

Introduction – You are to build a program that tracks political campaign contributions for the 2012 election.

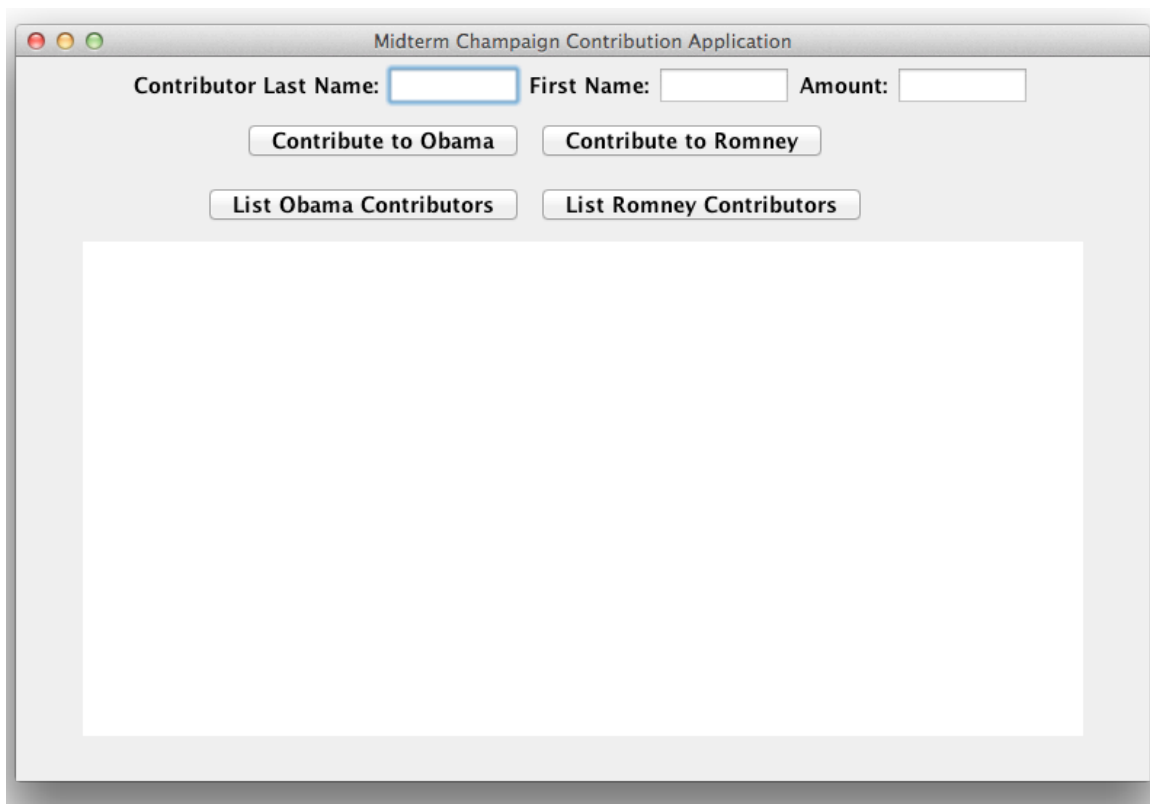
The user enters the contributor's name, the amount, and then clicks on which candidate is getting the money. The program keeps track of the contributions for each candidate. Contributions are limited to \$10,000,000.

Use integers to keep track of the money contributed for each candidate. Use a list or lists to keep track of the contributions. If you cannot figure out how to use a list (i.e., `java.util.ArrayList` or `java.util.LinkedList`), then you may use an array, but the array must have a length of 100.

Write this Java application in a file called **Practice.java**.

Part 1 – Create a Swing GUI for a campaign contribution tracker. The interface should look approximately as shown below:

40 points



Points will not be deducted for alignment or font selection, but be sure that:

1. all the labels, fields, buttons, text areas, and titles are present,
2. the text area uses a fixed width font and is scrollable and not editable, and
3. the GUI layout is readable and usable.

Part 2 – When the last name, first name and amount fields are filled in and one of the “contribute” buttons is clicked:

40 points

- Add the information to the list of contributors,
- Clear the name and amount fields, and
- Display a line in the text window that includes the contributor’s last and first names, amount, and name of the candidate. The dollar amount must be formatted as an integer amount with a comma between the thousands and hundreds (unless the amount is less than \$1,000), and with a dollar sign, as shown.

Here’s an example:

The image shows two screenshots of a Java Swing application titled "Midterm Champaign Contribution Application".

The top screenshot shows the form with the following data entered:

- Contributor Last Name: Winfrey
- First Name: Oprah
- Amount: 1000

The bottom screenshot shows the form with empty fields. Below the form, a text window displays the following information:

Winfrey, Oprah	\$ 1,000	Obama
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Note: A person (with the same last and first names) can make multiple contributions to the same candidate or to both candidates. (The \$10,000,000 limit only applies to each individual contribution.)

Allow the user to continue entering contributions as described above. After several entries the list will look like this:

The screenshot shows a window titled "Midterm Campaign Contribution Application". At the top, there are three input fields: "Contributor Last Name:", "First Name:", and "Amount:". Below these are two buttons: "Contribute to Obama" and "Contribute to Romney". Underneath are two more buttons: "List Obama Contributors" and "List Romney Contributors". The main area displays a list of contributors for Obama and Romney. The list is as follows:

Winfrey, Oprah	\$ 1,000	Obama
Bush, George	\$ 1,000	Romney
Buffet, Warren	\$ 10,000,000	Obama
Walsh, Jack	\$ 5,000,000	Romney
Doe, John	\$ 100	Obama
Doe, Jane	\$ 100	Obama

When the user clicks “List Obama Contributors” or “List Romney Contributors”, clear the text area and display a list of the contributors for that candidate, **sorted in descending order of amount.** If two contributors have the same contribution amount, then sort by name (last name, then first name). After the list of contributors, give a total. Here’s the example:

The screenshot shows the same window as before, but now the "List Obama Contributors" button is highlighted. The list of contributors for Obama is displayed, sorted in descending order of amount. The list is as follows:

Buffet, Warren	\$ 10,000,000	Obama
Winfrey, Oprah	\$ 1,000	Obama
Doe, Jane	\$ 100	Obama
Doe, John	\$ 100	Obama

Total contributions for Obama: \$ 10,001,200

Note that the columns must line up and the numbers must be formatted, as shown, including the dollar signs. (The exact number of spaces between the columns is up to you, as long as you can fit the maximum size names and dollar amounts. See below.)

You must allow additional contributions to be made (after clicking on the “List” buttons).

Part 3 – If the user attempts to enter an invalid contribution, display an error message in the text area (and do not erase the text fields or change the contribution list).

20 points

Here are the validity requirements:

1. The **amount** must be an integer.
2. The **amount** be less than or equal to \$10,000,000.
3. The **amount** must be greater than zero.
4. The **last name** must be provided (i.e. must be non-empty), leading and trailing spaces must be removed (by your program).
5. The **first name** must be provided (i.e. must be non-empty), leading and trailing spaces must be removed (by your program).

You must provide a different error message for each of the above five errors. If there is more than one error, you need only display one error message.

Note: The first and last names can have a maximum of 15 characters. If they are longer, truncate them to 15 characters (or only display the first 15 characters).

Here's an example:

Midterm Champaign Contribution Application

Contributor Last Name: Buffet First Name: Warren Amount: 2000000

Contribute to Obama Contribute to Romney

List Obama Contributors List Romney Contributors

Winfrey, Oprah \$ 1,000 Obama
*** Contribution is too large (\$ 10,000,000 is the maximum allowed)