Personal Budget tracker

ENSE 375 Project

Boundary Value Testing

To perform boundary value analysis on our application, we will conduct robust boundary value analysis, as it provides a more thorough validation compared to ordinary boundary value testing. since our application handles financial data, focusing on just values within the valid range would not be sufficient so it's important that we test both valid and invalid boundaries to avoid logic errors.

We will follow these steps:

1. **Input variables to be tested**

- amount: double
- categoryOrSource: String
- type: (String, income, expense)

2. **Values for Robust boundary Analysis**

- Min - 1= -1.0
- Min = 0.0
- Min + 1 = 1.0
- Nominal value = 5000.0
- Max - 1 = 9998.0
- Max = 9999.0 (assumed)
- Max + 1 = 10000.0

- **categoryOrSource:**
  - Valid options (expense): "food", "rent", "transport", "entertainment", "utilities", "healthcare", "other"
  - Valid options (income): "income" (as a category source)
  - Invalid: any values not in enumerated list for expense, for income option any other category other than income.
- **Type:**
  - Valid: "income", "expense"
  - Invalid: any values other than above

3. **Generate test cases using the 6n + 1 rule**

- For n = 1 variable "amount", use:
- -1.0, 0.0, 1.0, 9998.0, 9999.0, 10000.0, and a nominal value (5000)

Enumerated List ("food", "rent", "transport", "entertainment", "utilities", "healthcare", "income", "other)

BVA Table

case	Amount	Type	categoryOrSource	Expected output
1	-1.0	income	income	Rejected invalid amount
2	0.0	income	income	Accepted edge case
3	1.0	income	income	Accepted $1
4	5000.0	income	income	Accepted nominal
5	9998.0	income	income	Accepted $9998
6	9999.0	income	income	Accepted upper bound
7	10000.0	income	income	Reject invalid amount
8	5000.0	Salary	income	Accepted valid Type
9	5000.0	expense	food	Accepted valid category
10	5000.0	expense	Luxury	Rejected invalid category
11	5000.0	income	rent	Rejected invalid category
12	5000.0	income	other	Rejected invalid category
13	5000.0	expense	transport	Accepted valid category
14	5000.0	job	Income	Rejected invalid type
15	5000.0	EXPENSE	rent	Rejected invalid type
16	5000.0	income	vacation	Accepted valid category
17	5000.0	expense	healthcare	Accepted valid category
18	5000.0	income	utilities	Rejected invalid category
19	5000.0	income	income	Accepted nominal value

The boundary value analysis JUNIT tests were conducted on BudgetModel.java for detailed implementation of these test's visit BudgetModelBoundaryTest.java