**Savings Account Balance**

Write a program that calculates the balance of a savings account at the end of a three month period. It should ask the user for the starting balance and the annual interest rate. A loop should then iterate once for every month in the period, performing the following steps:

A.) Ask the user for the total amount deposited into the account during that month and add it to the balance. Do not accept negative numbers.

B.) Ask the user for the total amount withdrawn from the account during that month and subtract it from the balance. Do not accept negative numbers or numbers greater than the balance after the deposits for the month have been added in.

C.) Calculate the interest for that month. The monthly interest rate is the annual interest rate divided by 12. Multiply the monthly interest rate by the average of that month’s starting and ending balance to get the interest amount for the month. This amount should be added to the balance.

After the last iteration, the program should display a report that includes the following information:

\*Starting balance at the beginning of the three-month period

\*Total deposits made during the three months

\*Total withdrawals made during the three months

\*Total interest posted to the account during the three months

\*Final balance

---------------------------------------------------------------------------------------------------------------------

/\*SAMPLE RUN OUTPUT RESULTS

Enter the starting balance on the account: 1000

Enter the annual interest rate on the account (e.g. .04) : .015

Month 1

Total deposits for this month: $300

Total withdrawals for this month: $0

Interest received this month $1.44

Ending month balance $1301.44

Month 2

Total deposits for this month: $250

Total withdrawals for this month: $100

Interest received this month $1.72

Ending month balance $1453.16

Month 3

Total deposits for this month: $300

Total withdrawals for this month: $0

Interest received this month $2.00

Ending month balance $1755.16

Quarterly Savings Account Statement

Starting balance: $ 1000.00

Total deposits: + $ 850.00

Total withdrawals: - $ 100.00

Total interest: + $ 5.16

\_\_\_\_\_\_\_\_

Ending balance: $ 1755.16

\*/

---------------------------------------------------------------------------------------------------------------------

Repl.it Code Link: <https://repl.it/@MartianSpaceFox/Savings-Account-Balance>

//Group # 4 Savings Account Balance

#include <iostream>

using namespace std;

int main() {

// Add Global variables below

float startingBal = 0.00;

float annualInterestRate = 0.00;

float monthlyInterestRate = annualInterestRate / 12;

float mOneDeposit = 0.00;

float mOneWithdrawal = 0.00;

float mOneInterestRec = 0.00;

float mOneEndBal = 0.00;

float mTwoDeposit = 0.00;

float mTwoWithdrawal = 0.00;

float mTwoInterestRec = 0.00;

float mTwoEndBal = 0.00;

float mThreeDeposit = 0.00;

float mThreeWithdrawal = 0.00;

float mThreeInterestRec = 0.00;

float mThreeEndBal = 0.00;

float totalDeposits = 0.00;

float totalWithdrawals = 0.00;

float totalInterest = 0.00;

float endingBal = 0.00;

cout << "Enter the starting balance on the account: " ;

cin >> startingBal;

cout << "Enter the annual interest rate on the account (e.g. .04) : " ;

cin >> annualInterestRate;

cout << endl;

// Section 1 - Zach

/\* Output/Input Values

Month 1

Total deposits for this month: $300

Total withdrawals for this month: $0

Interest received this month $1.44

Ending month balance $1301.44

End Output\*/

//cout << " ";

//cin >> ;

/\* Input Validation goes here, to not accept negative numbers. To be added after the input line for this month's total deposit amounts.\*/

//cout << " ";

//cin >> ;

/\* Input Validation goes here, to not accept negative numbers or numbers greater than the balance after deposits added. To be added after the input line for this month's total deposit amounts.\*/

/\* Math goes here to calculate the months interest. monthlyInterestRate \* monthOneAverage = monthOneInterestAmount, then add monthOneInterestAmount to currentBal.\*/

// Team mate #2 (Christian)

/\* Output/Input Values

Month 2

Total deposits for this month: $250

Total withdrawals for this month: $100

Interest received this month $1.72

Ending month balance $1453.16

End Output\*/

//cout << " ";

//cin >> ;

/\* Input Validation goes here, to not accept negative numbers. To be added after the input line for this month's total deposit amounts.\*/

