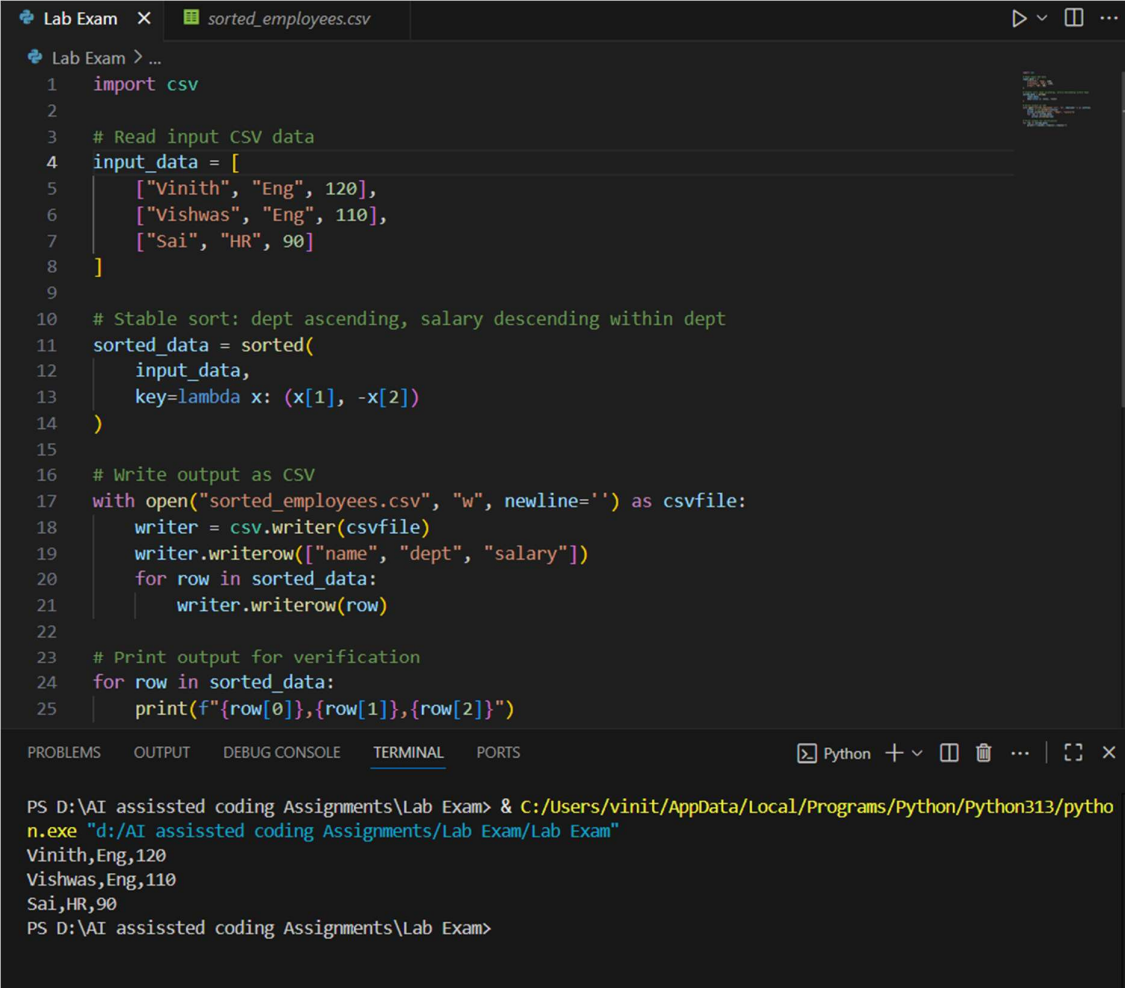
input_data = [
    ["Vinith", "Eng", 120],
    ["Vishwas", "Eng", 110],
    ["Sai", "HR", 90]
]

sorted_data = sorted(
    input_data,
    key=lambda x: (x[1], -x[2])
)

with open("sorted_employees.csv", "w", newline=") as csvfile:
    writer = csv.writer(csvfile)
    writer.writerow(["name", "dept", "salary"])
    for row in sorted_data:
        writer.writerow(row)

for row in sorted_data:
    print(f' {row[0]}, {row[1]}, {row[2]}")
```

Output :



The screenshot shows a Python IDE with a file named `sorted_employees.csv` open. The code in the editor performs the following steps:

- Imports the `csv` module.
- Reads input CSV data into a list `input_data` containing three rows: `["Vinith", "Eng", 120]`, `["Vishwas", "Eng", 110]`, and `["Sai", "HR", 90]`.
- Sorts the data using `sorted()` with a key `lambda x: (x[1], -x[2])`, which sorts by department (ascending) and then by salary (descending).
- Writes the sorted data to a new CSV file `sorted_employees.csv` using `csv.writer`. The first row is the header `["name", "dept", "salary"]`, followed by the three data rows.
- Prints the sorted data for verification.

The terminal output shows the command executed and the resulting sorted data:

```
PS D:\AI assisted coding Assignments\Lab Exam> & C:/Users/vinit/AppData/Local/Programs/Python/Python313/python.exe "d:/AI assisted coding Assignments/Lab Exam/Lab Exam"
Vinith,Eng,120
Vishwas,Eng,110
Sai,HR,90
PS D:\AI assisted coding Assignments\Lab Exam>
```

Explanation :

- I. Firstly imported CSV file
- II. Then defined employee data
- III. Then sorted department by ascending then salary by descending stable
- IV. Then `sorted_employees .csv` file was generated and the output was given in that CSV file

M.2 — [S15M2] Process movement commands

Prompt :

Write a python function that takes a list of movement commands for an agent starting at position(0,0) on grid. Give me related code based on related data.

Code:

```
def move_agent(commands):
    x, y = 0, 0
    for cmd in commands:
        if len(cmd) < 2 or not cmd[1:].isdigit():
            continue # Ignore invalid tokens
        direction = cmd[0]
        value = int(cmd[1:])
        if direction == 'N':
            y += value
        elif direction == 'E':
            x += value
        elif direction == 'S':
            y -= value
        elif direction == 'W':
            x -= value
        # Ignore any other direction
    return (x, y)
```

Example usage

```
commands = ['N2', 'E3', 'S1', 'E2']
```

```
result = move_agent(commands)
```

```
print(result) # Output
```

Output :

```

Q1 Q2 > move_agent
1 def move_agent(commands):
2     x, y = 0, 0
3     for cmd in commands:
4         if len(cmd) < 2 or not cmd[1:].isdigit():
5             continue # Ignore invalid tokens
6         direction = cmd[0]
7         value = int(cmd[1:])
8         if direction == 'N':
9             y += value
10        elif direction == 'E':
11            x += value
12        elif direction == 'S':
13            y -= value
14        elif direction == 'W':
15            x -= value
16        # Ignore any other direction
17    return (x, y)
18
19 # Example usage
20 commands = ['N2', 'E3', 'S1', 'E2']
21 result = move_agent(commands)
22 print(result) # Output

```

PROBLEMS 4 OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS D:\AI assisted coding Assignments\Lab Exam> & C:/Users/vinit/AppData/Local/Programs/Python/Python313/python n.exe "d:/AI assisted coding Assignments/Lab Exam/Q2"
(5, 1)
PS D:\AI assisted coding Assignments\Lab Exam>

Explanation :

- I. The function move_agent starts the agent position(0,0)
- II. It loops through each movement command in list
- III. Each command is checked for validity
- IV. The direction determines which axis to change
- V. Invalid commands are ignored
- VI. Functions returns final position for all valid moves
- VII. It generated the output for given values.