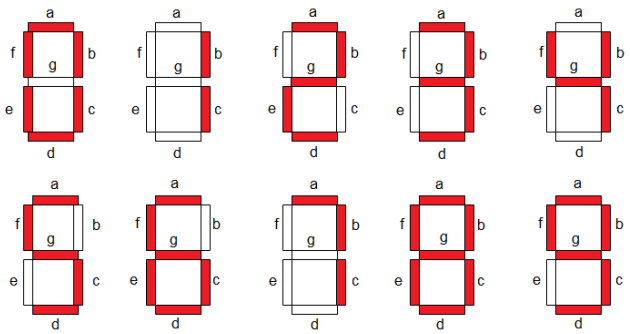
COP-2250 Java Programming

Programming Assignment 2

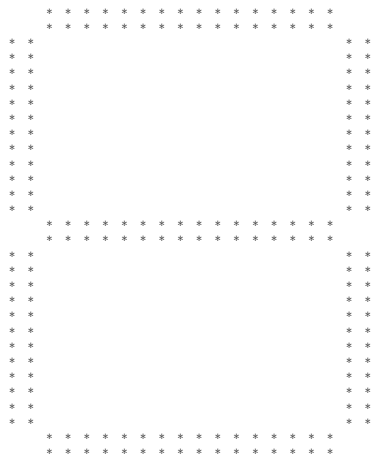
FIU Knight Foundation School of Computing & Information Sciences

1 Problem Specification

For this programming assignment, you will implement of a java program for printing digits 0, 1, 2, . . . , 9 on console using three horizontal segments (a, g, and d) and four vertical segments (f, b, e, and c) as depicted in the following figure:



To draw each horizontal segment, you need to print two rows of asterisks and to draw each vertical segment, you need to print two columns of asterisks. The length of horizontal and vertical segments will be given by the user of the program. Here is an example of displaying digit '8' using seven segments made of asterisks:



In this example, the length of each horizontal segment is 16 asterisks and the length of each vertical segment is 12 asterisks.

2 Program Input

The program starts by displaying the following message:

> "Welcome to my 7-segment display!
>
> Please enter the length of horizontal segments (from 3 to 40): "

After the user enters the length of horizontal segments using keyboard, your program will check the entered length. If the length is less than 3 or greater than 40, the program must print a message stating that the length is not acceptable and the user must try entering the length again. When user enters an acceptable length for the horizontal segments, then, the program prints out the following message on screen:

> "Now, enter the length of vertical segments (from 3 to 40): "

After the user enters the length of vertical segments using keyboard, your program will check the entered length. If the length is less than 3 or greater than 40, the program must print a message stating that the length is not acceptable and the user must try entering the length again. Also, if the length of vertical segment is greater than twice the length of horizontal segment or less than half of the length of horizontal segment, the program must print a message stating that the length is not acceptable and the user must try entering the length again. When user enters an acceptable length for the vertical segments, then, the program prints out the following message on screen:

> "Enter a digit: "

After the user enters the digit, the program checks to see if the user input is a single digit. If the user input is not a single digit, the program must print out a message stating that the user input is not acceptable and the user must try entering the digit again. When user enters an acceptable input (a single digit), the program prints out the seven-segment representation of that digit. Then, the program repeats this process (printing the message "Enter a digit: " and printing out its seven-segment representation) indefinitely.

3 Submissions

You need to submit a single file named "SevenSegmentDisplay.java".

4 Grading Criteria

- Code readability: 5%
- Using comments to explain every line of the program: 5%
- Correctness of Java syntax (no compilation error): 5%
- Proper scan of System.in: 5%

- Proper error checking of user input: 25%
- Proper usage of variables: 10%
- Proper print of digits on screen: 45%