SRC Instructor guide

SRC assignment name: Student Budgets

Course level (CS0, CS1, CS2)**:** CS0, CS1

Programming language (development environment if important)**:** Java. Other languages can be used.

Domain/context (e.g., housing, pay equity, transportation)**:** financial data

Societal factor (e.g., fairness, equity, power, justice, liberty)**:** Power (economic/financial power can be increased when individuals can clearly understand their financial situation. When personal financial data is available and easy to understand, individuals can make informed decisions and better plans.

Prerequisite knowledge (i.e. variables, expressions, conditionals, loops, arrays, compound data, etc.) **& CS technical topic for this assignment** (e.g., loops, conditions, arrays)**:**

This assignment requires students to know about variables, arrays, conditionals (numerical comparisons for positive or negative values), formatted output, loops, and input.

Any critical components (changing it might/might not break the assignment, e.g., designed in Typescript but can work on other programming languages, or requires visualization component, etc.)**:**

- The most integral part of the assignment is the use of formatting to list out financial information (i.e. costs and income) in a clear, understandable presentation.
- The context of the assignment can be modified, for example, the budget need not be a personal budget, but could be a budget for a club, business, or other organization. The personal budget was selected to be relatable to a broad audience.
- There are 3 parts to the assignment, but parts can be included or left out to adjust the difficulty of the assignment.
- The assignment is designed to use Java but it can work on other programming languages, such as C++, C#, and Python.

Abstract (include a brief introduction and context)**:**

Being responsible with your money can be a big challenge when you start school. There can be many new expenses, related to rent, commuting to school, textbooks, tuition, and groceries. There can also be new sources of income, such as on-campus or off-campus jobs, scholarships, and internships. With school work, jobs, and other responsibilities, it can be overwhelming to keep track of everything.

If students lose track of income and spending, they can run out of money before more money comes in. This can lead to an inability to pay for living expenses like utility bills, rent, and food. It might also lead to missed payments for credit cards, tuition, or vehicles. Besides going hungry, other consequences can be a reduction of your credit score due to missed payments. A low credit score can impact your ability to rent a place to live. A low credit score can make borrowing money for cars, homes, or high value items either more expensive or impossible.

https://www.wellsfargo.com/goals-going-to-college/student-budget/

To avoid these negative consequences, Wells Fargo, and other financial organizations have recommendations for college students. Some of these recommendations include:

1. Track your spending: keep a log of your expenses for a month or two to learn about what you spend your money on.
2. Make list of your income and expenses: Make a list of where you are spending money and where you have money coming in.
3. Do the math: After you total your income and expenses, determine how much you need for each semester and how much you have left over. This is a budget.
4. Revisit and adjust: As your income and expenses change, you should update your income, expenses, and your budget.

In this assignment, you will design and build a program that can collect budget items and format and display the budget data in a way that is easy for users to understand. This type of tool can help with recommendations 1 and 2.

Lesson Plan (include timeline of activities and main discussion points)**:**

Prior to Assignment Introduction	● Introduction of print statements and number formatting. ● Introduction of Input statements, input loops ● Introduction of Float/Double Arrays and String Arrays	
Class Meeting N (assignment is introduced)	● Introduction of the assignment. ● Pre-reading and discussion is done in class. ● Discussion/guideposts for implementation required in assignment	Allocate 1 week for students to complete
Class Meeting N+1	● Answering questions	
Class Meeting N+2	● Assignment due	

Teaching strategies (including effective ways to explain and why and materials/activities that can help teach)**:**

- The instructor is encouraged to discuss financial experiences to help students think about their own financial considerations as well as the considerations of others. This will

encourage students to work hard to format the data in a clear way and test multiple values to ensure the formatting code is robust and reliable.

- The three parts of the assignment allow for progressive refinement of the code. First, basic formatting is implemented, then input is added, and finally, the output is filtered so that income is presented first, then expenses. This should **not** require a sort, but rather two passes through the array of values, one to print positive values and one to print negative values.
- This assignment should encourage students to have a human-centered, or user-centered focus in their work.