//cout << " ";

//cin >> ;

/\* Input Validation goes here, to not accept negative numbers or numbers greater than the balance after deposits added. To be added after the input line for this month's total deposit amounts.\*/

/\* Math goes here to calculate the months interest. monthlyInterestRate \* monthOneAverage = monthOneInterestAmount, then add monthOneInterestAmount to currentBal.\*/

// Team mate #3(Gel)

/\* Output/Input Values

Month 3

Total deposits for this month: $300

Total withdrawals for this month: $0

Interest received this month $2.00

Ending month balance $1755.16

End Output\*/

//cout << " ";

//cin >> ;

/\* Input Validation goes here, to not accept negative numbers. To be added after the input line for this month's total deposit amounts.\*/

//cout << " ";

//cin >> ;

/\* Input Validation goes here, to not accept negative numbers or numbers greater than the balance after deposits added. To be added after the input line for this month's total deposit amounts.\*/

/\* Math goes here to calculate the months interest. monthlyInterestRate \* monthOneAverage = monthOneInterestAmount, then add monthOneInterestAmount to currentBal.\*/

// Jessica’s Section

/\* Output/Input Values

Quarterly Savings Account Statement

Starting balance: $ 1000.00

Total deposits: + $ 850.00

Total withdrawals: - $ 100.00

Total interest: + $ 5.16

\_\_\_\_\_\_\_\_

Ending balance: $ 1755.16

End Output\*/

cout << "Quarterly Savings Account Statement " << endl;

cout << endl;

cout << "Starting balance: $ " << startingBal << endl;

cout << "Total deposits: + $ " << totalDeposits << endl;

cout << "Total withdrawals: - $ " << totalWithdrawals << endl;

cout << "Total interest: + $ "<< totalInterest << endl;

cout << " \_\_\_\_\_\_\_\_\_\_" << endl;

cout<< "Ending balance: $ " << endingBal << endl;

return 0;

}

#include <iostream>

#include <iomanip>

using namespace std;

int main()

{

float startingBalance, endingBalance, monthlyDeposit, monthlyWithdrawal, annualInterestRate, interestForTheMonth;

float balance, totalDeposits, totalWithdrawals, totalInterest;

float monthlyInterestRate;

const string ACCOUNTTYPE = "savings";

const int MONTHS = 3;

cout << "This program calculates the balance of a " << ACCOUNTTYPE << " account at the end of a " << MONTHS << " month period." << endl;

cout << "Enter the starting balance on the account: ";

cin >> startingBalance;

while (startingBalance < 0){

cout << "Invalid amount!" << endl;

cout << "Please enter a positive starting balance on the savings account: ";

cin >> startingBalance;

}

cout << "Enter the annual interest rate on the account: ";

cin >> annualInterestRate;

//assign startingBalance to a balance so we won't touch the starting balance when computing inside the for loop

balance = startingBalance;

for(int i = 0; i < MONTHS; i++){

cout << "Enter total amount deposited into the account for month " << (i+1) << ": ";

cin >> monthlyDeposit;

while (monthlyDeposit < 0){

cout << "Invalid amount!" << endl;

cout << "Please enter positive amount" << endl;

cout << "Enter total amount deposited into the account for month " << (i+1) << ": ";

cin >> monthlyDeposit;

}

//this will be helpful for the summary later to add up all the deposits from each month

totalDeposits = totalDeposits + monthlyDeposit;

//to add up current deposit to starting balance for that month

balance += monthlyDeposit;

if(balance < 0){

cout << "Starting balance is less than 0.";

break;

}

cout << "Enter total amount withdrawn from account for month " << (i+1) << ": ";

cin >> monthlyWithdrawal;

while(monthlyWithdrawal < 0){

cout << "Invalid amount!" << endl;

cout << "Enter total amount withdrawn from account for month " << (i+1) << ": ";

cin >> monthlyWithdrawal;

}

//this will be helpful for the summary later to add up all the withdrawals from each month

totalWithdrawals = totalWithdrawals + monthlyWithdrawal;

