

PES UNIVERSITY, BENGALURU

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UE25CS151A – PYTHON FOR COMPUTATIONAL PROBLEM SOLVING LAB MANUAL

WEEK 7

TOPICS:

Programs on File and File Manipulations

OBJECTIVE:

Solve practical problems using Files.

NOTE: Use **pythonlab.csv file to work on the below questions.**

Problem Statement 1:

Read the contents of pythonlab.csv and display each record neatly in separate lines.

Solution:

```
f = open("pythonlab.csv", "r")
for line in f:
    print(line.strip())
f.close()
```

Output:

```
Name,Location,Birthdate,Position,Salary
Antony,Chennai,12-05-1988,Software Engineer,62000
Meena R,Cochin,25-03-1992,HR Executive,45000
Ravi Shankar,Madurai,14-07-1985,Project Manager,82000
Sarah,Mangalore,18-09-1990,Data Analyst,55000
Pradeep Raj,Bengaluru,01-12-1994,System Administrator,48000
Anitha S,Cochin,22-02-1989,Software Tester,52000
Vignesh M,Hyderabad,05-10-1986,Team Lead,76000
Divya K,Trivandrum,17-04-1995,UI Designer,47000
Gokul N,Mysuru,09-06-1993,Network Engineer,54000
Karthik R,Chennai,15-08-1987,DevOps Engineer,68000
Akbar,Mysuru,28-11-1991,Business Analyst,60000
Suresh P,Hyderabad,30-01-1984,Database Administrator,75000
Priya L,Madurai,12-07-1996,Technical Writer,42000
Balaji T,Bengaluru,09-09-1983,Product Manager,88000
Keerthana G,Cochin,21-12-1995,Support Engineer,46000
```

Problem Statement 2:

Count how many employee records are present in the file (excluding the header).

Solution:

```
f = open("pythonlab.csv", "r")
lines = f.readlines()
count = len(lines) - 1           # excluding header
print("Total number of employees:", count)
f.close()
```

Output:

Total number of employees: 15

Problem Statement 3:

Display only the Name and Position columns for all employees.

Solution:

```
f = open("pythonlab.csv", "r")
header = f.readline()
for line in f:
    data = line.strip().split(",")
    print(data[0],"-",data[3])
f.close()
```

Output:

Antony - Software Engineer
 Meena R - HR Executive
 Ravi Shankar - Project Manager
 Sarah - Data Analyst
 Pradeep Raj - System Administrator
 Anitha S - Software Tester
 Vignesh M - Team Lead
 Divya K - UI Designer
 Gokul N - Network Engineer
 Karthik R - DevOps Engineer
 Akbar - Business Analyst
 Suresh P - Database Administrator
 Priya L - Technical Writer
 Balaji T - Product Manager
 Keerthana G - Support Engineer

Problem Statement 4:

Print names of employees who earn more than ₹50,000 along with their salary.

Solution:

```
f = open("pythonlab.csv", "r")
f.readline() # skip header
count = 0
for line in f:
    data = line.strip().split(",")
    if int(data[4]) > 50000:
        print(data[0], "-", data[4])
        count += 1
f.close()
print("The number of employees drawing sal greater than 50000:", count)
```

Output:

```
Antony - 62000
Ravi Shankar - 82000
Sarah - 55000
Anitha S - 52000
Vignesh M - 76000
Gokul N - 54000
Karthik R - 68000
Akbar - 60000
Suresh P - 75000
Balaji T - 88000
The number of employees drawing sal greater than 50000: 10
```

Problem Statement 5:

Read the file and count how many employees are from each location.

Solution:

```
f = open("pythonlab.csv", "r")
f.readline()
loc_count = {}
for line in f:
    data = line.strip().split(",")
    loc = data[1]
    if loc in loc_count:
        loc_count[loc] += 1
    else:
        loc_count[loc] = 1
f.close()
```

```
for k, v in loc_count.items():
    print(k, ":", v)
```

Output:

```
Chennai : 2
Cochin : 3
Madurai : 2
Mangalore : 1
Bengaluru : 2
Hyderabad : 2
Trivandrum : 1
Mysuru : 2
```

Problem Statement 6:

Identify the employee with the maximum salary and display their details.

Solution:

```
f = open("pythonlab.csv", "r")
f.readline()
max_sal = 0
emp = ""
for line in f:
    data = line.strip().split(",")
    sal = int(data[4])
    if sal > max_sal:
        max_sal = sal
        emp = data
f.close()

print("Highest Paid Employee:", emp[0])
print("Details:", emp)
```

Output:

```
Highest Paid Employee: Balaji T
Details: ['Balaji T', 'Bengaluru', '09-09-1983', 'Product Manager', '88000']
```

Problem Statement 7:

