Christopher Bussen

CPS 150 02 – Algorithms and Programming 1

Lab 10

10/13/20

**Problem 1 Flowcharts**

Diagram

Description automatically generated

Diagram

Description automatically generated

**Problem 2 Algorithm**

1. Start the program
2. Import the scanner
3. Prompt the user to enter four numbers
4. Declare four double variables and assign each of them one of the four values the input by the user
5. Create a separate method that will be used to find the maximum of the four numbers – will take in four doubles and be called in the main method
6. Declare a double variable for maximum
7. Use nested if statements for each number to determine which of the four is the maximum – once determined, assign variable maximum the maximum value
8. Print out the maximum
9. End the maximum method
10. Create a separate method that will be used to find the minimum of the four numbers – will take in four doubles and be called in the main method
11. Declare a double variable for minimum
12. Use nested if statements for each number to determine which of the four is the minimum – once determined, assign variable minimum the minimum value
13. Print out the minimum
14. End the minimum method
15. Call both the maximum and minimum methods in the main method using the user’s four numbers as the inputs
16. End the main method
17. End the program

**Problem 2 Running Screenshot**

**Graphical user interface, text

Description automatically generated**

**Problem 2 Code**

/\*

Christopher Bussen

CPS 150 02

Lab 10

MaximumAndMinimumNestedIf: number number number number; number number

program takes in a 4 different numbers from the user and determines and

prints both the maximum and the minimum

ex1: user inputs 5000, 0, 2000, 300 - program outputs 5000.0, 0.0

ex2: user inputs 60, 90, -3.67, 100.223 - program outputs 100.223, -3.67

ex3: user inputs 11.5, 3, 11.5, 8 - program outputs 11.5, 3.0

ex4: user inputs dog, cat, mouse, red - program outputs error

ex5: user inputs -6357, 81, 80.9, 81 - program outputs 81.0, -6357.0

\*/

import java.util.Scanner;

public class MaximumAndMinimumNestedIf {

public static void main(String [] args){

//import scanner

Scanner input = new Scanner (System.in);

//prompt user to enter 4 numbers and declare double variables for each of them

System.out.print("Please enter 4 numbers (separate with a space): ");

double num1 = input.nextDouble();

double num2 = input.nextDouble();

double num3 = input.nextDouble();

double num4 = input.nextDouble();

//call maximum and minimum methods

maximum(num1, num2, num3, num4);

minimum(num1, num2, num3, num4);

}

public static void maximum(double a, double b, double c, double d){

double maximum = 0;

//use nested if statements for each number to see if it is the maximum

if(a >= b){

if(a >= c){

if(a >= d){

maximum = a;

}

else{

maximum = d;

}

}

}

if(b >= a){

if(b >= c){

if(b >= d){

maximum = b;

}

else{

maximum = d;

}

}

}

if(c >= a){

if(c >= b){

if(c >= d){

maximum = c;

}

else{

maximum = d;

}

}

}

//print out the maximum

System.out.println("The maximum is " + maximum);

}

public static void minimum(double a, double b, double c, double d){

double minimum = 0;

//use nested if statements for each number to see if it is the minimum

if(a <= b){

if(a <= c){

if(a <= d){

minimum = a;

}

else{

minimum = d;

}

}

}

if(b <= a){

if(b <= c){

if(b <= d){

minimum = b;

}

else{

minimum = d;

}

}

}

if(c <= a){

if(c <= b){

if(c <= d){

minimum = c;

}

else{

minimum = d;

}

}

}

//print out the maximum

System.out.println("The minimum is " + minimum);

}

}