COMP1130 Loops and Conditionals

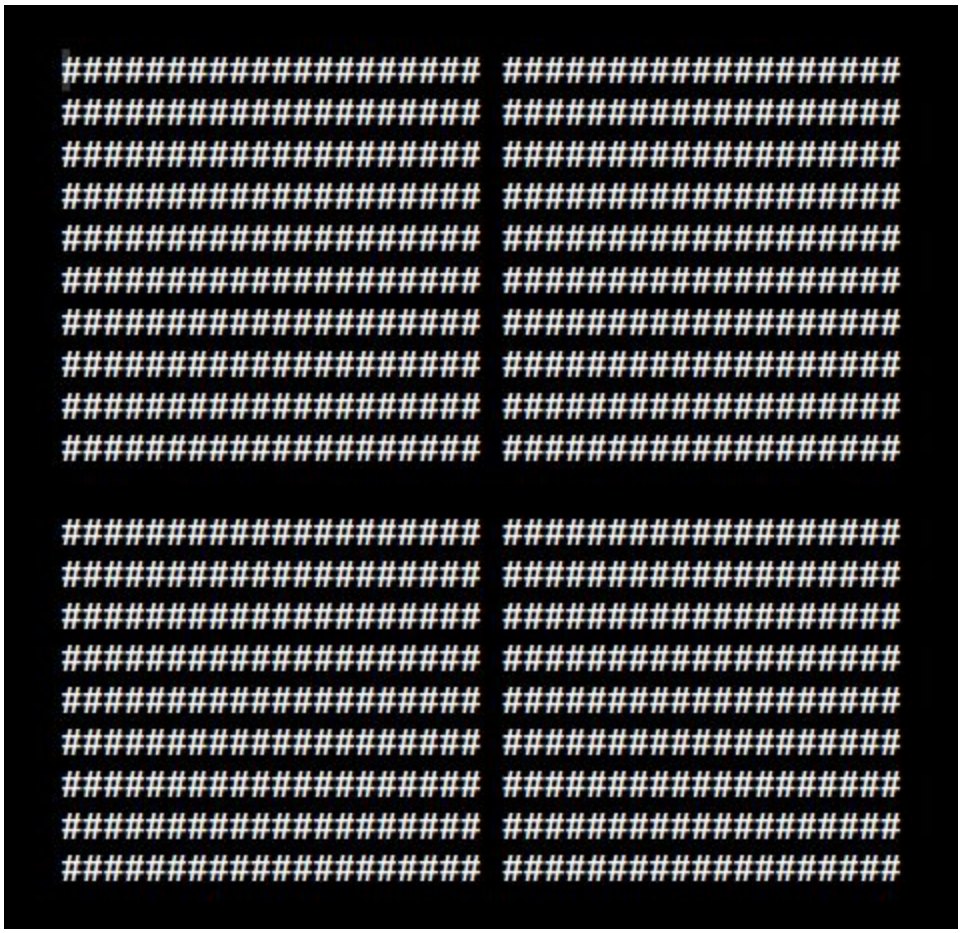
In this team assignment we will practice more with nested loops and program logic. We will also try making a class and setting it's instance variables.

Submission

Create a github repository for this set of exercises. Make sure everyone in your team has access to it and can contribute to the repository. Meet with your team and work together to solve these problems and update your repository as you solve each problem. Switch to a different team member for each exercise. Once finished, submit the link to your GitHub repository to Moodle as a group (one group member submits for everyone).

