CMPE 150 Introduction to Computing **CMPE150.07**

Fall 2018 – Assignment 1 **01.11.2018**

Project Report

Problem Description

In the project a java program must be written of which output is a straw inside a martini glass which is full to its brim. The glass should be printed a certain number of times. In each iteration, the liquid inside the glass is lessened and more of the straw is seen. The position of the straw is constant in every repetition. The method stops printing when the straw touches the wall of the glass.

There must be at least two parameters, which are *glassSize* (determines the size of the glass) and *strawPos* (determines position of the straw) and for loops must be used.

Problem Solution

I created three methods. The first method (*spaces*) consists of a for loop which is used to print intended number of spaces. The second method (*strawOut*) consists of a for loop which creates the vertical lines; and utilizes the *spaces* method by printing needed number of spaces.

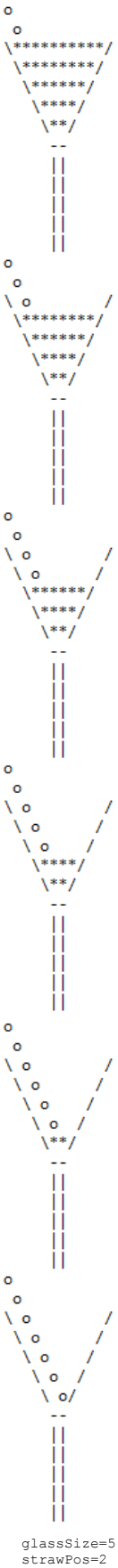
In the third method (*glass*), the outer shell and the stem of the glass is created. Firstly, I created a for loop that has the variable *step* to print the exact number of glasses as the liquid inside it lessens until the straw touches the wall of the glass. After that I implemented *strawOut* method to print the outer part of the straw. Then I created a for loop which has the variable *level* that creates the vertical lines of the glass. After I created the walls of the glass, I created an if statement that uses *step* and *level* variables. If step is equal to or bigger than *level* the straw is printed, if not liquid is printed. In other words, if enough time is passed that the liquid is lessened to the level, the level is printed empty of liquid. After that the stem of the glass is printed by printing one line of "- -" and intended lines (which is equal to *glassSize*) of "| |".

Implementation

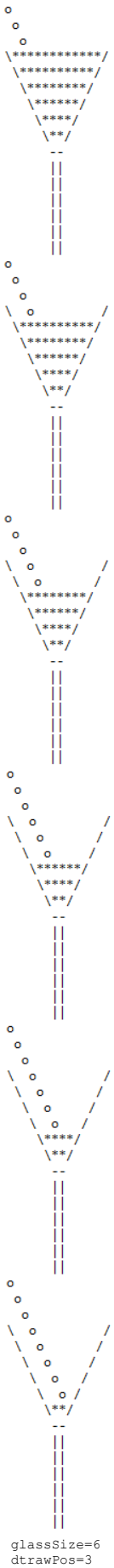
```
public class ENA2018400312 {
	public static void main(String args[]) {

		int glassSize = Integer.parseInt(args[0]);
		int strawPos = Integer.parseInt(args[1]);

		glass(glassSize, strawPos);

	}

	/*
	 * I created a method which prints as many spaces as I want. That way, I won't
	 * need to write many for loops to print spaces in other methods.
	 */
	public static void spaces(int spc) {
		for (int i = 1; i <= spc; i++) // spc is the count of the spaces I want printed
			System.out.print(" ");
	}

	/*
	 * This method prints the outside part of the straw according to the position
	 * determined by strawPos. It leaves a space which increases by one every line.
	 * Then it prints an "o".
	 */
	public static void strawOut(int strawPos) {
		for (int level = 1; level <= strawPos; level++) { // 'level' is the level of the straw
outside of the glass
			spaces(level - 1);
```

```
                        System.out.println("o");
                }
        }

        /*
         * The method below prints the glass and the inside of it. The variable 'step'
         * determines how many times the output (i.e. the glass) is going to be
         * produced.
         */
        public static void glass(int glassSize, int strawPos) {
                for (int step = 0; step <= glassSize - (strawPos + 1) / 2 + 1; step++) { //step is the
stage of fullness of the glass
                        strawOut(strawPos);

                        /*
                         * Below, firstly the outer part of the straw is printed. Then the rules for the
                         * upper part of the glass is created. The variable 'level' determines how many
                         * lines are going to be printed. The if statement determines whether that level
                         * of glass is full with liquid or empty. If empty, the right combination of
                         * spaces and "o" letter and spaces again will be printed. If full, the right
                         * amount of liquid will be printed with the else statement.
                         */

                        for (int level = 1; level <= glassSize; level++) { // 'level' is the level of the
glass starting from the brim

                                spaces(level - 1);
                                System.out.print("\\");
                                if (step >= level) {
                                        spaces(strawPos - 1);
                                        System.out.print("o");
                                        spaces(2 * (glassSize - level + 1) - strawPos);
                                } else
                                        for (int i = 1; i <= glassSize - level + 1; i++) //"*" is printed i
times, which changes every level according to glassSize and level
                                                System.out.print("**");

                                System.out.println("/");

                        }
                        /*
                         * These couple of lines of code at the bottom prints the stem of the glass. It
                         * leaves as many spaces as glassSize every line, then prints "--" one time,
                         * then prints "||" as many times as glassSize.
                         */
                        spaces(glassSize);
                        System.out.println("--");
                        for (int level = 1; level <= glassSize; level++) { //'level' is the level of the
stem of the glass
                                spaces(glassSize);
                                System.out.println("||");
                        }
                }
        }
}
```

- **Output of the Program**



```
glassSize=5
strawPos=2
```



```
glassSize=6
dtrawPos=3
```

- **Conclusion**

As seen from the output, the program prints the intended output correctly in every possible situation.