**Problem: Monthly Budget Tracker in Java**

Imagine you want to help someone keep track of their monthly expenses. They need a program that allows them to enter a budget and expenses for each category, calculates their total expenses, and shows their remaining budget.

# Part 1: Getting the Monthly Budget and Expenses

1. Monthly Budget: Prompt the user to enter their monthly budget as a string. Convert this input to a `double`.

2. Categories and Expenses: Use an array of categories, such as:

```java

String[] categories = {"Rent", "Groceries", "Utilities", "Transportation", "Entertainment"};

```

3. Prompt the user to enter their expense for each category as a string. Convert each expense to a `double` and store it in a separate `expenses` array.

# Part 2: Calculating Total Expenses and Remaining Budget

1. Calculate the total expenses by summing all items in the `expenses` array.

2. Calculate the remaining budget by subtracting total expenses from the monthly budget.

3. Display the total expenses and remaining balance, both formatted to two decimal places.

Example Input/Output

\*Input\*:

```

Enter your monthly budget: "2000"

Enter expense for Rent: "1200"

Enter expense for Groceries: "300"

Enter expense for Utilities: "150"

Enter expense for Transportation: "100"

Enter expense for Entertainment: "200"

```

\*Output\*:

```

Total expenses: $1950.00

Remaining balance: $50.00

```

**# Part 3: Expense Summary**

Display a summary of each category with the corresponding expense amount, formatted to two decimal places.

Example Output

```

Expense Summary:

Rent: $1200.00

Groceries: $300.00

Utilities: $150.00

Transportation: $100.00

Entertainment: $200.00

```

**Solution Outline**

1. Use type casting (converting strings to `double`) for the budget and expense values.

2. Store the categories and expenses in arrays.

3. Perform basic arithmetic operations to calculate totals and remaining budget.

4. Use `System.out.printf()` to format float outputs to two decimal places.

This problem helps students practice casting, arrays, and basic calculations in Java, making it relevant to real-world budgeting applications.