//to get the ending balance for the month

balance -= monthlyWithdrawal;

if (balance < 0){

cout << "Ending balance is less than 0" << endl;

break;

}

monthlyInterestRate = annualInterestRate/12;

interestForTheMonth = monthlyInterestRate\*balance;

balance = balance + interestForTheMonth;

if (balance < 0){

break;

}

totalInterest = totalInterest + interestForTheMonth;// !!TODO(interest is adding an extra month)

cout << "total interest" << totalInterest;

} // end of for loop

if(balance < 0){

cout << "Account has a negative balance";

}

else{

cout << setprecision(2);

cout << "Quarterly Savings Account Statement " << endl;

cout << endl;

cout << "Starting balance: $" << startingBalance << endl;

cout << "Total deposits: $" << totalDeposits << endl;

cout << "Total withdrawals: $" <<"("<<totalWithdrawals <<")" << endl;

cout << "Total interest: $"<< totalInterest << endl; // !!TODO(interest is adding an extra month)

cout << " \_\_\_\_\_\_\_\_\_\_" << endl;

cout<< "Ending balance: $" << balance << endl;

}

return 0;

}

----

Jess Section Update to be merged.

// Jessica’s Section

/\* Output/Input Values

Quarterly Savings Account Statement

Starting balance: $ 1000.00

Total deposits: + $ 850.00

Total withdrawals: - $ 100.00

Total interest: + $ 5.16

\_\_\_\_\_\_\_\_

Ending balance: $ 1755.16

End Output\*/

if (month > 11){

string monthName= "Annually";

cout << monthName << " Savings Account Statement " << endl;

cout << endl;

cout << "Starting balance: $ " << startingBal << endl;

cout << "Total deposits: + $ " << totalDeposits << endl;

cout << "Total withdrawals: - $ " << totalWithdrawals << endl;

cout << "Total interest: + $ "<< totalInterest << endl;

cout << " \_\_\_\_\_\_\_\_\_\_" << endl;

cout<< "Ending balance: $ " << endingBal << endl;

}

cout << month <<" Month Savings Account Statement " << endl;

cout << endl;

cout << "Starting balance: $ " << startingBal << endl;

cout << "Total deposits: + $ " << totalDeposits << endl;

cout << "Total withdrawals: - $ " << totalWithdrawals << endl;

cout << "Total interest: + $ "<< totalInterest << endl;

cout << " \_\_\_\_\_\_\_\_\_\_" << endl;

cout<< "Ending balance: $ " << endingBal << endl;

return 0;

}

-----

REVISED VERSION (Proper Math - Needs cleaning and documentation)

\*Edit by Zach

You can also access it here to run/edit: <http://cpp.sh/8bvq5>

#include <iostream>

#include <iomanip>

using namespace std;

int main()

{

cout << setprecision(2) << fixed;

float startingBalance, monthlyDeposit, monthlyWithdrawal, annualInterestRate, interestForTheMonth;

float totalBalance, totalDeposits, totalWithdrawals, totalInterest, monthBalance, avgBalance;

float monthlyInterestRate;

const string ACCOUNTTYPE = "savings";

const int MONTHS = 3;

cout << "This program calculates the balance of a " << ACCOUNTTYPE << " account at the end of a " << MONTHS << " month period." << endl;

cout << "Enter the starting balance on the account: ";

cin >> startingBalance;

while (startingBalance < 0){

cout << "Invalid amount!" << endl;

cout << "Please enter a positive starting balance on the savings account: ";

cin >> startingBalance;

}

cout << "Enter the annual interest rate on the account: ";

cin >> annualInterestRate;

//assign startingBalance to a balance so we won't touch the starting balance when computing inside the for loop

monthBalance = startingBalance;

for(int i = 0; i < MONTHS; i++){

cout << "Enter total amount deposited into the account for month " << (i+1) << ": ";

cin >> monthlyDeposit;

while (monthlyDeposit < 0){

cout << "Invalid amount!" << endl;

cout << "Please enter positive amount" << endl;

cout << "Enter total amount deposited into the account for month " << (i+1) << ": ";

cin >> monthlyDeposit;

}

avgBalance = monthBalance;

