Christopher Bussen

CPS 150 – Algorithms and Programming 1

Lab 4

9/3/20

**Running Program 1 Screenshot**

A screenshot of a computer

Description automatically generated

**Program 1 Code**

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Christopher Bussen

CPS 150 02

Lab 4

MathFunctions: number number; number number number number

program takes in two numbers from user and calculates and outputs the sum,

difference, product, and quotient of the two numbers

ex1: user inputs 1, 2 - program outputs 3, 1, 2, 0

ex2: user inputs 3, -1 - program outputs -2, 4, -3, -3

ex3: user inputs 4.2, 9 - program outputs error

ex4: user inputs 128, x - program outputs error

ex5: user inputs -10, -5 - program outputs -15, -5, 50, 2

NOTE: if first number is smaller than second, quotient will be 0 since ints are being used

\*/

import java.util.Scanner;

public class MathFunctions {

public static void main(String [] args){

//Import scanner

Scanner input = new Scanner(System.in);

//declare two int variables to store the values of the user input

int firstNumber;

int secondNumber;

//prompt user to enter values for variables and assign the inputs to their respective variables

System.out.print("Enter an integer: ");

firstNumber = input.nextInt();

System.out.print("Enter another integer: ");

secondNumber = input.nextInt();

//declare output int variables for sum, difference, product, and quotient

int sum = firstNumber + secondNumber;

int difference = firstNumber - secondNumber;

int product = firstNumber \* secondNumber;

int quotient = firstNumber / secondNumber;

//print the sum, difference, product, and quotient

System.out.println("The sum is: " + sum);

System.out.println("The difference is: " + difference);

System.out.println("The product is: " + product);

System.out.println("The quotient is: " + quotient);

}

}

**Running Program 2 Screenshot**

**A screenshot of a cell phone

Description automatically generated**

**Program 2 Code**

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CPS 150 02

Lab 4

TempConverter: number; number

program takes in the temperature in degrees Celsius from the user and

calculates and outputs the temperature in degrees Fahrenheit

Fahrenheit = (9/5)(Celsius)+32

ex1: user inputs 0 - program outputs 32

ex2: user inputs 8.2 - program outputs 46.76

ex3: user inputs -12 - program outputs 10.4

ex4: user inputs x - program outputs error

ex5: user inputs -22 - program outputs -7.6

\*/

import java.util.Scanner;

public class TempConverter {

public static void main(String [] args){

//Import scanner

Scanner input = new Scanner(System.in);

//prompt the user to input a value for the temperature in degrees Celsius

System.out.print("Enter the temperature (in degrees Celsius): ");

//declare double variable to store the degrees Celsius input by user

double celsius = input.nextDouble();

//declare double variable for Fahrenheit that calculates temperature using the equation

double fahrenheit = (9 \* celsius) / 5 + 32;

//print the new converted temperature in degrees Fahrenheit

System.out.println("The temperature is " + fahrenheit + " degrees Fahrenheit");

}

}

**Running Program 3 Screenshot**

**A screenshot of a computer

Description automatically generated**

**Program 3 Code**

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Christopher Bussen

CPS 150 02

Lab 4

Bookstore: number number; number

program takes in the total price of the books and number of books - then

calculates tax and shipping fees and adds them to the price of the books

to output the total price of the order

ex1: user inputs 2, 100 - program outputs

ex2: user inputs 8, 158.6 - program outputs

ex3: user inputs 6.5, 55 - program outputs error

ex4: user inputs x, 128 - program outputs error

\*/

import java.util.Scanner;

public class Bookstore {

public static void main(String [] args){

//Import scanner

Scanner input = new Scanner(System.in);

//prompt the user to enter the number of books they ordered

System.out.print("How many books did you order: ");

//declare an int variable to store the number of books in the order

int books = input.nextInt();

//prompt the user to enter the total price of the books

System.out.print("How much did the books cost: $");

//declare a double variable to store the price of the books

double bookPrice = input.nextDouble();

//declare a double variable to calculate and store the value of sales tax - 7.5%

double tax = bookPrice \* 0.075;

//declare a double variable to calculate the cost of shipping - $2/book

double shipping = books \* 2;

//declare variable to add up and store the total price - book price + tax + shipping

double totalPrice = bookPrice + tax + shipping;

//print the total price of the order

System.out.println("Your total order price is $" + totalPrice);

}

}

**Running Program 4**

**A screenshot of a computer

Description automatically generated**

**A screenshot of a cell phone

Description automatically generated**

**Program 4 Code**

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Christopher Bussen

CPS 150 02

Lab 4

DollarsCents: number; number number

program takes in a total price from the user and separately outputs

the amount of dollars and the amount of cents

ex1: user inputs 2.39 - program outputs 2, 39

ex2: user inputs 8.00 - program outputs 8, 0

ex3: user inputs - 64.89 - program outputs 64, 89

ex4: user inputs x - program outputs error

ex5: user inputs -22.40 - program outputs -22, -39 - negatives will be one cent off because of the

+0.5 when creating cents variable

\*/

import java.util.Scanner;

public class DollarsCents {

public static void main(String [] args){

//Import scanner

Scanner input = new Scanner(System.in);

//prompt the user to enter a price

System.out.print("Enter a price: $");

//declare a float variable (as specified in pseudocode) to store the price the user inputs

float price = input.nextFloat();

//declare an int variable and assign the price to it (output)

int dollars = (int) price;

//declare an int variable for cents (output) - multiply price - dollars by 100, add 0.5, and assign this value to the variable

int cents = (int) ((price - dollars) \* 100 + 0.5);

//print the amount of dollars

System.out.println("There are " + dollars + " dollars");

//print the amount of cents

System.out.println("There are " + cents + " cents");

}

}