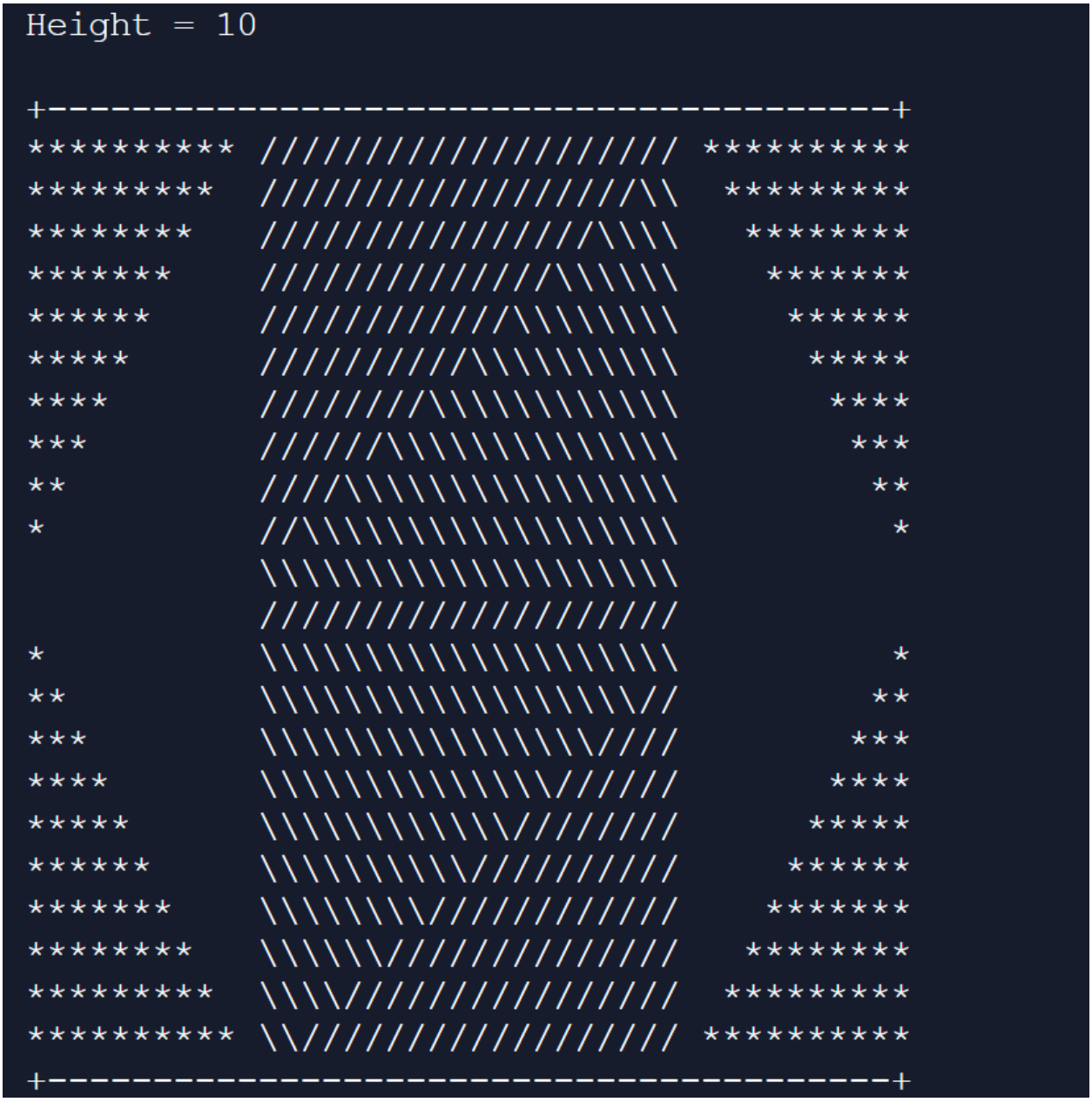
Lab 2:

Points: 100

Goals: The purpose of this lab is

1. to gain mastery over simple modular design and learn to define and call methods that have no parameters.
2. to use a software engineering approach and separate the method definition and method calls in two separate files
3. to learn the FOR loop (and nested for loops) repetition structure
4. to introduce local and global scope of variables
5. to define a global constant and use it as a scale factor in drawing a figure.
6. reflect and understand that modular design is necessary for analyzing, maintaining and reusing code.

Use modular design to write a program that draws a figure that looks the following:


Height = 10

Directions:

Analyze the output figure given to you. It consists of several parts. There are two lines that form the upper and lower boundary of the figure. There are two lines of slashes (one forward and one backward) that separate two regions called star slash regions. The two star slash regions appear to be mirror images of each other. Each has a line consisting of stars on sides with slashes in the middle. Note the change in the number of stars on each line, and also the change in the ratio of forward and back slashes on each line. Use a constant called HEIGHT to define the height of each star slash region.

The sample output in the accompanying text file has HEIGHT = 10 HEIGHT = 5;

- Create the calculation tables that are required for your loops.
- Write a program to draw this figure.
- Your program must be able to scale the figure up or down by simply changing the value of HEIGHT.
- Draw the figure for HEIGHT = 5 and HEIGHT = 10.
- Submit a screen shot of your output and your code files in the Lab 2 submission box.

Program Design:

Your program should be designed in a modular way

Your program should consist of two files: *Main.java* and *StarSlashFigure.java*

The methods file *StartSlashFigure.java* contains the class called *StarSlashFigure* which defines the following methods:

drawLine()

drawUpperPart()

drawLowerPart()

drawForwardSlashLine()

drawBackwardsSlashLine()

drawStarSlashFigure()

The file *Main.java* contains the driver class called *Main* and calls the method *drawStarSlashFigure().*This method calls *drawUpperPart()* and *drawLowerPart()* to draw the complete figure.

What is the structure chart for this program? What is the flow (execution) chart?

Draw the output figure by **running the program twice**. Once for HEIGHT=10 and then change the HEIGHT to 5 to draw a second time.

Documentation: Make sure your source file has a header comment box and line comments for each method call and method definition. Use meaningful names for variables and methods where applicable and indent your program using the recommended style.