//this will be helpful for the summary later to add up all the deposits from each month

totalDeposits = totalDeposits + monthlyDeposit;

//to add up current deposit to starting balance for that month

monthBalance += monthlyDeposit;

if(monthBalance < 0){

cout << "Starting balance is less than 0.";

break;

}

cout << "Enter total amount withdrawn from account for month " << (i+1) << ": ";

cin >> monthlyWithdrawal;

while(monthlyWithdrawal < 0){

cout << "Invalid amount!" << endl;

cout << "Enter total amount withdrawn from account for month " << (i+1) << ": ";

cin >> monthlyWithdrawal;

}

//this will be helpful for the summary later to add up all the withdrawals from each month

totalWithdrawals = totalWithdrawals + monthlyWithdrawal;

//to get the ending balance for the month

monthBalance -= monthlyWithdrawal;

avgBalance = (avgBalance + monthBalance) / 2;

if (monthBalance < 0){

cout << "Ending balance is less than 0" << endl;

break;

}

monthlyInterestRate = annualInterestRate/12;

interestForTheMonth = monthlyInterestRate\*avgBalance;

monthBalance += interestForTheMonth;

if (monthBalance < 0){

break;

}

totalInterest = totalInterest + interestForTheMonth;

} // end of for loop

totalBalance = (startingBalance + (totalDeposits - totalWithdrawals) + totalInterest);

if(totalBalance < 0){

cout << "Account has a negative balance";

}

else{

cout << "Quarterly Savings Account Statement " << endl;

cout << endl;

cout << "Starting balance: $" << startingBalance << endl;

cout << "Total deposits: $" << totalDeposits << endl;

cout << "Total withdrawals: $" <<"("<<totalWithdrawals <<")" << endl;

cout << "Total interest: $"<< totalInterest << endl;

cout << " \_\_\_\_\_\_\_\_\_\_" << endl;

cout<< "Ending balance: $" << totalBalance << endl;

}

return 0;

}

-----------

https://docs.google.com/document/d/1gEVdOtlsG8dOnfRC44uR9bXwMupln0YboPaBJzxzF0Y/edit?usp=sharing

README.txt Doc Info

Savings Account Balance Group Assignment

Group#4

COP2334 Tues/Thurs 2:00PM - 3:15.

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The Savings Account Balance program that our team has written to output sample specs provided has also been slightly enhanced to include more month statement output options and a creative output statement design.

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**Christian’s Code:**

#include <iostream>

#include <iomanip>

using namespace std;

int main() {

//variables below

float startingBal = 0.00;

float annualInterestRate = 0.00;

float monthlyInterestRate;

float deposit;

float withdrawal;

float totalBalance;

float interestReceived;

float total;

float newBal;

float totalDeposits = 0.00;

float totalWithdrawals = 0.00;

float totalInterest = 0.00;

float endingBal = 0.00;

int month = 1, count;

//Entering the starting balance

cout << "Enter your starting balance of the account: $";

cin >> startingBal;

//validation

while (startingBal < 0) {

cout << "Invalid input. No neggative numbers." << endl << "Please input a positive number for your starting balance of the account.";

cin >> startingBal;

}

newBal = startingBal;

totalBalance = totalBalance + startingBal;

total = total + startingBal;

//Entering the annual interest rate

cout << "Enter the annual interest rate on the account (e.g. .04) : ";

cin >> annualInterestRate;

//validation

while (annualInterestRate < 0) {

cout << "Invalid input. No negative numbers." << endl << "Please input a positive number for your annual interest rate on the account.";

cin >> annualInterestRate;

}

monthlyInterestRate = annualInterestRate / 12;

//How many months you want to calculate

cout << "Enter how many months you would like to calculate: ";

cin >> count;

//validation

while (count < 0) {

cout << "Input invalid. No negative numbers." << endl << "Please input a positive number of months you would like to calculate";

cin >> count;

}

//main loop

while (month <= count) {

//Enter how much deposit

cout << "Month " << month << endl;

cout << "Enter the total deposit for month " << month << ": ";

cin >> deposit;

