Unit 3

Experiential Learning - II

Problem Statement 1. Student Marks Processing CSV
A CSV file named students.csv is provided.
Columns are RollNo Name Subject Marks.
The file is read from disk.
Average marks per student are calculated.
A new CSV file named student_summary.csv is created.
It stores RollNo Name AverageMarks Result.
Result is Pass if average is 40 or above.
Result is Fail otherwise.

Problem Statement 2. Sales Report Generation from CSV
A CSV file named daily_sales.csv is stored in a folder.
Columns are Date Product Region Quantity Amount.
The file is read line by line.
Total sales amount per Region is computed.
A new CSV file named region_sales.csv is written.
Regions with total sales below 50000 are excluded.

Problem Statement 3. Attendance Analysis Using Excel
An Excel file attendance.xlsx contains a sheet named Sheet1.
Columns are StudentID Name DaysPresent TotalDays.
The file is read using a Python library.
Attendance percentage is calculated.
A new column AttendanceStatus is added.
Status is Shortage if percentage is below 75.
The updated data is saved to attendance_report.xlsx.

Problem Statement 4. Employee Salary Update Using Excel
An Excel file emp_data.xlsx is available.
Columns are EmpID Name BasicSalary Department.
The file is read from disk.
HRA at 10 percent and DA at 18 percent are calculated.
GrossSalary is computed.
A new Excel file emp_salary.xlsx is generated.
Only EmpID Name GrossSalary are written.

Problem Statement 5. Product Inventory Check Using CSV
A CSV file inventory.csv contains ProductID ProductName Stock ReorderLevel.
The file is read sequentially.
Products with Stock below ReorderLevel are identified.
A new CSV file reorder_list.csv is created.
Only ProductID ProductName Stock are written.

Problem Statement 6. Exam Result Merge Using CSV Files
Two CSV files are provided.

theory_marks.csv contains RollNo Subject Marks.
lab_marks.csv contains RollNo Subject Marks.
Both files are read.
Total marks per student are calculated.
A final CSV file final_result.csv is written.
Columns are RollNo TotalMarks Result.

Problem Statement 7. Monthly Expense Tracker Using Excel
An Excel file expenses.xlsx contains daily expenses.
Columns are Date Category Amount.
The file is read completely.
Monthly total per Category is calculated.
A new Excel file monthly_summary.xlsx is created.
Each Category is written with its total.

Problem Statement 8. Bus Pass Requests CSV to Excel with Status Tracking
A CSV file bus_pass_requests.csv is given.
Columns are ReqID StudentID Route DistanceKm RequestedOn.
The file is read.
Fare is computed using slabs.
0 to 5 km is 400.
6 to 10 km is 650.
Above 10 km is 900.
An Excel file bus_pass_status.xlsx is created.
A Status column is added with Pending for all rows.
A separate CSV file bus_pass_fare_list.csv is written with ReqID StudentID Fare.

Problem Statement 9. E Commerce Returns Excel to CSV and Error Log
An Excel file returns.xlsx is given.
Columns are ReturnID OrderID Reason Amount RefundMode.
The file is read.
RefundMode must be one of UPI CARD WALLET.
Amount must be greater than 0.
Valid rows are written to returns_clean.csv.
Invalid rows are written to returns_error_log.xlsx with ErrorReason.

Problem Statement 10. Electricity Bill Calculator CSV to Excel Bills
A CSV file meter_readings.csv is given.
Columns are ConsumerID Name PreviousReading CurrentReading.
The file is read.
Units is computed as CurrentReading minus PreviousReading.
If Units is negative, the row is invalid.
Billing slabs are applied.
First 100 units at 4 per unit.
Next 100 units at 6 per unit.
Above 200 units at 8 per unit.
An Excel file bills.xlsx is created with ConsumerID Name Units BillAmount.
Invalid rows are written to billing_errors.csv with ErrorReason.