# Assignment 1 – Problem Solving

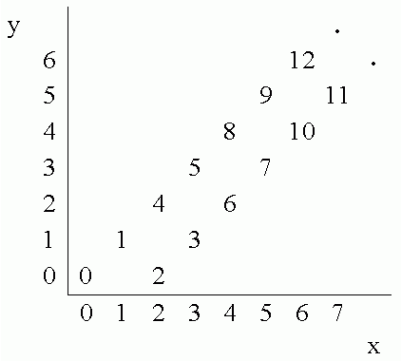
1. Write pseudocode to print the following pattern for given N = 4

```
            1
          2 3 2
        3 4 5 4 3
      4 5 6 7 6 5 4
```

2. Write pseudocode to print reverse of a number
3. Write pseudocode to print Nth Fibonacci, where 0 is 0th and 1 is 1st Fibonacci number
4. The captain of the ship TITANIC is a little off the track. He needs to select the crew for the ship. But everyone seems to be eligible. So to test their intelligence, he plays a game. The contestants have to stand in a line. They are given the numbers in the order in which they stand, starting from 1. The captain then removes all the contestants that are standing at an odd position.

   Initially, standing people have numbers - 1,2,3,4,5...
   After first pass, people left are - 2,4,...
   After second pass - 4,...
   And so on.

   You want to board the ship as a crew member. Given the total number of applicants for a position, find the best place to stand in the line so that you are selected.
5. Starting from point (0,0) on a plane, we have written all non-negative integers 0, 1, 2.. as shown in the figure. For example, 1, 2, and 3 has been written at points (1,1), (2,0), and (3, 1) respectively and this pattern has continued.



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You are to find out the coordinates of a point (x, y), and writes the number (if any) that has been written at that point. (x, y) coordinates in the input are in the range 0 to100000.

6. Take N (number of rows), write pseudo-code to print the following pattern (for N = 5)

```
        *
    *   *   *
*   *   *   *   *
    *   *   *
        *
```

7. Take N (number of rows), write pseudo-code to print the following pattern (for N = 5)

```
*   *   *       *   *   *
*   *               *   *
*                       *
*   *               *   *
*   *   *       *   *   *
```

8. Take N as input. Write pseudo-code to print all Fibonacci numbers less than N.
9. Take N as input. Write pseudo-code to print all prime numbers from 2 to N.
10. Write the pseudo-code to calculate GCD of two numbers.


CODING BLOCKS