//validation

while (deposit < 0 ) {

cout << "Input invalid. No negative numbers." << endl << "Please input a positive number for the deposit";

cin >> deposit;

}

//calculating totalBalance, totalDeposits, and total for interest

totalDeposits = totalDeposits + deposit;

totalBalance = totalBalance + deposit;

total = newBal + (newBal + deposit);

//Enter the withdrawal amount

cout << "Enter the total amount withdrawn: ";

cin >> withdrawal;

//validation

while (withdrawal < 0 && withdrawal > totalBalance) {

cout << "Invalid input." << endl << "Please input a positive number and a number less than total deposit: ";

cin >> withdrawal;

}

//calculating totalWithdrawals, new totalBalance after withdrawal, and total for interest

totalWithdrawals = totalWithdrawals + withdrawal;

totalBalance = totalBalance - withdrawal;

total = total - withdrawal;

//interest calculation

interestReceived = (total / 2) \* monthlyInterestRate;

cout << fixed << setprecision(2) << "Interest received this month: $" << interestReceived << endl;

//calculating totalInterest, and totalBalance

totalInterest = totalInterest + interestReceived;

totalBalance = totalBalance + interestReceived;

cout << "Ending monthly balance: $" << totalBalance << endl;

//setting up for next loop Interest

newBal = totalBalance;

month = month + 1;

}

//ending couts

cout << endl << "Quarterly Savings Account Statement" << endl << endl;

cout << right << setw(2) << "Starting balance: $" << startingBal << endl;

cout << "Total deposits: + $" << totalDeposits << endl;

cout << "Total withdrawals: - $" << right << setw(2) << totalWithdrawals << endl;

cout << "Total interest: + $" << totalInterest << endl;

cout << " \_\_\_\_\_\_\_\_\_\_\_\_" << endl;

cout << "Ending balance: $" << totalBalance << endl;

return 0;

}

//Enter the withdrawal amount

cout << "Enter the total amount withdrawn: ";

cin >> withdrawal;

//validation

while (withdrawal < 0 || withdrawal > totalBalance) {

cout << "Invalid input." << endl << "Please input a negative number and a number less than total deposit: ";

cin >> withdrawal;

}

**OUTPUT:**

Enter your starting balance of the account: $1000

Enter the annual interest rate on the account (e.g. .04) : 0.015

Enter how many months you would like to calculate: 3

Month 1

Enter the total deposit for month 1: 300

Enter the total amount withdrawn: 0

Interest received this month: $1.44

Ending monthly balance: $1301.44

Month 2

Enter the total deposit for month 2: 250

Enter the total amount withdrawn: 100

Interest received this month: $1.72

Ending monthly balance: $1453.16

Month 3

Enter the total deposit for month 3: 300

Enter the total amount withdrawn: 0

Interest received this month: $2.00

Ending monthly balance: $1755.16

Quarterly Savings Account Statement

Starting balance: $1000.00

Total deposits: + $850.00

Total withdrawals: - $100.00

Total interest: + $5.16

\_\_\_\_\_\_\_\_\_\_\_\_

Ending balance: $1755.16

---------

Jess Updates for spacing and creative design output.

#include <iostream>

#include <iomanip>

using namespace std;

int main()

{

cout << setprecision(2) << fixed;

float startingBalance, monthlyDeposit, monthlyWithdrawal, annualInterestRate, interestForTheMonth;

float totalBalance, totalDeposits, totalWithdrawals, totalInterest, monthBalance, avgBalance;

float monthlyInterestRate;

const string ACCOUNTTYPE = "savings";

const int MONTHS = 3;

cout << "This program calculates the balance of a " << ACCOUNTTYPE << " account at the end of a " << MONTHS << " month period." << endl;

cout << endl;

cout << "Enter the starting balance on the account: ";

cin >> startingBalance;

while (startingBalance < 0){

cout << "Invalid amount!" << endl;

cout << "Please enter a positive starting balance on the savings account: ";

cin >> startingBalance;

}

cout << "Enter the annual interest rate on the account: ";

cin >> annualInterestRate;

cout << endl;

