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Introduction

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

Problem Statement

- Users require a easy and automated way to analyse credit card spendings.
- Need to categorize expenses automatically.
- Need quick insights into spending patterns and minimum payment.

Functional Requirements

- Read CSV transaction file.
- Group spending by category.
- Calculate total spending.
- Compute minimum amount to be paid.
- Display summary report.

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.
- Processing: Python script processes data.
- Output: Terminal summary report.

Use Case Diagram

- Actor: User.
- Use Case: Analyze transactions and view summary.

Workflow Diagram

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

SEQUENCE FLOW

```
graph TD; A[SEQUENCE FLOW] --> B{Enter personal spending in csv file}; B --> C[Runs CSV File]; C --> D[Calculates spending]; D --> E[Provides summary];
```

Enter
personal
spending
in csv file

Runs CSV File

Calculates
spending

Provides
summary

Class/Component Diagram

- Main component: Analyzer function
- Data structures: defaultdict, list of transactions

Design Decisions

- Used Python for simplicity and readability
- Used CSV for easy data handling
- Used defaultdict for efficient category grouping
- Terminal output for quick results

Implementation Details

- Uses csv, datetime, and collections modules
- Iterates through each transaction
- Calculates totals and percentages
- Handles errors gracefully

Testing Approach

- Test with valid CSV file
- Test with missing columns
- Test with invalid amount values
- Test with empty file

Challenges Faced

- Handling inconsistent CSV formats
- Ensuring correct data types
- Error handling for edge cases

Learnings & Key Takeaways

- Gained experience with file handling
- Improved understanding of data processing
- Learned to design modular and readable code

Future Enhancements

- Add interest calculation
- Generate graphical reports
- Export results to PDF or CSV
- Add a user interface

Output

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CREDIT CARD SPENDING ANALYSIS
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Analysis Date: 2025-11-24
Total Transactions: 4

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SPENDING BY CATEGORY
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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
=====
```

References

- [Python Documentation](#)
- [csv module reference](#)
- [collections module reference](#)