

## Project 1

For this project you are to write a C++ program that keeps track of your budget.

### Specifications:

1. The data will be read from 2 files: the first file is called budget.txt, the second is transactions.txt.
2. Each line of the file called budget.txt will contain information about 1 budget category. The information will be formatted as follows:
  - a. column 1-3: category number.
  - b. columns 5-13: current category balance.
  - c. columns 15-80: category name.
3. The information about each budget category should be stored in your program using a struct.
4. All of the categories should be stored in an array of structs. There will be a maximum of 50 categories.
5. Each line of the file called transactions.txt will contain information about 1 transaction. The information will be formatted as follows:
  - a. column 1-3: transaction budget category number.
  - b. columns 5 -14: transaction date – yyyy/mm/dd
  - c. columns 16-24: transaction amount.
  - d. columns 26-80: transaction description.
6. The information about each transaction should be stored in your program using a struct.
7. All of the transactions should be stored in an array of structs. There will be a maximum of 500 transactions.
8. Your program should sort the categories by category number (ascending).
9. Your program should sort the transactions by date (ascending) within category number (ascending).
10. Your program should produce a report listing the starting balance for each category, all of the transactions for the category, and the ending balance for the category. You should access the entries in each array only once while generating the report.
11. Each column of the report should be labeled in a heading line.
12. Each transaction line of the report will include the date of the transaction, the amount, the current category balance and the description (name) of the transaction.
13. The transaction description should be left justified within its column; all other values should be right justified.
14. All balance values should be rounded to 2 decimal places.
15. Sample input and output are illustrated on the back of this page.

**Date due:** 22 September 2009; 11:59 pm.

**To turn in:** A well formatted and documented C++ program. The program should be copied to the course dropbox as *yourlastnameP1.cpp*.

**Budget Category File (budget.txt):**

```
301 1000.00 Rent
302 500.00 Apartment Supplies
102 -50.00 Books
401 300.00 Food
501 300.00 Clothing
201 300.00 Automotive Needs
101 200.00 School Supplies
202 200.00 Gas
```

**Transaction File (transactions.txt):**

```
301 2007/08/21 -1000.00 Rent
302 2007/08/22 -123.45 Target Purchase
102 2007/08/23 -82.00 Absolute C++
401 2007/08/24 -3.79 Taco Bell
501 2007/08/25 -30.00 T-Shirts
101 2007/08/27 -2.79 Stapler
202 2007/08/28 -40.00 Gas
302 2007/08/24 -85.71 Blender
102 2007/08/25 -55.00 Introduction to Linux
102 2007/08/26 -8.00 CS215 Lab Manual
401 2007/08/26 -10.00 Lunch at Black Cat
501 2007/08/27 -300.00 Jeans
102 2007/08/24 500.00 Textbook Stipend
```

**Sample Report:**

School Supplies

```
Category: 101 Balance: 200.00
      2007/08/27 -2.79 197.21 Stapler
Category: 101 Balance: 197.21
```

Books

```
Category: 102 Balance: -50.00
      2007/08/23 -82.00 -132.00 Absolute C++
      2007/08/24 500.00 368.00 Textbook Stipend
      2007/08/25 -55.00 313.00 Introduction to Linux
      2007/08/26 -8.00 305.00 CS215 Lab Manual
Category: 102 Balance: 305.00
```

Automotive Needs

```
Category: 201 Balance: 300.00
Category: 201 Balance: 300.00
```

Gas

```
Category: 202 Balance: 200.00
      2007/08/28 -40.00 160.00 Gas
Category: 202 Balance: 160.00
```

Rent

```
Category: 301 Balance: 1000.00
      2007/08/21 -1000.00 0.00 Rent
Category: 301 Balance: 0.00
```

Apartment Supplies

```
Category: 302 Balance: 500.00
      2007/08/22 -123.45 376.55 Target Purchase
      2007/08/24 -85.71 290.84 Blender
Category: 302 Balance: 290.84
```

Food

```
Category: 401 Balance: 300.00
      2007/08/24 -3.79 296.21 Taco Bell
      2007/08/26 -10.00 286.21 Lunch at Black Cat
Category: 401 Balance: 286.21
```

Clothing

```
Category: 501 Balance: 300.00
      2007/08/25 -30.00 270.00 T-Shirts
      2007/08/27 -300.00 -30.00 Jeans
Category: 501 Balance: -30.00
```