Create a new file names.txt containing only employee names from the dataset

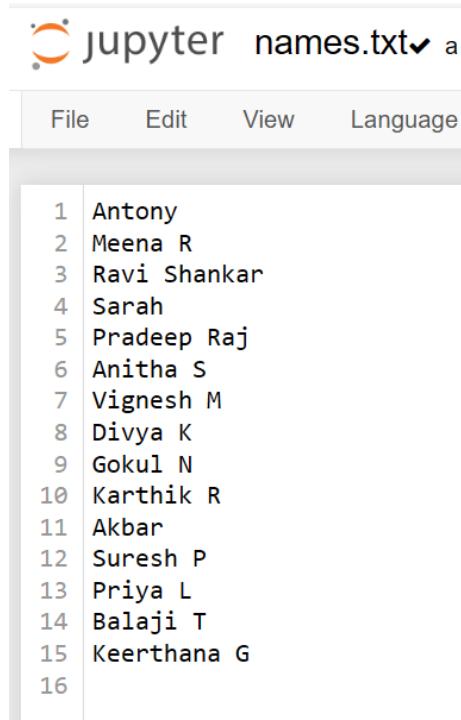
Solution:

```
f = open("pythonlab.csv", "r")
out = open("names.txt", "w")
f.readline()
for line in f:
    data = line.strip().split(",")
    out.write(data[0] + "\n")

f.close()
out.close()
print("Names written to names.txt")
```

Output:

Names written to names.txt



The screenshot shows a Jupyter Notebook interface. The title bar says 'jupyter names.txt a'. The menu bar includes 'File', 'Edit', 'View', and 'Language'. The code cell contains the following list of names, each preceded by a line number:

1	Antony
2	Meena R
3	Ravi Shankar
4	Sarah
5	Pradeep Raj
6	Anitha S
7	Vignesh M
8	Divya K
9	Gokul N
10	Karthik R
11	Akbar
12	Suresh P
13	Priya L
14	Balaji T
15	Keerthana G
16	

Problem Statement 8:

Create a file before1990.txt with details of employees born before 1990.

Solution:

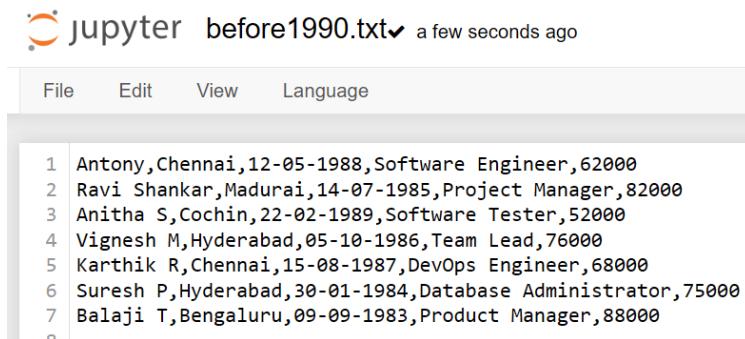
```
f = open("pythonlab.csv", "r")
out = open("before1990.txt", "w")

f.readline()
for line in f:
    data = line.strip().split(",")
    year = int(data[2].split("-")[2])
    if year < 1990:
        out.write(line)

f.close()
out.close()
print("Data written to before1990.txt")
```

Output:

Data written to before1990.txt



```
jupyter before1990.txt a few seconds ago
```

File Edit View Language

```

1 Antony,Chennai,12-05-1988,Software Engineer,62000
2 Ravi Shankar,Madurai,14-07-1985,Project Manager,82000
3 Anitha S,Cochin,22-02-1989,Software Tester,52000
4 Vignesh M,Hyderabad,05-10-1986,Team Lead,76000
5 Karthik R,Chennai,15-08-1987,DevOps Engineer,68000
6 Suresh P,Hyderabad,30-01-1984,Database Administrator,75000
7 Balaji T,Bengaluru,09-09-1983,Product Manager,88000

```

Problem Statement 9:

Read all employee records and display only the names sorted by salary (highest first).

Solution:

```
f = open("pythonlab.csv", "r")
f.readline()
records = []
```

```

for line in f:
    data = line.strip().split(",")
    records.append((data[0], int(data[4])))
f.close()
sorted_list = sorted(records, key=lambda x: x[1], reverse=True)
for name, sal in sorted_list:
    print(name, "-", sal)

```

Output:

```

Balaji T - 88000
Ravi Shankar - 82000
Vignesh M - 76000
Suresh P - 75000
Karthik R - 68000
Antony - 62000
Akbar - 60000
Sarah - 55000
Gokul N - 54000
Anitha S - 52000
Pradeep Raj - 48000
Divya K - 47000
Keerthana G - 46000
Meena R - 45000
Priya L - 42000

```

Problem Statement 10:

List all distinct job positions from the file

Solution:

```

f = open("pythonlab.csv", "r")
f.readline()
positions = set()

```

```

for line in f:
    data = line.strip().split(",")
    positions.add(data[3])

```

```
f.close()
```

```

print("Unique Positions:")
for p in positions:
    print(p)

```

Output:

Unique Positions:

- Support Engineer
- Product Manager
- Data Analyst
- Project Manager
- Business Analyst
- Software Tester
- Database Administrator
- Team Lead
- Software Engineer
- DevOps Engineer

Simplicity is the ultimate sophistication — even in code