**CEIS 420 Week 2 Homework**

**Name:**

**Question 1**

Structured programming promotes simplicity. Only three forms of control are needed to implement an algorithm:

* Sequence
* Selection
* Repetition

The sequence structure is trivial. Simply list the statements to execute in the order in which they should execute.

Selection is implemented in one of three ways:

* if statement (single selection)
* if…else statement (double selection)
* switch statement (multiple selection)

In fact, it’s straightforward to prove that the simple if statement is sufficient to provide any form of selection—everything that can be done with the if…else statement and the switch statement can be implemented by combining if statements (although perhaps not as clearly and efficiently).

Repetition is implemented in one of three ways:

* while statement
* do…while statement
* for statement

Write a program using **any programming language of your choice ( from C#/C++/Java)** to display the following shape using loops. These shapes will be displayed vertically not side by side. You can only output one asterisk/space/line at a time.

Graphical user interface, text

Description automatically generated

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\* Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license

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\*/

package ceis420\_week2\_hw\_norment\_xavier;

import java.util.Scanner;

/\*\*

\*

\* @author Xavier Norment

\* @class CEIS420

\*/

public class CEIS420\_Week2\_HW\_Norment\_Xavier {

/\*\*

\* @param args the command line arguments

\*/

public static void main(String[] args) {

/\*

will use multiple functions that pass a bool to create the images needed

one for including leading spaces and one for none, then the bool will be responsible for ascending or decending

\*/

while(true){

Scanner scannedInput = new Scanner(System.in);

System.out.println("Please select the image to print(1-4)");

String userInput = scannedInput.nextLine();

switch (userInput){

case "1": whiteSpaceLeading(true);break;

case "2": whiteSpaceLeading(false);break;

case "3": nonWhiteSpaceLeading(true);break;

case "4": nonWhiteSpaceLeading(false);break;

default: System.exit(0);

}

}

// whiteSpaceLeading(true);

// System.out.println();

// whiteSpaceLeading(false);

// System.out.println();

// nonWhiteSpaceLeading(true);

// System.out.println();

// nonWhiteSpaceLeading(false);

}

public static void whiteSpaceLeading(boolean ascending){

if(ascending){

for(int x=0;x<10;x++){

String toPrint = "\*".repeat(x+1);

System.out.println(String.format("%10s", toPrint));

}

}

else{

for(int x=11;x>0;x--){

String toPrint = "\*".repeat(x-1);

System.out.println(String.format("%10s", toPrint));

}

}

}

public static void nonWhiteSpaceLeading(boolean ascending){

if(ascending){

for(int x=0;x<10;x++){

String toPrint = "\*".repeat(x+1);

System.out.println(toPrint);

}

}

else{

for(int x=11;x>0;x--){

String toPrint = "\*".repeat(x-1);

System.out.println(toPrint);

}

}

}

}

Output:

A screenshot of a computer

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