Homework 2

1. **Problem 1**

Parameters	Values			
Number of input pairs	0	>=1 && <=4	>4	
Input value type	Valid Integers	Invalid Integers (non-positve)	Invalid Non-comma-separated Integers	Invalid Non-Integers
Max digit size for any input integer	0	>=1 && <=3	>3	
Input pattern type	All patterns overlap	Some patterns overlap	No patterns overlap	

2. **Problem 2**
   a. When deciding on which partitions to use, the first step would be to eliminate any partitions that wouldn't logically work as inputs into the system (described below in section 2.c). The next step would be utilizing boundary value analysis to determine which parameters would lead to testing not only happy path scenarios (all valid non-discarded patterns), but also edge cases. This would include, for example, testing inputs where the "number of input patterns" is between 1 and 4 as well as slightly less than 1 or slightly greater than 4.
   b. Possible test conditions/cases
      i. <u>Test condition</u>: Number of input pairs is between 1 and 4, input value types are valid integers, max digit size is between 1 and 3, and input pattern type results in a valid overlap.
         <u>Test Input</u>: 4,2   10,7   22,3
         <u>Test Output</u>: 4,2   10,14   52,42

      ii. <u>Test condition</u>: Number of input pairs is between 1 and 4, input value types are valid integers, max digit size is between 1 and 3, and input pattern types results in at least 1 invalid non-overlapping pattern.
         <u>Test Input</u>: 4,2. 7,2
         <u>Test Output</u>: 4,2
         <u>Error Message</u>: No overlap found for pattern: 7,2, thus it is being discarded.

    c. Any partition that includes the value "0" for the "Max digit size for any integer", since a digit size of 0 essentially just means that there was no input.

    Any partition that includes the combination of the value "0" for "number of input pairs", since if there's no input, then there's no input value type, integer size, or pattern)

3. Problem 3

Condition	1-24	25-42	43-60	62-79	80-97	98-115	116-133
Number of input pairs	0	>4	-	-	-	-	-
Input value type	_	-	Invalid Integers	Invalid Non-comma-separated Integers	Invalid Non-Integers	-	-
Max digit size for any integer	_	_	-	-	-	0	>3
Input pattern type	_	_	-	-	-	-	-
Output							
Error Message	X	X	X	X	X	X	X
1 Output pattern							
2 Output patterns							

Condition	134	135	136
Number of input pairs	1 or 2	1 or 2	1 or 2
Input value type	Valid Integers	Valid Integers	Valid Integers
Max digit size for any integer	>=1 && <=3	>=1 && <=3	>=1 && <=3

Input pattern type	All patterns overlap	1 pattern overlaps	No patterns overlap
Output			
Error Message		X	X
1 Output pattern		X	X
2 Output patterns	X		

1. <u>Test condition</u>: Number of input pairs is 0
   <u>Test Input</u>:
   <u>Test Output</u>: Error message: No inputs given

2. <u>Test condition</u>: Number of input pairs is > 2
   <u>Test Input</u>:
   <u>Test Output</u>: Error message: Too many input pairs given

3. <u>Test condition</u>: Invalid integer given (non-positive)
   <u>Test Input</u>: 2,3   -5,8
   <u>Test Output</u>: Error message: One or more of the inputs is not a positive integer

4. <u>Test condition</u>: Invalid non-comma-separated integers
   <u>Test Input</u>: 2,3   -5
   <u>Test Output</u>: Error message: Input patterns are not comma separated

5. <u>Test condition</u>: Invalid non-integer
   <u>Test Input</u>: 2,3   6,$
   <u>Test Output</u>: Error message: One or more of the inputs is not an integer

6. <u>Test condition</u>: Max digit size for any input integer is 0
   <u>Test Input</u>:
   <u>Test Output</u>: Error message: No inputs given

7. <u>Test condition</u>: Max digit size for any input integer is greater than 3
   <u>Test Input</u>: 2,3 4,6789
   <u>Test Output</u>: Error message: One or more of the inputs has more than 3 digits

8. <u>Test condition</u>: Number of input pairs is either 1 and 2, input value types are valid integers, max digit size is between 1 and 3, and all input patterns overlap
   <u>Test Input</u>: 2,3 4,2
   <u>Test Output</u>: Output: 2,3   8,6

9. <u>Test condition</u>: Number of input pairs is either 1 and 2, input value types are valid integers, max digit size is between 1 and 3, and one input pattern does not overlap
   <u>Test Input</u>: 2,3   4,6
   <u>Test Output</u>: Error message: No overlap found for pattern: 4,6
                  Output: 2,3

10. <u>Test condition</u>: Number of input pairs is either 1 and 2, input value types are valid integers, max digit size is between 1 and 3, and no input patterns overlap. (Interesting case, since the 1st pattern will always have an output because there is no pattern before it)
    <u>Test Input</u>: 2,3   4,6
    <u>Test Output</u>: Error message: No overlap found for pattern: 4,6
                   Output: 2,3