//assign startingBalance to a balance so we won't touch the starting balance when computing inside the for loop

monthBalance = startingBalance;

for(int i = 0; i < MONTHS; i++){

cout << "Enter total amount deposited into the account for month " << (i+1) << ": ";

cin >> monthlyDeposit;

while (monthlyDeposit < 0){

cout << "Invalid amount!" << endl;

cout << "Please enter positive amount" << endl;

cout << "Enter total amount deposited into the account for month " << (i+1) << ": ";

cin >> monthlyDeposit;

cout << endl;

}

avgBalance = monthBalance;

//this will be helpful for the summary later to add up all the deposits from each month

totalDeposits = totalDeposits + monthlyDeposit;

//to add up current deposit to starting balance for that month

monthBalance += monthlyDeposit;

if(monthBalance < 0){

cout << "Starting balance is less than 0.";

break;

}

cout << "Enter total amount withdrawn from account for month " << (i+1) << ": ";

cin >> monthlyWithdrawal;

cout << endl;

while(monthlyWithdrawal < 0){

cout << "Invalid amount!" << endl;

cout << "Enter total amount withdrawn from account for month " << (i+1) << ": ";

cin >> monthlyWithdrawal;

}

//this will be helpful for the summary later to add up all the withdrawals from each month

totalWithdrawals = totalWithdrawals + monthlyWithdrawal;

//to get the ending balance for the month

monthBalance -= monthlyWithdrawal;

avgBalance = (avgBalance + monthBalance) / 2;

if (monthBalance < 0){

cout << "Ending balance is less than 0" << endl;

break;

}

monthlyInterestRate = annualInterestRate/12;

interestForTheMonth = monthlyInterestRate\*avgBalance;

monthBalance += interestForTheMonth;

if (monthBalance < 0){

break;

}

totalInterest = totalInterest + interestForTheMonth;

} // end of for loop

totalBalance = (startingBalance + (totalDeposits - totalWithdrawals) + totalInterest);

if(totalBalance < 0){

cout << "Account has a negative balance";

}

else{

cout << endl;

cout << " The Bank of GJZC" << endl;

cout << " 555 Panther Way, TC Bldg." << endl;

cout << " Lake Worth, FL 33460" << endl;

cout << "\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_" << endl;

cout << endl;

cout << "Quarterly Savings Account Statement " << endl;

cout << endl;

cout << "Starting balance: $" << startingBalance << endl;

cout << "Total deposits: $" << totalDeposits << endl;

cout << "Total withdrawals: $" <<"("<<totalWithdrawals <<")" << endl;

cout << "Total interest: $"<< totalInterest << endl;

cout << " \_\_\_\_\_\_\_\_\_\_" << endl;

cout<< "Ending balance: $" << totalBalance << endl;

cout << endl;

cout << " Thank you for your business!" << endl;

}

return 0;

}

-------------

Added spacing to Christians code and dashed lines under Month output lines for better visuals. If we merge with my ending output above we can be done, copy and paste link to submit.

/\* README Link: https://docs.google.com/document/d/1gEVdOtlsG8dOnfRC44uR9bXwMupln0YboPaBJzxzF0Y/edit?usp=sharing

Changelog Link: <https://docs.google.com/document/d/1LOoU17CiBw73Hgbi9hZqqfspFubfgtvNJZuKnngXeZE/edit?usp=sharing>

\*/

#include <iostream>

#include <iomanip>

using namespace std;

int main() {

//variables below

float startingBal = 0.00;

float annualInterestRate = 0.00;

float monthlyInterestRate;

float deposit;

float withdrawal;

float totalBalance;

float interestReceived;

float total;

float newBal;

float totalDeposits = 0.00;

float totalWithdrawals = 0.00;

float totalInterest = 0.00;

float endingBal = 0.00;

int month = 1, count;

//Entering the starting balance

cout << "Enter your starting balance of the account: $";

cin >> startingBal;

//validation

while (startingBal < 0) {

cout << "Invalid input. No negative numbers." << endl << "Please input a positive number for your starting balance of the account.";

cin >> startingBal;

}

newBal = startingBal;

totalBalance = totalBalance + startingBal;

total = total + startingBal;