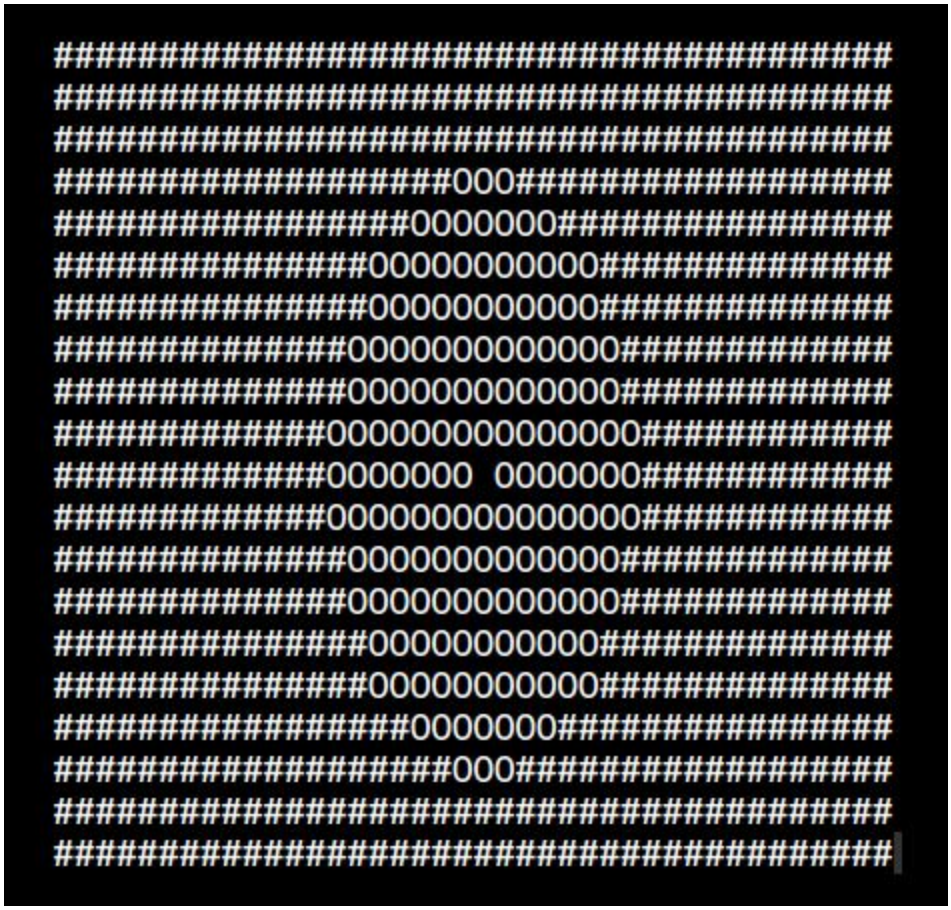
The Plus Block

Write a program that takes two integers (width and height) as input and prints a block that looks like the following



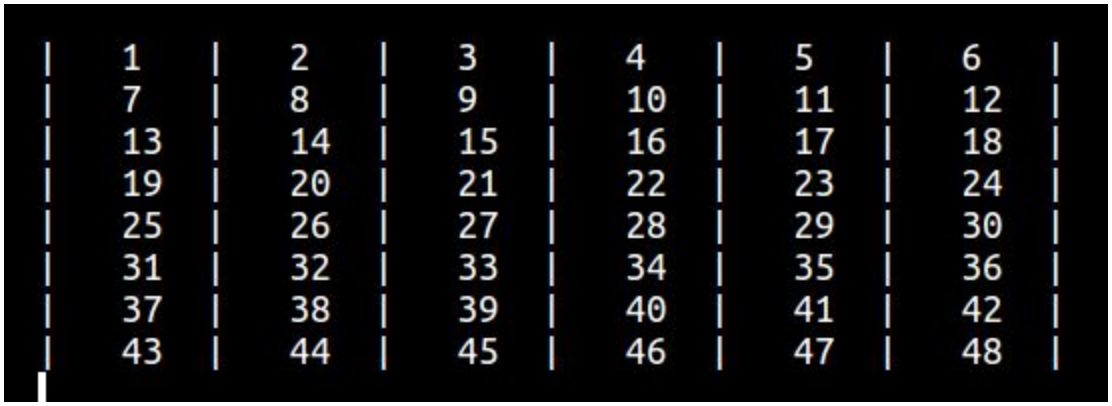
The Circle Center

Modify the above program so it prints the following output



Number Table

Create a Java class called Table that has two properties: width and height. It also has a method called getNumbers() that will return the following string already formatted as a table:



Note: you will need to create another class with a main method that will instantiate a Table object and call getNumbers() on it. You can then print the String into standard output as usual to produce the above result.

Word Game

Write a program that chooses a random letter of the alphabet and asks the user to enter a word starting with that letter. The program then gives a score to the user based on the following rules:

- If the first letter of the word provided does not match the input then the user gets 0 for score
- Otherwise, the base score is the sum of the character values when they are converted to int
- If all the letters of the word are in ascending order (fore example ACE) then the base score is multiplied by 3
- Print out users score for that word
- Ask the user to enter Y if they want to continue playing, otherwise exit the program`

Random Pattern Filler

- If the previous square has a star in it, then there will be more chance of having another star, otherwise it is 50% chance

```
public class MyClass {
   private static final double LUCKY_RANGE = 0.55;
   private static final double RANGE = 1.0;
   private static final double MIDDLE = 0.5;

   public static void main(String args[]) {
      int x=20;
      double lastValue =  0.0;


      for (int i = 0; i <= x; i++) {
         for (int j = 0; j <= x; j++) {
            double newValue = 0.0;
            if (i == 0 || j == 0 || i == x || j == x) {
               newValue = 0;
            } else if (lastValue < MIDDLE) {
               newValue = Math.random() * LUCKY_RANGE;
            } else {
               newValue = Math.random() * RANGE;
            }

            if (newValue < MIDDLE) {
               System.out.print("*");
            } else {
               System.out.print(" ");
            }
            lastValue = newValue;
         }
         System.out.println();
      }
   }
}
```