VIT®

BHOPAL

Fall Semester 2025-26

Vityarthi Project

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Introduction

- Python program to analyze credit card spendings.
- Reads data from CSV file.
- Calculates total spending and category-wise expenses.
- Edits csv file.
- Computes minimum amount to be paid basis of 3% rule.

Problem Statement

- Users need an easy way to view, manage, and analyze their credit card spending from a CSV file.
- Need to categorize expenses automatically.
- Need quick insights into spending patterns and minimum payment.

Functional Requirements

- - Read CSV
- - Analyze spending by category
- - Add/Edit/Delete transactions
- - Calculate minimum payment
- - Display transactions

Non-functional Requirements

- Should use lightweight resources.
- Error handling for missing data.
- Easy to read and maintain code.
- Fast execution for small datasets.

System Architecture

- Input: CSV file containing spending details.
- Data can be edited without accessing csv file.
- Processing: Python script processes data.
- Output: Terminal summary report.

Design Diagrams

- Use Case, Workflow, Sequence, Class Diagrams (conceptual only).
- ER Diagram included later.

Workflow Diagram

- Read CSV file.
- Process transactions.
- Edits csv file
- Calculates total spending and minimum payment.
- Display results.

Design Decisions & Rationale

- - CSV chosen for simplicity
- - DictReader for flexibility
- - CLI to make app lightweight

Implementation Details

- Python modules used: csv, datetime, defaultdict, os.
- Multiple functions structured for CRUD operations.

Screenshots / Results

- The program outputs categorized spending analysis and tabular transaction data.

File Edit Selection View Go Run Terminal Help

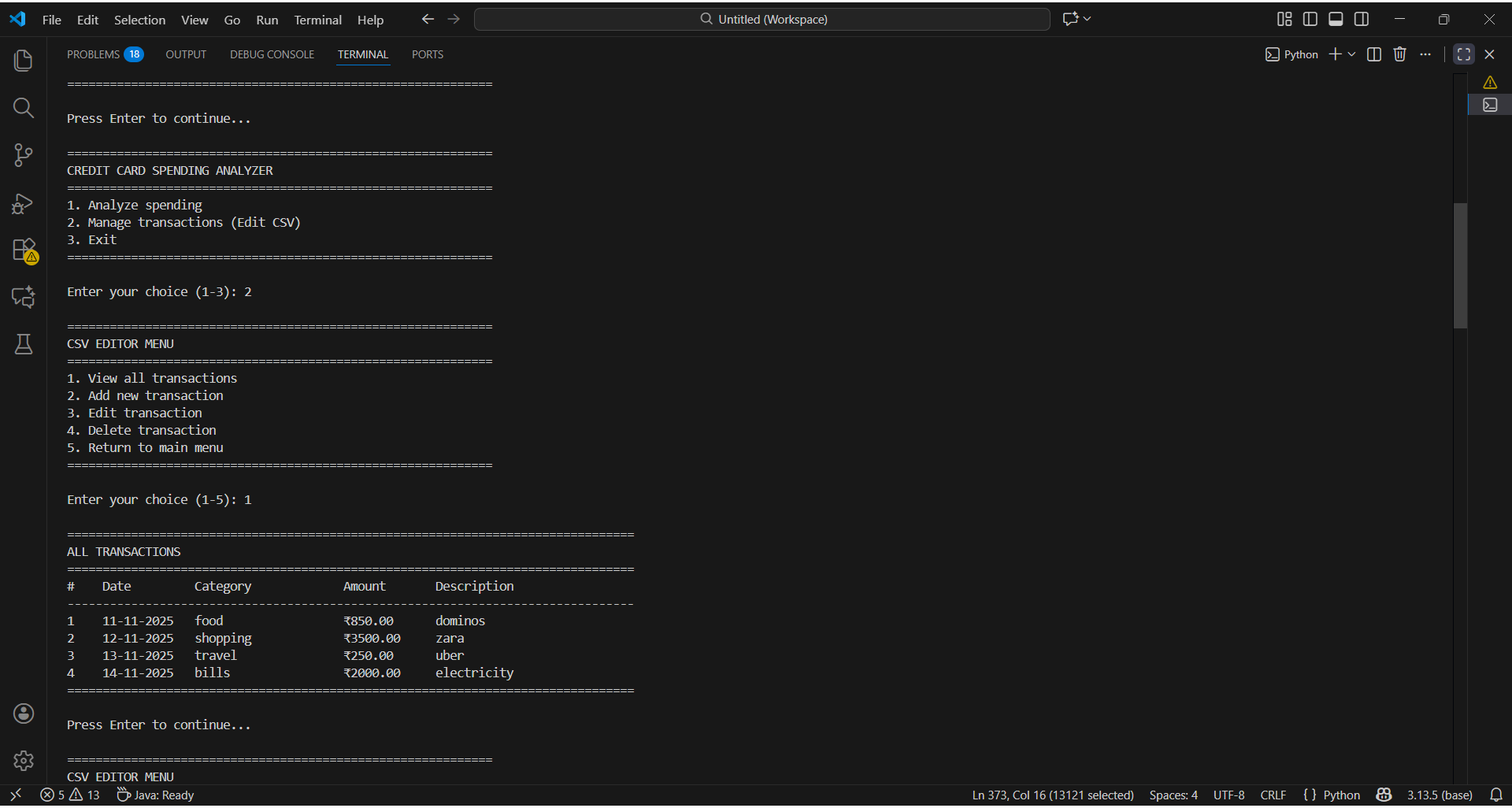
Untitled (Workspace)