//Entering the annual interest rate

cout << "Enter the annual interest rate on the account (e.g. .04) : ";

cin >> annualInterestRate;

//validation

while (annualInterestRate < 0) {

cout << "Invalid input. No negative numbers." << endl << "Please input a positive number for your annual interest rate on the account.";

cin >> annualInterestRate;

}

monthlyInterestRate = annualInterestRate / 12;

//How many months you want to calculate

cout << "Enter how many months you would like to calculate: ";

cin >> count;

//validation

while (count < 0) {

cout << "Input invalid. No negative numbers." << endl << "Please input a positive number of months you would like to calculate";

cin >> count;

}

//main loop

while (month <= count) {

//Enter how much deposit

cout << endl;

cout << "Month " << month << endl;

cout << "-------------" << endl;

cout << "Enter the total deposit for month " << month << ": ";

cin >> deposit;

//validation

while (deposit < 0 ) {

cout << "Input invalid. No negative numbers." << endl << "Please input a positive number for the deposit";

cin >> deposit;

}

//calculating totalBalance, totalDeposits, and total for interest

totalDeposits = totalDeposits + deposit;

totalBalance = totalBalance + deposit;

total = newBal + (newBal + deposit);

//Enter the withdrawal amount

cout << "Enter the total amount withdrawn: ";

cin >> withdrawal;

//validation

while (withdrawal < 0 && withdrawal > totalBalance) {

cout << "Invalid input." << endl << "Please input a positive number and a number less than total deposit: ";

cin >> withdrawal;

}

//calculating totalWithdrawals, new totalBalance after withdrawal, and total for interest

totalWithdrawals = totalWithdrawals + withdrawal;

totalBalance = totalBalance - withdrawal;

total = total - withdrawal;

//interest calculation

interestReceived = (total / 2) \* monthlyInterestRate;

cout << fixed << setprecision(2) << "Interest received this month: $" << interestReceived << endl;

//calculating totalInterest, and totalBalance

totalInterest = totalInterest + interestReceived;

totalBalance = totalBalance + interestReceived;

cout << "Ending monthly balance: $" << totalBalance << endl;

//setting up for next loop Interest

newBal = totalBalance;

month = month + 1;

}

//ending couts

cout << endl << "Quarterly Savings Account Statement" << endl << endl;

cout << right << setw(2) << "Starting balance: $" << startingBal << endl;

cout << "Total deposits: + $" << totalDeposits << endl;

cout << "Total withdrawals: - $" << right << setw(2) << totalWithdrawals << endl;

cout << "Total interest: + $" << totalInterest << endl;

cout << " \_\_\_\_\_\_\_\_\_\_\_\_" << endl;

cout << "Ending balance: $" << totalBalance << endl;

return 0;

}

--------------------------------------------------------------------------

**FINAL CODE TO TEST AND APPROVE - Jess**

[**https://repl.it/@MartianSpaceFox/Group4SavingsAccountBalanceProgram**](https://repl.it/@MartianSpaceFox/Group4SavingsAccountBalanceProgram)

[**https://github.com/MartianSpaceFox/Group4SavingsAccountBalanceProgram**](https://github.com/MartianSpaceFox/Group4SavingsAccountBalanceProgram)

/\* README Link: https://docs.google.com/document/d/1gEVdOtlsG8dOnfRC44uR9bXwMupln0YboPaBJzxzF0Y/edit?usp=sharing

Changelog Link: https://docs.google.com/document/d/1LOoU17CiBw73Hgbi9hZqqfspFubfgtvNJZuKnngXeZE/edit?usp=sharing

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#include <iostream>

#include <iomanip>

using namespace std;

int main() {

//variables below

float startingBal = 0.00;

float annualInterestRate = 0.00;

float monthlyInterestRate;

float deposit;

float withdrawal;

float totalBalance;

float interestReceived;

float total;

float newBal;

float totalDeposits = 0.00;

float totalWithdrawals = 0.00;

float totalInterest = 0.00;

float endingBal = 0.00;

int month = 1, count;

//Entering the starting balance

cout << "Enter your starting balance of the account: $";

cin >> startingBal;

