

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



```
jupyter names.txt ✓ a
File Edit View Language
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:

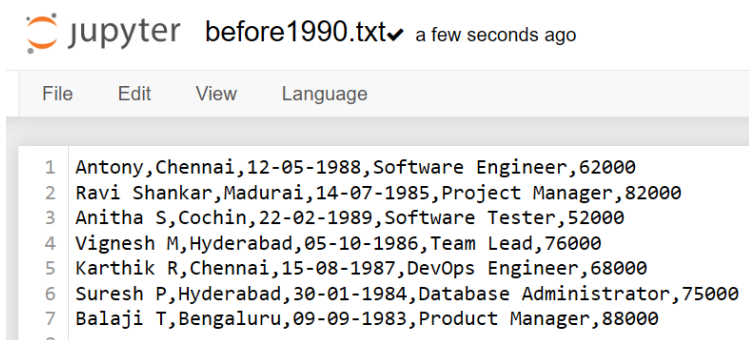
```
f = open("pythonlab.csv", "r")
out = open("before1990.txt", "w")

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



```
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