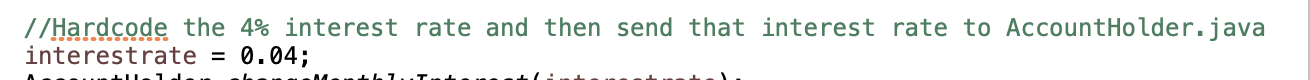
Snapshot 1: Run 1

1. Set the annual interest to 4%



1. Create an Account Holder Object

A picture containing knife

Description automatically generated

1. Prompt the user for an initial account balance

A screenshot of a cell phone

Description automatically generated

1. Prompt the user for a deposit amount

A screenshot of a cell phone

Description automatically generated

1. Prompt the user for a withdrawal amount

A screenshot of a cell phone

Description automatically generated

1. Display an ending balance, including monthly interest to the account holder

A screenshot of a cell phone

Description automatically generated

Snapshot 2: Run 2: Negative Balance Exception

A screenshot of a cell phone

Description automatically generated

Snapshot 3: Run 3: Balance drops below 50 dollars Exception

A screenshot of a social media post

Description automatically generated

**Source Code**

**AccountHolder.java**

/\*

\* Cheryl Gardner

\* Lab 01

\* 09/21/2020

\* AccountHolder.java

\* Purpose: To create a file that will ask do all of the calculations from the

\* data that was entered by the users in terms of balance, withdrawals and deposits

\*/

//Import the scanner tool to be able to get the input from the user

**import** java.util.Scanner;

**public** **class** AccountHolder {

//Declare the variables that will be used throughout the code

**private** **double** balance;

**public** **static** **double** *annualInterestRate*;

Scanner scanner2 = **new** Scanner(System.***in***);

//Create the AccountHolder Method

**public** AccountHolder(**double** balance)

{

//Make sure that the balance is above 0

**if**(balance >= 0)

{

**this**.balance = balance;

}

//Throw an exception if the balance entered is negative

**else**

{

**throw** **new** IllegalArgumentException("You cannot start out with a negative balance");

}

}

//Create the deposit method

**public** **void** deposit(**double** depositamt)

{

//Add the deposit amount to the total balance

**this**.balance += depositamt;

//Display the balance after the deposit to the user

System.***out***.printf("Balance after Deposit: $%,.2f", **this**.balance);

System.***out***.println("");

}

//Create the withdrawal method

**public** **void** withdrawal(**double** withdrawalamt)

{

//Check to see if the balance drops below 50 dollars with the withdrawal

**if**(**this**.balance - withdrawalamt >= 50)

{

//Take the withdrawal amount out of the bank account if it will keep your account above 50

**this**.balance -= withdrawalamt;

//Display the balance following the withdrawal

System.***out***.printf("Balance after Withdrawal: $%,.2f", **this**.balance);

System.***out***.println("");

}

//If it will take your balance below 50 dollars than tell the user that it cannot be done

**else**

{

**throw** **new** IllegalArgumentException("This withdrawal cannot happen because it will take your balance below $50");

}

}

//Create a method called firstBalance that will give the user the balance prior to any interest

**public** **double** firstBalance()

{

//Return the balance back to the user

**return** balance;

}

//Declare a new method called monthlyInterest

**public** **void** monthlyInterest(**int** i)

{

//Calculate the new balance using the interest rate

**this**.balance += **this**.balance \* (*annualInterestRate* / 12.0);

}

//Declare a method called changeMonthlyInterest

**public** **static** **void** changeMonthlyInterest(**double** interestrate)

{

//Change the interest rate to whatever is coded in AccountHolderTest.java

*annualInterestRate* = interestrate;

}

//Declare a new method, getBalance

**public** **double** getBalance()

{

//Get the final balance to give back to the user

**return** **this**.balance;

}

}

**AccountHolderTest.java**

/\*

\* Cheryl Gardner

\* Lab 1

\* 09/21/2020

\* AccountHolderTest.java

\* The goal of this program is to write code that will ask the user for all of the information

\* and then use the information given to calculate values and display them back to the user

\*/

//Import the scanner tool to be able to get the input from the user

**import** java.util.Scanner;

//Declare a new class called AccountHolderTest

**public** **class** AccountHolderTest {

//Declare the main method

**public** **static** **void** main(String[] args) {

//Declare the local variables that will be used throughout the program

**double** interestrate,depositamt,withdrawalamt,startBalance = 0;

//Declare a new scanner system to keep track of the values

Scanner scanner1 = **new** Scanner(System.***in***);

//Hardcode the 4% interest rate and then send that interest rate to AccountHolder.java

interestrate = 0.04;

AccountHolder.*changeMonthlyInterest*(interestrate);

//Have the user enter their initial balance into the program

System.***out***.print("Enter your account's starting balance: $");

startBalance = scanner1.nextDouble();

//Store that value in a new AccountHolder

AccountHolder holder = **new** AccountHolder(startBalance);

//Display the starting balance to the user

System.***out***.println("Your starting balance is: $" + startBalance);

//Ask the user how much they want to deposit into their account

System.***out***.print("\nHow much would you like to deposit into your account? $");

depositamt = scanner1.nextDouble();

//Store the value in the AccountHolder

holder.deposit(depositamt);

//Ask the user how much they want to withdrawal

System.***out***.print("\nHow much would you like to withdrawal from your account?: $");

withdrawalamt = scanner1.nextDouble();

//Store the withdrawal amount into the AccountHolder

holder.withdrawal(withdrawalamt);

//Print the balance before interest rate

System.***out***.printf("\nYour bank balance before the interest is: $%,.2f\n", holder.firstBalance());

//Print the balances with the interest rate for 12 months

System.***out***.println("Below are your balances with interest rate for the next year");

//Display the starting balance

System.***out***.printf("\nStarting Balance: $%,.2f\n", holder.firstBalance());

//Have a loop that will go through all 12 months and then stop after Month 12

**for** (**int** i = 1; i<=12;){

//Call the montly Interest method

holder.monthlyInterest(i);

//Print the balance for that month

System.***out***.print("");

System.***out***.printf("Month "+i+ ": $%,.2f\n", holder.getBalance());

//Add one to the i value

i++;

}

}

}