**Computer Science 111**

Computer Science with Java I Fall, 2016

Lab Report – Week 4 - Looping assignment

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**Assignment Analysis and Design**

This assignment was dealing with creating a basic looping program. The Only real necessary input from the user was the name of the City and the starting temperature in Celsius. The output which is the temperature in Celsius and Fahrenheit, is formatted in a table using the System.out.printf method. A range of 40 degrees from the starting input value for Celsius is displayed.

Below is my original Pseudocode that I used as a guide for this project. Please note that I made considerable changes from my original pseudocode to my actual code, as I ran in to issues.

/\*celsius fahrenheit table loop

\*Console I/O dialog for creating celsius to fahrenhiet temperature table

\*for CSCI 111

\*last edited september 28th 9:46pm

\*/

//public class celsius calculator

// public main method

// Declare variables

// string cityname

// double/ int temp in celsius

// double/ int temp in fahrenheit

// parse int/ double if needed

//ask input for name of city

// set starting temp at celsius 0

// calculate celsius to fahrenheit

//if neeeded a bit of code to make sure temp only prints out to the 100th decimal place

// while celsius is <= 40 do loop that prints out temp in C and F until and adds one degree until

//40 degrees have been printed

//end loop

// end main method



**Assignment Code**

/\*celsius fahrenheit table loop

\*Console I/O dialog for creating celsius to fahrenhiet temperature table

\*for CSCI 111

\*last edited october 3rd 11:05am

@author Abraham Schultz

\*/

package looping.project;

import java.util.Scanner;

public class LoopingProject {

/\*\*

\* @param args the command line arguments Method for displaying temperature

\* table of Celsius and Fahrenheit

\*/

public static void main(String[] args) {

// public main method

// Declare variables

String CityName;// cityname

double CelsiusTemp;// temp in celsius

double FahrenheitTemp;// temp in fahrenheit

Scanner keyboard = new Scanner(System.in);// set up input stream from the keyboard

System.out.print("Please enter a city name : ");

CityName = keyboard.next();

//ask input for name of city

System.out.print("Please enter temperature in Celsius : ");

CelsiusTemp = keyboard.nextInt();

// ask for input of temp in celsius

double Maxtemp = CelsiusTemp + 40;// declare variable for max temp to print out

System.out.printf("%12s%13s%12s%n", "Temperature:", "Celsius\u00b0 ", "Fahrenheit \u00b0");

// print out table header

while (CelsiusTemp <= Maxtemp) // continue while temp in celsius <= Maxtemp

{

FahrenheitTemp = CelsiusTemp \* (9.0 / 5.0) + 32.0;

// calculate celsius to fahrenheit

System.out.printf("%20.0f%1s%12.1f%1s%n", CelsiusTemp, "\u00b0", FahrenheitTemp, "\u00b0");

//print out celsius and fahrenheit in table format

CelsiusTemp++; // increment +1 celsius

}

//end loop

// end main method

}

}

**Assignment Testing**

At first I initialized The variable CelsiusTemp as 0 and tried to just get the range of temperature from 0-40 to print out in a table. This I did this easily. When I changed the value of Celsius to whatever the user input, I started to encounter a bug where the loop would not end. I used the Debugging features of NetBeans to run my code line by line, I realized eventually that I needed an extra value to use in my Boolean condition in my while statement. After putting the new variable MaxTemp in my code I ran the program again. I then discovered that I needed to place it after Celsius had already been initialized. After testing a range of arbitrary values entered as input for CelsiusTemp I am satisfied that the code runs as intended.



**Assignment Evaluation**

At first I used pseudocode that set the value of Celsius to 0. But while creating my program I realized that I had made a number of errors in my pseudocode. First I would need to create a range of 40 no matter what the starting point of Celsius. Also I would need to create a value that represents the maximum temperature to display. The former presented the biggest challenge to me. I kept on testing my code and it would run on an infinite loop when entering in an arbitrary value for Celsius. Creating the table was easy with the Printf method. The majority of my time was spent trying to figure out how to end my loop. I used a variable called MaxTemp to accomplish this and placed it before the while statement and after CelsiusTemp variable had been initialized