//validation

while (startingBal < 0) {

cout << "Invalid input. No negative numbers." << endl << "Please input a positive number for your starting balance of the account.";

cin >> startingBal;

}

newBal = startingBal;

totalBalance = totalBalance + startingBal;

total = total + startingBal;

//Entering the annual interest rate

cout << "Enter the annual interest rate on the account (e.g. .04) : ";

cin >> annualInterestRate;

//validation

while (annualInterestRate < 0) {

cout << "Invalid input. No negative numbers." << endl << "Please input a positive number for your annual interest rate on the account.";

cin >> annualInterestRate;

}

monthlyInterestRate = annualInterestRate / 12;

//How many months you want to calculate

cout << "Enter how many months you would like to calculate: ";

cin >> count;

//validation

while (count < 0) {

cout << "Input invalid. No negative numbers." << endl << "Please input a positive number of months you would like to calculate";

cin >> count;

}

//main loop

while (month <= count) {

//Enter how much deposit

cout << endl;

cout << "Month " << month << endl;

cout << "-------------" << endl;

cout << "Enter the total deposit for month " << month << ": ";

cin >> deposit;

//validation

while (deposit < 0 ) {

cout << "Input invalid. No negative numbers." << endl << "Please input a positive number for the deposit";

cin >> deposit;

}

//calculating totalBalance, totalDeposits, and total for interest

totalDeposits = totalDeposits + deposit;

totalBalance = totalBalance + deposit;

total = newBal + (newBal + deposit);

//Enter the withdrawal amount

cout << "Enter the total amount withdrawn: ";

cin >> withdrawal;

//validation

while (withdrawal < 0 && withdrawal > totalBalance) {

cout << "Invalid input." << endl << "Please input a positive number and a number less than total deposit: ";

cin >> withdrawal;

}

//calculating totalWithdrawals, new totalBalance after withdrawal, and total for interest

totalWithdrawals = totalWithdrawals + withdrawal;

totalBalance = totalBalance - withdrawal;

total = total - withdrawal;

//interest calculation

interestReceived = (total / 2) \* monthlyInterestRate;

cout << fixed << setprecision(2) << "Interest received this month: $" << interestReceived << endl;

//calculating totalInterest, and totalBalance

totalInterest = totalInterest + interestReceived;

totalBalance = totalBalance + interestReceived;

cout << "Ending monthly balance: $" << totalBalance << endl;

//setting up for next loop Interest

newBal = totalBalance;

month = month + 1;

}

//ending couts

if (count != 3){

string monthName= " Months";

cout << endl;

cout << endl;

cout << " The Bank of GJZC" << endl;

cout << " 555 Panther Way, TC Bldg." << endl;

cout << " Lake Worth, FL 33460" << endl;

cout << "\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_" << endl;

cout << endl;

cout << count << monthName << " Savings Account Statement " << endl;

cout << endl;

cout << "Starting balance: $" << startingBal << endl;

cout << "Total deposits: $" << totalDeposits << endl;

cout << "Total withdrawals: $" <<"("<<totalWithdrawals <<")" << endl;

cout << "Total interest: $"<< totalInterest << endl;

cout << " \_\_\_\_\_\_\_\_\_\_" << endl;

cout<< "Ending balance: $" << totalBalance << endl;

cout << endl;

cout << " Thank you for your business!" << endl;

}

else {

cout << endl;

cout << endl;

cout << " The Bank of GJZC" << endl;

cout << " 555 Panther Way, TC Bldg." << endl;

cout << " Lake Worth, FL 33460" << endl;

cout << "\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_" << endl;

cout << endl;

cout << endl << "Quarterly Savings Account Statement" << endl << endl;

cout << "Starting balance: $" << startingBal << endl;

cout << "Total deposits: $" << totalDeposits << endl;

cout << "Total withdrawals: $" <<"("<<totalWithdrawals <<")" << endl;

cout << "Total interest: $"<< totalInterest << endl;

cout << " \_\_\_\_\_\_\_\_\_\_" << endl;

cout<< "Ending balance: $" << totalBalance << endl;

cout << endl;

cout << " Thank you for your business!" << endl;

}

return 0;

}