PROBLEMS 18 OUTPUT DEBUG CONSOLE TERMINAL PORTS

Python

```
============================================================
WELCOME TO CREDIT CARD SPENDING ANALYZER
============================================================

This tool helps you:
• Analyze your credit card spending by category
• Calculate minimum payments and total balance
• Manage your transaction records
============================================================

============================================================
CREDIT CARD SPENDING ANALYZER
============================================================
1. Analyze spending
2. Manage transactions (Edit CSV)
3. Exit
============================================================

Enter your choice (1-3): 1

============================================================
CREDIT CARD SPENDING ANALYSIS
============================================================

Analysis Date: 2025-11-25
Total Transactions: 4

------------------------------------------------------------
SPENDING BY CATEGORY
------------------------------------------------------------
shopping..... ₹   3500.00 ( 53.0%)
bills..... ₹   2000.00 ( 30.3%)
food..... ₹    850.00 ( 12.9%)
travel..... ₹    250.00 (  3.8%)
------------------------------------------------------------
TOTAL SPENDING..... ₹   6600.00
============================================================

MINIMUM PAYMENT DUE (3%): ₹198.00
FULL BALANCE: ₹6600.00
```

5 13 Java: Ready Ln 373, Col 16 (13121 selected) Spaces: 4 UTF-8 CRLF { } Python 3.13.5 (base)


File Edit Selection View Go Run Terminal Help
Untitled (Workspace)
PROBLEMS 18 OUTPUT DEBUG CONSOLE TERMINAL PORTS
Python
==
Press Enter to continue...
==
CREDIT CARD SPENDING ANALYZER
==
1. Analyze spending
2. Manage transactions (Edit CSV)
3. Exit
==
Enter your choice (1-3): 2
==
CSV EDITOR MENU
==
1. View all transactions
2. Add new transaction
3. Edit transaction
4. Delete transaction
5. Return to main menu
==
Enter your choice (1-5): 1
==
ALL TRANSACTIONS
==
Date Category Amount Description
----
1 11-11-2025 food ₹850.00 dominos
2 12-11-2025 shopping ₹3500.00 zara
3 13-11-2025 travel ₹250.00 uber
4 14-11-2025 bills ₹2000.00 electricity
==
Press Enter to continue...
==
CSV EDITOR MENU
5 13 Java: Ready
Ln 373, Col 16 (13121 selected) Spaces: 4 UTF-8 CRLF { } Python 3.13.5 (base)

Testing Approach

- - Unit testing via manual CLI tests
- - Sample CSV validation
- - Error handling tests

Challenges Faced

- - Handling invalid CSV formats
- - Ensuring safe edits and deletes
- - Managing user inputs

Learnings & Key Takeaways

- - Improved CSV mastery
- - Better CLI design
- - Understanding payment calculations

Future Enhancements

- - GUI version
- - Database instead of CSV
- - Visualization charts
- - Export reports

References

- - Python Official Docs
- - python-pptx Docs
- - CSV module usage guides