(1) Generate squares of all the integers from 1 to 50.

(2) Count the number of characters in a string using a loop.

(3) Print a string in reverse.

(4) Find all the prime numbers below 50.

(5) Generate the patterns given below:

```
*                1                1 2 3 4 5
* *              2 1 2              2 3 4 5
* * * *          3 2 1 2 3            3 4 5
* * * * *      4 3 2 1 2 3 4            4 5
                                          5
```

(6) Print Armstrong numbers in the range 1 to 1000. An Armstrong number is a number whose sum of the cubes of the digits is equal to the number itself.
For example, $370 = 3^3+7^3+0^3$

7) implement the binary search using list and function