

Project 2 – Martian Accounting

Due June 7, 11:59 PM

Overview

The WWU Computer Science Department is preparing a Mars Colonization expedition. Our lucky astronauts who will begin colonizing Mars have already started organizing some form of banking system, and we've been asked to help with it.

In this project, you will write a program that takes in account information and a series of transactions from files, then you will output the updated account information to another file.

This is a group project. You are responsible for forming groups of 2-3 members and registering your group on Canvas.

Please ask questions! Utilize the resources around you as much as you can. You can always post on Piazza or email myself/your TA.

This project is significantly more substantial and provides less guidance than the previous labs, so make sure you start early!

Reading Martian Accounts

The Martian Colonies have sent the starting account information from before they left in a file called **balances.csv**. This is a *comma-separated value* file, meaning each value in the file is separated by a comma. In this case, there are 3 columns in the CSV file: Name, ID, and Balance.

Your program should read in the file and store the information about each Martian colonial in a way so that it can be modified later.

Martian Transactions

The Martian Colonies have their own market separate from anything on Earth, so transactions are stored separately in **transactions.csv**. This file contains the ID of the colonial that made the

transaction and the amount for the transaction, called Difference. This value can be a positive or negative dollar ammount.

Your program should read in these transactions and balance the account information.

Writing Martian Accounts

Once the accounts have been balanced, we need to write the newly updated account information out to a new file called `new_balances.csv`. Unfortunately, Martian accountants are picky about the order of the columns and have requested that the columns be in the order ID,Name,Balance.

Your program should write the new account information to a file called `new_balances.csv`.

NOTE: Repl.it's file manager can be a little slow. If any files you think should have been created aren't showing up, try refreshing the page.

Error Handling

Your program should account for possible errors, such as missing files. Take time to think about all of the possible things that could go wrong when reading input.

If an error is detected during execution, an appropriate and descriptive error message should be printed to `cerr` and the program should quit using `exit(1)`.

Your program should **NOT** have any segmentation faults or other unexpected crashes.

Submission

One person in your group will be responsible for submitting the final version of your game. Your group should submit a single REPL link containing all of your files.

Your REPL should contain the following files:

- `main.cpp` Source code for the program.
- `balances.csv` The input balance file.
- `transactions.csv` The input transaction file.
- `new_balances.csv` The updated balances file.
- `writeup.txt` **Plain text** file answering the following questions:

1. Names of group members.
2. Name of Canvas group.
3. A breakdown of each group member's contributions.
4. State any parts of your program that are not working properly. Partial credit may still be rewarded if you state known issues.

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Rubric

Reading Accounts	5
Updating Accounts	5
Writing Accounts	5
Appropriate Data Structures	5
Error Handling	5
Writeup	4
Comments	1
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Total	30